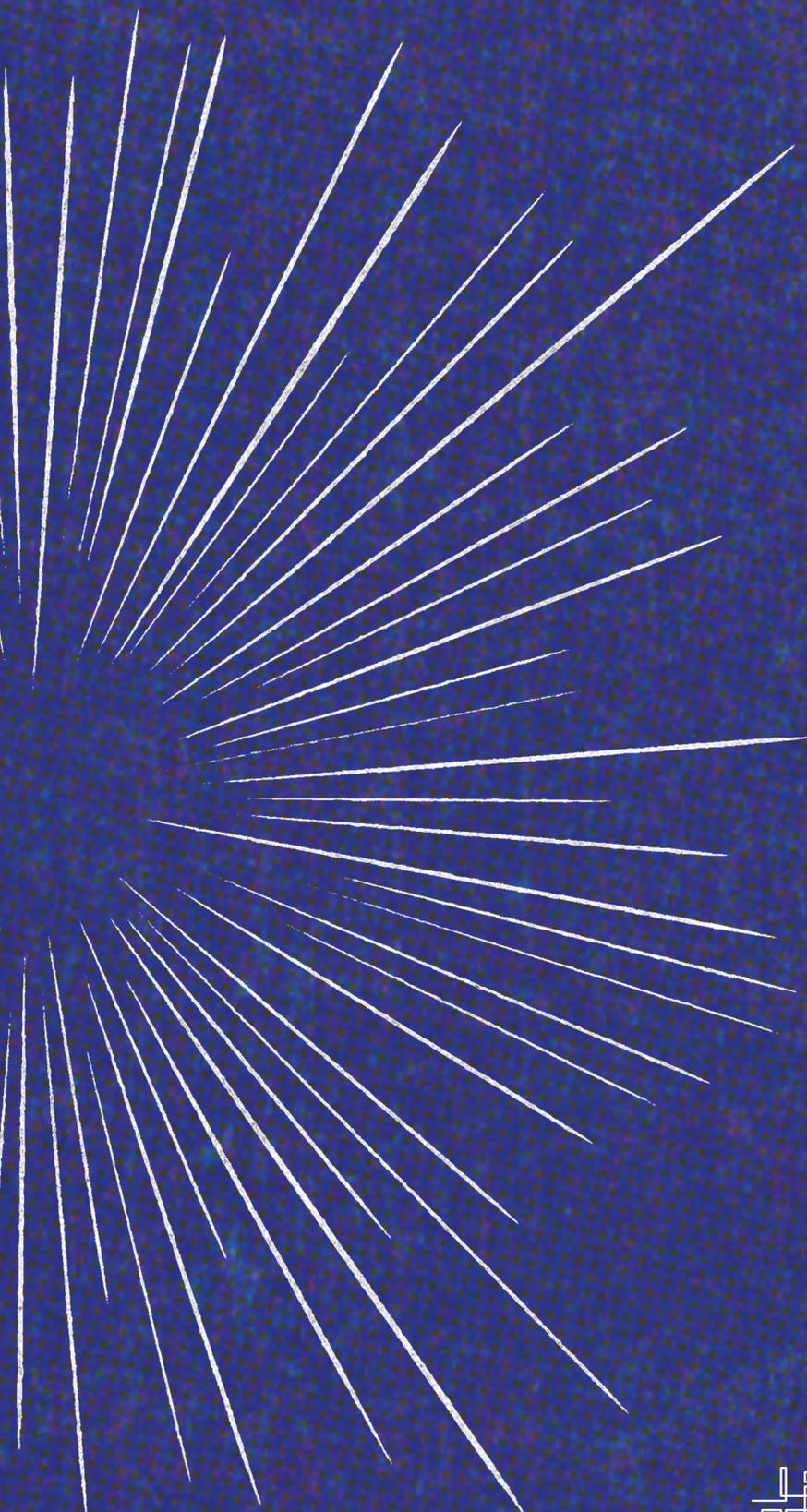


CARDS

SCENARIO & SUPERPOWER CARDS



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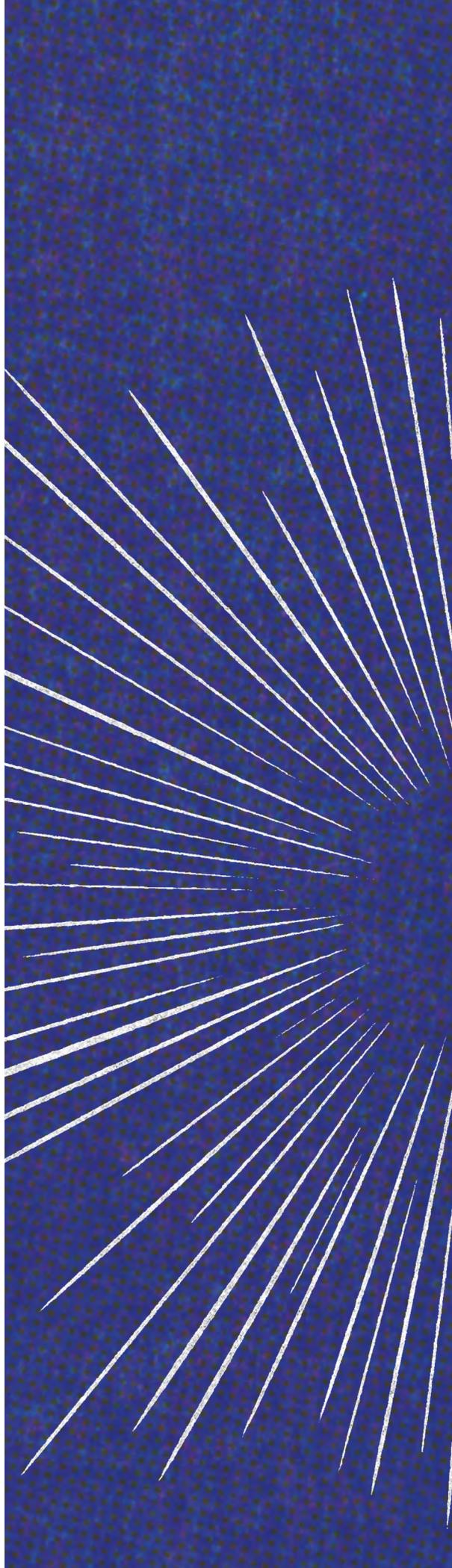
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EXTREME FORCES

Immersing ourselves in the power struggles of the next decade

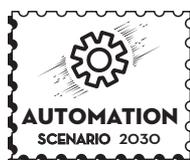
The ten-year horizon promises new ways to affect change with unprecedented speed and scale that will both bolster global prosperity and catalyze global conflict. This year's *Map of the Decade* can help you familiarize yourself with this emerging landscape, and identify new challenges and opportunities for your organization or sector.

As we conducted this year's research, three extreme forces stood out in terms of the dramatic and unpredictable impacts they're poised to have on our markets, homes, and communities. **We created the 18 scenarios of the *World-Readiness Toolkit* to explore a range of extreme possibilities extending from these forces:**



INSTITUTIONAL VOLATILITY

The post-World War II era has been defined by remarkably stable institutions and global interconnectedness, to the point that international order has been assumed to be unassailable. But international governance structures are showing troubling signs of vulnerability and systemic risks. The next decade will be marked by surprising new efforts from nations, institutions, cities, and communities to enact broad-scale change and redesign the international order.



GLOBAL AUTOMATION

The rise of the Internet over the last two decades has connected organizations and enabled innovations and ideas to scale and spread without constraint. Looking at the next decade, we see applied AI and automation continuing to transform our economy and society in unprecedented ways. Even as these forces present new opportunities to reach a global usership, they will create new risks for previously stable institutions and industries, and radically alter competitive environments in vanishingly short time frames.



CLIMATE CHANGE

Climate change is no longer a speculative possibility. It's a present-day crisis with increasingly catastrophic impacts that are challenging our existing models for institutional systems and processes. Everything, from physical infrastructures and capital investments to the ways in which we plan cities and use land, will be hit by unpredictable and inevitable climatic catastrophes. The popular science fiction author William Gibson recently commented that "all imagined futures lacking recognition of anthropogenic climate change will increasingly seem absurdly shortsighted." The same can be said of business models, organizational strategies, and regulatory policy.

SUPERPOWERS

Six superpowers for urgency and optimism

How can we approach the coming decade of high-risk opportunities and shifting power dynamics with both optimistic vision and strategic resilience? As climate change, economic automation, and institutional volatility ripple throughout our interconnected systems, how will we respond effectively and proactively, to avoid being blindsided or making matters worse?

Power has traditionally flowed from the top-down. But in this tightly-coupled and complex landscape, we increasingly find that power flows in all directions: not just top-down or bottom-up, but across industries, continents, and stakeholders of all scales. In the coming decade, old and new actors will seek to shape the future with capacities and capabilities well-suited to this era of extremes. How these superpowers are wielded will largely determine the business, social, and physical environment we find ourselves in a decade from now.



REFRAME THE NARRATIVE

With the rise and ubiquity of the Internet, connected communities have repeatedly demonstrated their power to shift the public narrative seemingly overnight.



REWRITE THE RULES

Fast-moving transformations to our economies and societies are creating renewed pressures for large-scale regulatory overhauls that are altering the rules of play.



REINVENT MARKETS

Well-established brands with decades of stability have watched their market share flow to fast-emerging, lightweight, data-centric tech companies that operate at unprecedented speeds and global scale.



REDIRECT FORCE

From undermining norms without clear enforcement mechanisms to attacking vulnerabilities in creative ways, the gray areas of our globally connected systems are empowering small-scale stakeholders to make large-scale change.



REINFORCE LOCAL RESILIENCE

In the face of many of today's macro challenges, the most devastating impacts and biggest opportunities to manage global change exist at the hyper-local level.



RESHUFFLE THE DECK

While we can't anticipate what exactly will happen as extreme forces interact, we can build up our strategic readiness through the tools and practices of systems thinking.

A GOLDEN DAWN FOR CHAOS MAGIC

Distributed technological advances empower the trolls

Chaos magic arose in the 1970s from the ashes of esoteric occult traditions. It abandoned dogmatic rules and rituals and embraced fast, cheap experiments to test the boundaries of consensus reality. By 2015, chaos magicians developed techniques of asymmetric psychic/psychological warfare by deploying memes and symbols that have the power to change the thoughts and behaviors of entire populations by spreading rapidly through social networks and burying themselves in subconscious thinking. Some worked for hire, others just for the lulz, but by 2030 chaos magicians' advanced spells—which blend ransomware, disinformation, false-flag tactics, DDoS attacks, airport-disrupting drones, deepfake videos, and crackpot theories—became a persistent, nearly-impossible-to-eradicate threat to governments and institutions.

- Chaos magicians cast their meme spells anonymously on censorship-resistant sites like 4chan. It costs nothing to test a meme, so chaos magicians will crank them out by the dozen. Statistics dictate that at least one will go viral, with the potential to become a weapon of mass disruption that infects the nervous systems of hundreds of millions of people in a few days.
- Chaos magicians embrace the tactics of asymmetric cyberwarfare by ignoring the enemy's strongholds and attacking their weak spots. They don't need expensive equipment to do their work—instead, they use the enemy's expensive equipment and turn it against their foes.
- Internet of Things devices provide a particularly rich target for chaos magicians. Cheap wireless devices with limited ongoing security support proliferate in the 2020s, and chaos magicians use them as a means to spread DDoS attacks and hold homes and offices hostage to risks ranging from activating smart ovens to locking homeowners out through smart doorbells.
- Chaos magicians are masters of behavioral psychology and game theory. They only risk what they are willing to lose, and only engage when they know they have the advantage and can act anonymously.
- Crackpot conspiracy theories are designed by chaos magicians not as a way to delude the gullible (though many of the gullible are deluded) but as a way to distract, distress, and demoralize the enemy, who wastes time, money, and psychic energy trying to point out the holes in the conspiracy theory, to no avail.

SIGNALS: SEEING THIS FUTURE IN THE PRESENT



Drone shuts down one of the world's busiest airports for 30 hours

An anonymous person flew a drone (or a small number of drones) above the runways at London's Gatwick Airport for two days in 2018, delaying the flights of more than 120,000 people during a busy holiday travel week. "There's not been anything like this anywhere in the world," said UK Transport Secretary Chris Grayling, calling it a "new kind of attack."

[washingtonpost.com](http://www.washingtonpost.com)



Fake Associated Press tweet causes stock prices to crash

In 2013 a group calling itself the Syrian Electronic Army hacked the Associated Press' Twitter account and falsely tweeted that a bomb in the White House had injured President Barack Obama. Stock markets went into freefall until the White House press secretary issued a statement to correct the disinformation.

[theatlantic.com](http://www.theatlantic.com)



PewDiePie fan unleashes ransomware that encrypts hard drives until he gets 100 million subscribers

In 2019 one of YouTuber PewDiePie's rabid fans released ransomware that encrypts hard drives and displays a notice that informs victims that a decryption key will be made available only when PewDiePie's account gets 100 million subscribers.

[boingboing.net](http://www.boingboing.net)

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In a world where tiny vulnerabilities enable anonymized hackers to wreak havoc ...

What makes you angry? | What makes you nervous? | What gives you hope?



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NEW WORLD DISORDER

No crime, lots of corruption

There was no single bribe, payoff, or tax shelter that marked the shift from competitive to plutocratic global capitalism. But the root causes were clear. As business leadership and corrupt political leaders saw their interests increasingly tied together over the twenty-teens, they began to work together to perpetuate their global power. A corrupt leader would alter contracting rules to give favor to a friendly company; in turn, money would get parked in off-shore tax vehicles as repayment. Of course, there were individual countries that maintained firewalls between government and business interests—but these became less and less common. By 2030, corporate leaders understood: Doing global business required a set of powerful connections and flexible morals that would have seemed criminal just a decade or two earlier.

- The rise in complex accounting practices and decline in global funding for journalism contributes to the increased ease of backchannel payments—and also makes it harder to root out corrupt practices once they’ve taken hold.
- As corruption becomes more difficult to manage, governments of all scales begin reducing services with an aim to focus on providing just enough to stay in power. The lion’s share of infrastructure money is placed into new tough-on-crime, smart infrastructure to lower petty crime and give the veneer of stability and opportunity.
- Many governments adopt social credit systems—not (only) to keep populations in check and homogenous—but to monitor and prevent fraud in the government, creating strong rule of law domestically. However, many such nations don’t care, or even celebrate their citizens’ involvement in corruption outside their borders.
- As nations with strong stated commitments to human rights fall behind countries that are more cavalier about privacy and “playing god” with artificial intelligence, climate manipulation, and genetic science, they turn to “paperclip countries”—laboratories that violate human rights to maintain parity with those on the cutting edge, and then sell the tech to more “enlightened” places.



SIGNALS: SEEING THIS FUTURE IN THE PRESENT



The twin insurgency of corruption

The concept of a “twin insurgency” put forth by Nils Gilman, where organized crime from below meets unaccountable plutocrats from above in a combined assault on the modern state, points to vulnerabilities in liberal democracies.

the-american-interest.com



Private security forces anticipate more influence in the decade to come

In the wake of volatile events like Hurricane Maria, private security groups like Pinkerton—which got its start as a private police force in the 19th century—are finding a growing corporate market for their security and investigative services.

nytimes.com



At least 10% of global GDP hidden in tax havens

Already, a huge slice of the global economy is hidden from governments. About 1/6 of all private wealth in the world is stored in tax havens—about \$21-32 trillion. Half of Russia’s wealth is hidden abroad, and 40% of multinational profits are shifted to tax havens every year. A few locations have become global tax haven centers. Nearly \$6 trillion is stashed in Luxembourg, and \$4 trillion in the Cayman Islands.

forbes.com

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In a world where conducting business means orchestrating kick-backs ...

What makes you angry? | What makes you nervous? | What gives you hope?

AND THEN THE GRASS GOT GREENER

Adapting to climate change creates a new frontier in business innovation

In 2019, you'd be forgiven for thinking the world was hanging in the balance, with the world's largest organizations clinging to old business models and fearing the worst from climate change and volatile global markets. But from the perspective of 2030, the angst of the previous decade feels more like growing pains than a death rattle. The first markets to turn the corner were energy suppliers, as new innovations in solar, wind, and nuclear power led a world-wide reinvestment in climate-resilient infrastructure. This was followed by the food and packaging industries, with a long tail behind them. Maladaptive institutions indeed felt the sting of the world passing them by, but as was the case in so many previous historic transitions, the pioneers of the new era are finding much to like about the emerging frontier.

- Food companies offering traditional meat products languish as the plurality of consumers in China, Europe, and the US shift to increasingly compelling alternatives like cultured meat and plant-based proteins, both multi-billion dollar industries and growing.
- As data-based policy regimes have matured, the rise of true cost accounting has left many of the biggest polluters with inverted balance sheets, struggling to offload their most toxic of toxic assets. Circular economy firms dominate the conversation.
- Global attitudes towards China's social credit score turned a corner in 2025 when they built carbon footprint assessments into the algorithm, and many western countries are now looking to replicate their success through digital wearables and platforms.
- While global shipping fleets and supply chains struggle to adapt to new climate policies, rural areas—traditionally home to the most skeptical climate cultures—are starting to benefit from a return to more hyper-local production and manufacturing.
- With the slow death of recycling in the late twenty-teens, most retailers have moved to a portfolio of reusable and compostable packaging, with vertically integrated delivery platforms like Amazon and Alibaba taking the lead.

SIGNALS: SEEING THIS FUTURE IN THE PRESENT



Ikea invests in forests to ensure sustainable timber production

Ikea bought 25,000 acres of Alabama forest in 2018 as part of a broader initiative to lower its carbon footprint and source its materials more sustainably. By purchasing the forest, Ikea can control how it's harvested, and ensure that the forest ecosystem remains viable and produces wood for many decades to come.

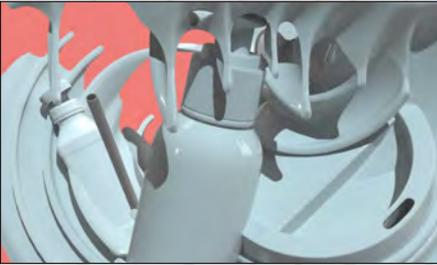
climateaction.org



Millennials lead the shift to meat alternatives

In 2018, data analytics firm GlobalData reported that 70% of the world's population has reduced its meat consumption in recent years. This trend has been led by millennials, who GlobalData claims are the "most likely to consider the food source, animal welfare issues, and environmental impacts when making their purchasing decisions."

forbes.com



The known dangers of single-use plastics inspires new innovation

Closed Loop Partners is one of many firms building out investment strategies for the circular economy. Its 2019 report details investments in dozens of companies working on new technologies for sustainable packaging, including more affordable recycling and closed-loop packaging systems.

fastcompany.com

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In a world where trillions of dollars are shifting to adapt to climate change ...

What makes you angry? | What makes you nervous? | What gives you hope?

CALEXIT

Increasingly intense polarization drives California to secede from the US

Like with so many of the world-changing events of the late twenty-teens, nobody really expected Calexit to actually happen. But there it was on the 2024 ballot—a citizen-led initiative and third major attempt at secession—started not by lobbyists or state politicians but by a small group of fed-up teachers in Los Angeles. Even on the day of the vote, there was no overwhelming coalition supporting the measure, and the mainstream opposition was fairly confident in their reasoned objections to this radical move. But somewhere between the federal government’s recent policy moves against immigrants, stronger-than-expected grassroots support for climate action, and state-wide yearning for a more coherent set of safety nets, Proposition 36 found a way.

- While many expected a civil war to follow, the Republican federal government welcomed the opportunity to shift America’s election map so strongly in their favor.
- As the policy conversation shifts to trade relationships, California finds more friendly audiences in Canada and Mexico than its American counterpart. Talks of a New North American Union that excludes the remaining US states gain traction.
- The new California government distinguishes itself with strong policies on climate action and universal basic income guarantees, while the United States doubles-down on near-term business-friendly policies.
- California and the US exchange increasingly heated rhetoric over tariffs and migration restrictions. The US threatens to deny any claims of dual-citizenship to native-born Californians or those who have lived in the state for more than seven years.
- The tensions paralyze business investment in North America as multinationals struggle to navigate the uncertain trade environment.
- The world watches in anticipation as California embarks on the first major constitutional process in many decades. Separatist movements and irritable EU countries look for new precedents to build on as global markets remain shaky.
- The most troubling civic unrest emerges not between states or the federal government, but between rural and urban populations. Rural Californians and urban Americans feel equally betrayed by the divorce, and many look to migrate while they still can. Separatist movements in New York, Texas, and Florida all gain traction.
- Despite the drag on the economy, most residents of the two countries say they are satisfied with the decision to break apart.

SIGNALS: SEEING THIS FUTURE IN THE PRESENT



Calexit initiatives continue to develop after initial failures

After an initial Calexit initiative died in 2017, several competing alternatives are working their way through the petition and approval process as of 2019. Some of these movements seek full independence for the state, while others look to carve California up into two or more new states.

cnbc.com



California Democrats add UBI to their platform

In 2018, California Democrats distinguished themselves by adding Universal Basic Income to their platform. Home to many of the largest technology companies leading the world in automation, the state also suffers greatly from housing and income insecurity largely created by its innovative economy.

cnbc.com



Polling suggests overall favorability of Californian secession

According to a Zogby 2018 poll, 39% of Americans agreed that California had a right to peaceful secession from the union, with only 32% supporting a military intervention to prevent the split.

reason.com

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In a world where America's fractured politics leads to secessionist movements...

What makes you angry? | What makes you nervous? | What gives you hope?



UNITED ZONES OF ACCELERATION

Tech hubs, tax havens, and the super-rich mesh together in a new type of tradable sovereignty

The United Zones of Acceleration (UZA) is a network of distributed independent neighborhoods present in five major cities across the globe, working under a single common law and economic policy. The UZA is not technically a country, but is recognized as a sovereign economic and political community, and possesses an established governing body, its own data and privacy laws, and a citizen-membership costing A\$1,499/year for individuals, and A\$14,999/year for companies. In the deeply volatile world of 2030, the UZA is the go-to destination for technology startups, space mining companies, and “exited” cities. It’s also the preferred destination for tech tycoons looking not just for tax benefits, but particularly for lax regulations on space resource exploration and geoengineering.

- The UZA is a federation of independent “free-trade zones” located in specific neighborhoods of San Francisco, London, São Paulo, Tallinn, and Luxembourg. The latter lends its legal and financial framework to the federation, along with its presence in the EU. Tallinn, on the other hand, provides the infrastructure for its blockchain-based citizen-membership and data policy.
- The UZA has a paradiplomatic body dedicated to negotiating membership of cities interested in joining—or cities the UZA is interested in connecting with. At least three major urban sprawls, including Hong Kong, are negotiating terms to join the federation in 2040.
- Though anyone can become a citizen-member, priority goes to employees of firms based in the UZA. Non-member residents have a special “visa” to use public transportation and other UZA-administered services. Residents who don’t opt-in are called “mays.”
- Money in the UZA is not only digitized, but automated, instantaneous and transnational. The federation’s crypto infrastructure allows for real-time, pay-as-you-work payroll. Gig work is common and incentivized, but the same crypto system allows for companies to track contractors’ work to prevent (and punish) misuse of intellectual property. Snack-jobs are common among the young and the elderly.
- In the UZA, geoengineering is the hottest trend. Nations across the globe have put serious bans on climate manipulation, even forcing UZA’s to pass regulations on research on geostationary space umbrellas, ocean fertilization, and other controversial climate “moonshots.”
- The UZA is home to the emerging class of exoenvironmental activism, claiming asteroid-mining and commercial space travel may have unthought-of consequences to Earth’s ecosystem and outer atmosphere. Dark New Deal proponents advocate space travel should be heavily taxed, and the 1960s space treaties should be updated.
- UZA has so much wealth concentration — from companies and individuals—it is hard for countries to go against their policies or sovereignty.

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Troll the market, flee to tax havens

Billionaire James Dyson, an open advocate for Brexit, is moving his business to Singapore, a tax haven in Southeast Asia. Dyson's case is even more controversial, for he might have benefitted from Britain's exit: he has revealed he's investing in an electric-car company in Singapore, which, on the other hand, has just announced a free-trade agreement with the European Union.

vox.com



Sovereignty for sale

Luxembourg is renting its sovereignty to space-mining startups. Last year, the country passed a bill ensuring companies based in its borders would have property over any valuable substances obtained in space.

theguardian.com



Citizenship-as-a-service

Startups from the UK are looking for ways to escape from Brexit by buying an Estonian e-residency. The Estonian government claims they've received over a thousand emails from British companies interested in acquiring the electronic "citizenship."

thenextweb.com

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In a world where megacities define international governance systems ...

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THE WECHAT MARKETS

In a volatile geopolitical world, the global Internet succumbs to regional balkanization

“Remember when there was just one Internet?” That’s an oft-repeated headline in 2030, and some version of it regularly appears in user feeds across the Euroweb, Googlenet, and the WeChat markets. Some say the balkanization of the Internet began with Europe’s increasingly stringent IP and data privacy laws, which pushed many big tech platforms out of the region. But it undeniably took off with the rising prominence of the One Belt One Road initiative, spreading not just China’s soft power but also their technological infrastructure across southeast Asia, Africa, and much of South America. After the failure of the Internet-based commons in the late twenty-teens, the Internet has become as fragmented as the societies it helped polarize.

- As One Belt One Road countries mature, they naturally rely on Chinese platforms for access to credit and services—chief among these WeChat. Many companies in the western trading bloc find it harder to interact with these markets, whose regulatory policies and contract mechanisms are often embedded directly into these ubiquitous software platforms.
- Facing disillusioned users and existential regulatory pressures, the biggest American tech companies start to carve out their own walled-garden networks with encrypted messaging and comprehensive services. Europe experiences a mini-renaissance of new tech startups built to operate in their highly-regulated environment.
- Emboldened network providers tend to enforce lock-in by making users’ essential data assets and reputation profiles as proprietary as possible, ensuring that the switching cost is too high for all but the most determined or desperate. For millions, this now includes work histories, training credentials, and credit scores.
- The balkanization and regionalization of the Internet has correlated with governments’ ability to leverage Internet protocols to enforce laws and deliver services. With increased control over how their networks are accessed, many regions are starting to administer everything from elections to UBI payments directly through their Internet.
- Detractors argue that overall tech growth has slowed as many companies spend their strategy dollars competing for profitability in the highly fragmented environment. But the regionalization of networked systems has created a boon for mid-sized companies with more moderate ambitions.

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Google threatens to pull news service from Europe

With the passing of the “Copyright in the Digital Single Market” directive—also known as Article 13—by the European Parliament in early 2019, Google threatened to pull its news service from the continent, warning that the new IP laws made the service operationally non-viable.

cnbc.com



Chinese payment platforms completely bypass banks

Chinese payment platforms like WeChat and Alipay mix a blend of social, commercial, and financial services in ways that were previously impossible, giving them incredible power to bypass existing institutions and regulatory bodies.

bloomberg.com



China is the primary investor in African infrastructure

In support of its One Belt One Road initiative, China has invested hundreds of billions of dollars in building infrastructure and businesses in Africa since 2005. This makes China Africa’s most important economic partner, at a time when the continent is still building out networking infrastructure for the majority of residents.

mckinsey.com

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In a world where global communications systems fracture ...

What makes you angry? | What makes you nervous? | What gives you hope?

THE RISE AND FALL OF AUTONOMOUS CARS

Pranksters and activists keep autonomous cars off the road

For many people, the emergence of autonomous vehicles (AVs) promised real benefits. Commuting could be much less mentally and physically stressful; people with marginal (or no) driving skills could move around safely; passengers could be dropped off at the destination, allowing the car to find its own parking. In essence, your car was becoming your own personal driver. But AVs were still *machines*, with all of the drawbacks and vulnerabilities of modern digital systems. They could be tricked in ways that no human driver would ever fall for. Weekly, even daily, security patches might fix problems after they show up, but new attacks on vehicle behavior show up faster than they can be dealt with.

- For the most part, these weren't "hacks" in the classic digital intruder sense. Instead, they were "malicious compliance" attacks that took advantage of the inability of vehicle AI systems to understand context.
- Most common were crudely-painted dashes and lines indicating lane controls. A short angled line in the right spot could force AVs relying on visual sensors to change lanes abruptly or even stop without warning.
- Some of the vehicle vision systems were so sensitive that it would take just a few reflective stickers on the road to cause them to change lanes—visual cues that most humans would ignore or miss entirely.
- In some cases, these were part of an informal effort to keep AVs out of certain areas, forcing the person in the driver seat to take back control of the car. Ironically, this movement started due to mistrust of AI safety, yet it measurably increased accident rates.
- Incidents caused by fake road markers quickly became serious problems. In one case, an AV with an inattentive human in the driver's seat followed the markers to veer quickly into oncoming traffic, leading to a near-fatal collision. In another case, criminals used false markers to redirect vehicles to an unwatched location for theft and worse.
- Every sensor on a self-driving car became subject to some kind of hack. Systems to allow AVs to find parking were especially attractive to vandals. Signs showing parking availability were marked in ways that wouldn't stop a person but made AVs ignore them.
- Surprisingly for some, this wasn't done just by criminals. Numerous small towns and villages, desperate after a loss of income from a drop in parking and traffic violations, started posting parking information signs in a "CAPTCHA"-like format with rules visible to humans but not machines.

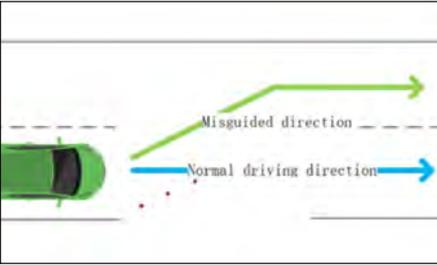
SIGNALS: SEEING THIS FUTURE IN THE PRESENT



Autonomous Trap 001

In 2017, British artist James Bridle created a piece of art (shown here) entitled “Autonomous Trap 001,” where an AV is kept from moving by a circle painted to look like traffic lines. The line format was one that an autonomous vehicle would recognize as meaning the car must not cross. Bridle painted the circle using salt, echoing ancient rituals meant to bind demons.

techcrunch.com



Tencent vs Tesla

In March 2019, engineers at Tencent/Keen Security Lab conducted an experiment to test how well the Tesla autopilot system could handle vandalism to road markings. Disturbingly, the Tencent researchers discovered that it took as few as three stickers placed in the road to fool the Tesla into veering left, potentially (under real-world conditions) into oncoming traffic. Similar experiments have fooled AV systems into driving at illegal speeds.

keenlab.tencent.com



enggarciagrants.com

Self-driving urban bankruptcy

Debates about how closely autonomous vehicles will adhere to speed limits and other traffic laws have largely centered on whether AVs should stick as close to the law as possible or should replicate human driving patterns as much as possible. Less visible is the concern that AVs that behave as perfect citizens, never driving unsafely or parking illegally, would pose a threat to small-town budgets. Parking fines and vehicle fees of all kinds make up a substantial portion of city budgets.

wired.com

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In a world where long-promised benefits of automation fail to materialize ...

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DESTROY YOUR ENEMY WITH ONE CLICK

As the platform economy grows, anonymized reputation attacks proliferate

In 2030, the Darknet's notorious Dox4Lulzs service introduced a new product, PlatHammer. For 10 Monero you can get anyone kicked off a dozen platforms simply by providing the email address of your target. PlatHammer's extended network of Eastern European hackers and bots will take care of all the details by purchasing the target's log-in information for Amazon, Facebook Uber, Airbnb, YouTube, Gmail, etc. from black market database brokers, then impersonating the target and behaving in ways that blatantly violate the terms of service of those platforms. For an additional 100 Monero, PlatHammer will inform its planted moles working at appeals departments of all the top platforms to reject the target's petitions for reinstatement. As PlatHammer spreads throughout the Darknet, people increasingly use it to not simply inconvenience users but prevent them from being able to make a living.

- Common ways PlatHammer knocks users off a platform: bribing an Uber driver to claim target vomited in a car; spamming target's Amazon account with 5-star skill reviews; posting Airbnb reviews on Twitter; falsely claiming ownership of target's video using YouTube's ContentID system; logging into target's Etsy account from the IP address of an already banned account.
- Businesses and individuals can protect themselves from being deplatformed by installing monitoring software on all of the connected devices. The software prevents users from doing anything that violates the terms of service agreements they've entered into with platforms.
- The monitoring software won't protect businesses and individuals from PlatHammer attacks, but deplatforming insurance is available to cover losses from such attacks.
- Large organizations and wealthy individuals can pay extra to negotiate custom terms of service agreements and most-favored nation terms with platforms. Even more money will allow them to get disputes arbitrated by humans instead of algorithms.

SIGNALS: SEEING THIS FUTURE IN THE PRESENT

5	1273179	111111	25	311371	1qaz2Wsx
6	1120222	12345678	26	300279	123qwe
7	1085144	abc123	27	299984	121212
8	969909	1234567	28	288936	12345678
9	952446	08890000	29	281132	a123456
10	879924	1234567890	30	276473	qwerty123
11	866840	123123	31	270488	1qaz2Wsx4r
12	834468	12345	32	266121	zxcvbnm
13	821078	homelesxpia	33	263605	7777777
14	564344	iloveyou	34	255079	123abc

Database containing 1.4 billion usernames and passwords on Darknet

A 41GB search database of unencrypted login credentials was recently discovered on the Darknet. Tests by a computer security firm found that most of the username/password pairs were still valid.

medium.com



Jewelry maker deplatformed by Etsy for technical violation

A jewelry maker named Lisa Jacobs invested thousands of dollars in building and promoting her Etsy shop. She was suspended without warning. She received an email from Etsy that said: “As your items do not appear to meet the criteria to sell on Etsy, your shop has been deactivated,” with no further explanation. Etsy’s list of dos and don’ts runs over 10,000 words, and the seller finally learned she was in technical violation of its drop-shipping policy. Her family depended on Etsy as a second source of income.

handmadeology.com



LittleThings.com traffic destroyed by a change in Facebook’s algorithm

In 2017 LittleThings.com, a website devoted to “a mix of feel-good news and service content,” was one of the top 5 most visited sites in the United States, thanks mainly to Facebook referrals. Later that year, Facebook introduced what LittleThings’ CEO called a “full on catastrophic update” to its algorithm and LittleThings’ traffic plummeted by 75%, forcing it to lay off all 100 members of its staff and sell the company.

niemanlab.org

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In a world where access to jobs and services can be destroyed by a click ...

What makes you angry? | What makes you nervous? | What gives you hope?



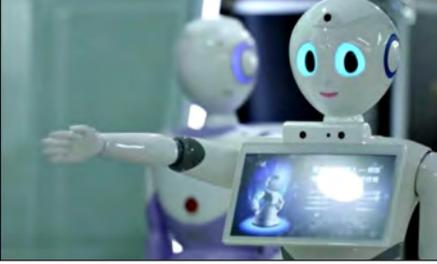
ROBOTS TO THE RESCUE

A graying world greets automated labor more favorably than anticipated

The robots took our jobs, as promised. But as the world got older and grayer, the response was warmer than anticipated. While the form these helpful machines took varied widely, almost all places with aging populations relied on automated labor to help fill caregiving and productivity shortages. At the same time, rising temperatures meant outdoor work of all kinds had to be curtailed. The transition wasn't painless. Whole industries suffered throughout the 2020s as the robots arrived. As unemployment started rising, subsistence “robot dividends” became a politically manageable compromise to make sure that everyone had enough to get by. Not everyone benefited—many workers did lose out, especially where social safety nets were weak. But overall, the consensus is that low-cost robot labor came just in time.

- Countries and municipalities that tried to slow or even stop automation found themselves isolated, unable to compete in the larger marketplace and increasingly reliant on keeping their economy as local as possible.
- The intermediate automation stage saw a surge in remote control of robot jobs. Suddenly, everyone was piloting a drone for everything from farm labor to dam building.
- The places that fared best happily accepted the gains in productivity—and distributed profits among the population.
- Somewhat counterintuitively, robots were a boon for nationalist movements. Robots could be assimilated by design and many places saw perverse and uncanny use of futuristic technology to achieve reactionary political ends.
- The basic tasks of caregiving, teaching, service work, and other traditionally lower-paid work were automatable at a baseline level of competence, but performance for skilled humans remained much higher—pushing wages up and turning human contact into an increasingly luxury good.
- In place of humans, robotic companions became common low-cost options for dementia and Alzheimer's patients who could be easily fooled by moderately realistic robotic pets.

SIGNALS: SEEING THIS FUTURE IN THE PRESENT



Machines of Loving Grace

John Markoff argues in his book, *Machines of Loving Grace*, that automation is humanity's best chance to meet the caregiving demands on aging populations, particularly in countries where the phenomena is most dramatic.

undp.org



Meet Watch-Bot

Watch-Bot is a project being developed by researchers at Stanford and Cornell to identify when people forget to do routine, critical chores around the house like turning off the oven after using it. By pairing a depth sensing camera with machine learning capabilities, the researchers see Watch-Bot as a tool to help address caregiving needs among dementia patients.

cvgl.stanford.edu



Labor pains

A Texas A&M study titled *The Economic Impacts of Immigrant Labor on U.S. Dairy Farms* estimated that a 50 percent reduction in foreign-born workers would cause more than 3,500 dairy farms to shutter and would raise milk prices by 30 percent.

cbsnews.com

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In a world where advances in automation prop up productivity and nationalism ...

What makes you angry? | What makes you nervous? | What gives you hope?



CORPORATIONS GET THE GUILLOTINE

Anti-monopoly laws get repurposed to kill digital platforms

After the fallout from Brexit, the UK hardly seemed positioned to become a global leader in good governance. But as the recession got worse and each election more demoralizing than the last, the narrow coalition that formed in 2025 hung on by galvanizing public opinion against big tech and sparking new regulatory systems aimed at curtailing their influence. The government's savviest move was to declare that companies that owned platforms—whether social networks or on-demand labor forces—were monopolies that had to comply with its new Platform Identity Portability laws, effectively undoing decades-long corporate strategies aimed at using network effects for competitive advantage. Almost overnight, a wave of British startups were built on top of these portable identities, providing a model for a worldwide trend of “kill the platform” laws.

- What this looked like varied widely in different places; legislation ranged from surgical to sledgehammer, dictated mostly by the regions' overall tech literacy and regional values.
- While tech was at the frontlines of this backlash, any sufficiently large company was met with hostility—and was subject to new kinds of anti-monopoly regulations.
- Public anger and policy proposals often missed the point and targeted the wrong actors for the right things or the right actors for the wrong things.
- Some companies saw the writing on the wall and took substantive action to limit their own influence, selling off parts of their businesses that could be perceived as giving them a monopoly or scaling down in areas that looked to become bigger liabilities than assets in an environment where they were under greater scrutiny.
- Those who fared best, on average, were the most proactive. These organizations acted early and earnestly to understand that what they were doing was genuinely of disservice to the public, as defined by their constituents. They took action first, then crafted stories second.

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No escaping Google

A study by Vanderbilt University's Douglas Schmidt asserts that it is nearly impossible to avoid being tracked by Google. This is one of several stories that has gained traction in the media demonstrating how difficult it has become to not interact with a small number of big tech companies.

straitstimes.com



Corporate death penalties?

An op-ed in Wired called for giving Equifax the "corporate death penalty," revoking its charter on the grounds that, along with other issues, the people's data who had been leaked were not customers who opted in.

wired.com



Breaking up big tech

The Chancellor of the Exchequer's office recently released a detailed report arguing that the UK has an opportunity to create new leading regulatory models to constrain the power of digital platforms by promoting competition. One key recommendation would require that all personal data be portable between digital platforms.

assets.publishing.service.gov.uk

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In a world where platform economics is ruled monopolistic ...

What makes you angry? | What makes you nervous? | What gives you hope?



IMITATION IS THE SINCEREST FORM OF AI

Advances in AI usher in a golden age of digital forgeries

Like growing children, AI capabilities get smarter and stronger every year. By 2030, duplication and erosion of technologies and designs are threatening to stifle global innovation, as automated patent filings and automated patent approval processes create an arms race that only the largest companies can afford to compete in. At this point, anyone can imitate, borrow, and steal an individual's digital likeness for amusement or financial gain—regardless of whether that person is dead or alive. While the social and civic implications of this are predictably chaotic, the imitation market quickly presents an existential threat to the entire concept of intellectual property.

- The digital asset management industry booms as individuals, organizations, and businesses leverage deeper automation to evaluate and secure authenticity in everything from their products to their personalities.
- Pharmaceutical companies are the poster child for 2030's IP mess, as new technologies allow startups and open-source initiatives to deconstruct the chemical composition of popular drugs and achieve the same effects through different-enough compounds.
- Technology innovation doesn't slow down so much as it shifts from an emphasis on unique innovation to firms that can provide the lowest costs and the greatest speed-to-market. China's AI advantage grows further and faster.
- As legal battles intensify, AI-based audits of western patent systems reveal the arbitrary nature of existing patent claims, further undermining public faith in an already contentious system.
- New calls for patent reform take radically different stances, with traditional organizations lobbying for fiercer punishments on patent frauds, and activists calling for an end to patents altogether. As different state and national governments rule one way or the other, businesses clamber to favorable regions.

SIGNALS: SEEING THIS FUTURE IN THE PRESENT



Fortnite dance lawsuits dismissed after new Supreme Court ruling

After the massively popular video game Fortnite started selling dance moves for gamers' avatars, it wasn't long before lawsuits started rolling in claiming copyright infringement. As of 2019 these suits have struggled with the long lead time and backlog of copyright applications, and with the legal uniqueness of something as ephemeral as a dance move.

polygon.com



Nvidia AI turns sketches into photorealistic landscapes in seconds

Nvidia has developed neural network platforms that can convert a digital sketch made by a person into a realistic photo generated by machine in seconds. While the company does not currently have plans to commercialize the software, it has stated it will release the software in a public trial soon. Critics have noted the software's potential for counterfeiting, deepfakes, and other nefarious purposes.

techcrunch.com



Turbopatent aims to automate the patent filing process

Turbopatent is one of several SAAS startups focused on using AI to advance IP protection. While not sufficiently advanced to fully automate the patent process, its initial products dramatically reduce human labor in everything from developing portions of initial patent filings to responding to regulatory claims.

turbopatent.com

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In a world where forgeries proliferate and digital rights are impossible to secure ...

What makes you angry? | What makes you nervous? | What gives you hope?



DIGITAL SANCTUARIES

Cities and regions offer refuge from the digital surveillance state

Ubiquitous digital surveillance spiked in the early 2020's—an extension of the state in some regions, and an extension of the market in others. When the US state of Montana declared itself a “digital sanctuary” in 2024, it promised two things: no surveillance technologies, and no digital-first infrastructure. While initially dismissed as a luddite fantasy, Montana’s message attracted droves of digital refugees including whistleblowers, dissidents, and electrosensitives seeking respite and safety. It wasn’t long before many of the super elite realized they were willing to pay an economic premium for digital anonymity and confidentiality as well. By 2030, over two dozen prominent digital sanctuaries had emerged across North America, Europe, and Australasia.

- Many digital sanctuary communities emerge as luxury escapes for the Cayman Island set. Controversial politicians and executives seek them out as a refuge from the pressures of public life. As the general population migrates towards the largest megacities for opportunity, hyper-gated communities like this become a common evolution of wealthy exurbs.
- Many of these communities act as general bulwarks against the forceful push towards digital tools and automation platforms, accepting only cash in stores and banning autonomous vehicles from public roadways. Community members often strive for self-sufficiency and local food production, though the majority of successful settlements are propped up by wealthy benefactors looking for a specific quality of life.
- Children and long-time inhabitants of digital sanctuaries find themselves increasingly isolated from the outside world, particularly as they lack the digital credentials and profiles of their non-sanctuary peers. Though opposed to technological overreach, they become reliant on portable infrastructure for generating electricity and simple coordination systems, creating a distinct fork of tech innovation. Many of these communities adopt a reputation similar to the Amish, but with a much wider range of backgrounds and beliefs.
- The digital sanctuary movement benefits from the overall fragmentation of power between nations, cities, and communities over this decade. While no countries have declared themselves sanctuaries by 2030, a few second-tier cities adopt the label to distinguish themselves from the pack and from their own national governments.

SIGNALS: SEEING THIS FUTURE IN THE PRESENT



Domestic abuse victims use digital tools to evade harassment

Operation Safe Escape advises survivors of domestic violence on how to use virtual private networks (VPNs) and incognito apps to escape the digital surveillance and abuse they suffer from current and former partners. The organization creates and supports digital solutions for people living in situations with little to no personal privacy.

[cnbc.com](https://www.cnbc.com)



Human contact is the new luxury

Life for everyone except for the wealthy features screens and digital technology. According to the Luxury Institute, “Anticipated spending on experiences such as leisure travel and dining is outpacing spending on goods.” The immense buying power of the wealthy enables them to opt out of sharing their data and relinquishing their privacy, while the poor and middle class cannot afford to escape selling their attention.

[nytimes.com](https://www.nytimes.com)



Electrosensitives find safe haven in Green Bank, WV

The residents of Green Bank, WV can't use cellphones, wifi, and many other forms of modern technology due a strict ban on radio wave emissions in the area to prevent interference with the US government's powerful nearby radio telescope. Because of this, a growing group of people who say they suffer from electromagnetic hypersensitivity (EHS), or harmful symptoms when exposed to electromagnetic radiation (EMR) have moved to the town.

[logicmag.io](https://www.logicmag.io)

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In a world where the only sanctuary from big tech is in specially planned communities ...

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IMPOSSIBLE = INEVITABLE

Delays in climate action give rise to climate guerillas

When the US Congress rejected all of the “Green New Deal” proposals, activists in the United States became demoralized; when similarly ambitious proposals in Australia, Germany, and Canada met identical fates, the anguish took on a more global character. When word emerged from China that coal plants were again on the drawing board, most climate change protestors around the world took it as a sign that we, as a planet, had given up. A small percentage, however, decided that the fight against anthropogenic global warming had to take a new form. They operated under the motto that “if you make peaceful revolution impossible, you make violent revolution inevitable.”

- This was not a top-down movement. Rather, it was a shared philosophy, a transient social network presence, and an information wiki that allowed angry young people to engage in stochastic collaboration.
- Some people published “hit lists” of carbon industry executives and fellow travelers in think tanks and lobby groups. Many of the lists included disingenuous disclaimers that the list was meant to be educational or entertaining, not inducements to violence.
- Others uncovered and spread information about weaknesses in infrastructure (e.g., which points to take out to deliver maximum disruption to oil pipelines) and, on the Dark Web, shared “zero day” vulnerabilities in the software controlling everything from power plants to cattle ranches.
- Initially, this functioned largely as “anticipatory terrorism” — instilling fear without actually carrying out violent action against property or people. That did not last.
- The first act came as a shock when videos appeared online showing masked vandals adding various contaminants to meat processing systems, including feces, cockroaches, and, most horrifyingly, human remains. The meat industry claimed that this was a hoax, but testing soon found contamination in scattered samples. Meat consumption began a steady global decline, aside from lab-grown clean meat.
- Sporadic violence against infrastructure had comparatively minor impact, but nonetheless rattled governments and businesses alike. More damaging were the videos—many of them computer fabrications—showing industry leaders admitting guilt for suppressing climate science, saboteurs planting explosive devices on power facilities, and torture/abuse of imprisoned activists.
- Climate guerillas had taken to heart the harsh lessons from the previous decade: it’s more important to spread doubt than to change minds; and people really only start to care when they feel threatened.

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Infrastructure vulnerability

In 2016, an unknown person used a high-powered rifle to disable an electric power substation in rural Utah, replicating a destructive 2013 attack on a Metcalf, California electric substation. No perpetrator has been found for either episode. The 2016 attack served to demonstrate that power infrastructure remains highly vulnerable to direct action.

eenews.net



Infrastructure catastrophe

The 2018 Camp Fire was the most destructive wildfire in California history, and one of the world's deadliest fires ever. In 2019 the California Public Utilities Commission determined that the state's largest power company, Pacific Gas & Electric, bore primary responsibility for the start of the fire, which ultimately killed at least 85 people and burned over 150,000 acres—and most of the damage happened within the first four hours.

en.wikipedia.org



ramstein.af.mil

Contaminated food

Bioterrorism through the food system is a much-discussed problem with few real-world examples. This isn't to say that intentional food contamination isn't a threat; at a local scale, food adulteration (for reasons of malice, greed, or accident) is a known issue. But so far, the addition of harmful contaminants into the processed food infrastructure hasn't happened. Food safety is subject to numerous regulations in the US and globally, but—as recent E. coli and Salmonella outbreaks show—the system isn't as strong as it could be.

jhsph.edu

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In a world where climate inaction leads to guerilla activism ...

What makes you angry? | What makes you nervous? | What gives you hope?



RAINFALL PIRATES

Cities adopt regulations to manage severe water shortages— with mixed results

It looked like something out of a Prohibition-era newsreel, only this time, the barrels being smashed open and dumped onto the ground by the police weren't full of illegal whiskey, but clean water. Hundreds of thousands of gallons of rainwater harvested by homeowners and businesspeople over the course of the winter, now being dumped back into the ecosystem, ostensibly to help restore aquifers. Rainfall harvesting began as a way to build community water resilience, but as a growing number of cities faced extreme water shortages, governments that had opted to relax regulations on rainfall harvesting began to re-tighten the rules. A black market emerged—and with it, problems.

- In light of climate changes, many local and regional governments across the post-industrial world had begun to encourage household rainfall collection, and places that had put restrictions on it in previous decades, such as Colorado, had by the late twenty-teens loosened those laws.
- Unsurprisingly, as diminished rainfall patterns took hold, water prices increased. As rainfall was considered “free,” a skyrocketing number of suburban and exurban building owners took to rain collection during winter. Backyard and (for business buildings) rooftop rainfall barrels became a common sight in many areas.
- For businesses reliant on water for manufacturing or food preparation, harvested rainwater became a key part of business plans, keeping production costs down.
- Locations where rainfall harvesting was difficult or impossible, such as urban cores and multi-unit housing, needed low-cost water, too. Soon, many people who had been able to collect hundreds of gallons of water saw that they were holding a valuable commodity.
- Informal water bartering very quickly gave way to water market apps. “Drinkr” was a popular one in the US, while much of the rest of the world adopted the Spigot add-on for WhatsApp.
- Unfortunately, cities with aquifer-supplied water began to see those supplies running out. By 2029, multiple large cities around the world faced late-summer water emergencies, some even running almost completely out of water. Although the science offered mixed support, leadership of many cities saw “water thieves”—especially in nearby suburbs—as an easy target for voter ire.
- Restrictions on rainfall harvesting came back, alongside more onerous penalties for the overuse of water. People who managed to evade discovery by police and city officials soon found that a few hundred gallons of water stored in a garage or warehouse could be worth thousands of dollars.
- While poorer communities that had harvested rainfall as a survival practice were the first ones targeted by water patrols, medium and large businesses often found legal loopholes to exploit to maintain the practice. Globally, as water supplies continued to dwindle, petty corruption grew.

SIGNALS: SEEING THIS FUTURE IN THE PRESENT

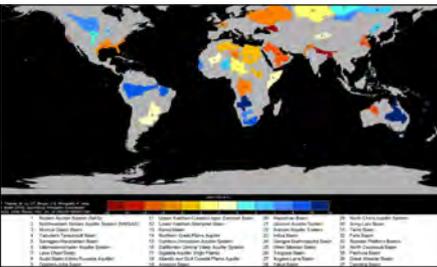


Jamais Cascio

Rainfall harvesting laws

At present, only a few locations worldwide have significant restrictions on home rainfall harvesting. Until very recently, however, rainfall collection was functionally illegal in Colorado, and it is still limited to two barrels per household. The rationale for the restrictions is that rainfall is the primary source of aquifer “recharging,” and that interception of rain that would normally soak through the ground would be actively harmful. The science on this is mixed, at best.

washingtonpost.com

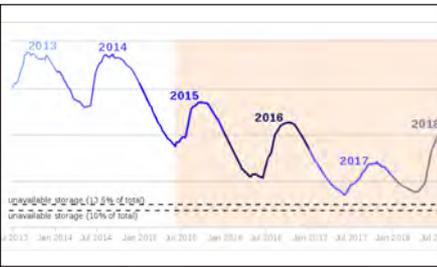


gracefo.jpl.nasa.gov

Groundwater depletion

Rapid depletion of groundwater levels isn't just a threat to water access for health and food supplies, it also can be a source of CO2 emissions through soil chemical processes. In the United States, this amounts to 1.7 million metric tons of CO2 per year, a small but not insignificant part of the overall carbon footprint. Accumulated precipitation would normally recharge aquifers, balancing the carbon flow.

aquadoc.typepad.com



Cape town runs out of water

In late 2015 through early 2018, the city of Cape Town, South Africa, faced an unprecedented crisis of water supplies, due to a combination of drought, poor infrastructure, and misuse. At its worst point, Cape Town water was down to 15% of required levels, approaching the “Day Zero” point of 13.5%, where water rationing would start. Supplies are now improved, but the threat remains.

en.wikipedia.org

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In a world where efforts to create sustainable communities backfire ...

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AN UNINSURABLE WORLD

Climate change creates a scramble for new finance models

Following the third “once in a millennium” flood of Houston in less than a decade, the financial services industry arrived at a depressing calculation: The city—its homes, its businesses, and especially its multi-billion dollar refineries—weren’t insurable. What followed was a scramble: many insurers began applying the same logic to other coastal regions and flat out refused to insure new capital investments in coastal cities all over the world, causing widespread business and human migration away from the coasts. In the face of mounting challenges, central banks began to develop new green finance policies to attempt to stem the tide.

- Green Finance Policies are an attempt at securing a familiar economic paradigm in a highly uncertain environment where quantitative models of once-in-a-thousand-year events are happening almost annually. While not a solution to the effects of climate change, these policies aim to provide a relatively normalized financial environment in which to operate.
- While different in their country-specific details, these policies usually adopt three strategies: use of new tools and indicators to assess direct and collateral climate risk and uninsurability potential, legal liability of trustees who fail to inform climate risk to their clients, and smooth divestment strategies to exclude carbon-heavy assets and regain insurability for former environmentally unfriendly businesses.
- Green Finance Policies were designed to address two issues: 1) many parts of the world are uninsurable—such as coastal cities and climate-sensitive infrastructures—with extreme weather-risks so high that insurance companies can’t afford to cover them, and 2) the world is so carbon-dependent that the rush for divesting in the name of a green economy can produce a new and deeper financial crisis.
- Green Finance Policies constantly re-evaluate the tools and indicators for assessing financial climate risk. These best practices standards are taken into consideration to assess a country’s general investment risk, which end up influencing their economic policies.
- Many climate-risk assessment tools used by central banks use public data and machine learning algorithms to automate direct and collateral risk. The same tools are used to raise climate awareness and prevent legal suits against assets management firms.

SIGNALS: SEEING THIS FUTURE IN THE PRESENT



New assessment tools for an uninsurable world

Insurance Australia Group (IAG) executive Jacki Johnson declared the world might become uninsurable due to climate change. With three or four degrees increase in ocean temperature, extreme weather conditions would become more frequent, making the transfer of risk business impossible. IAG and other 15 insurance companies are working to develop new assessment tools and indicators to reduce risk and guarantee businesses are sustainable.

reinsurancene.ws



Smooth post-carbon transition

Heads of two major central banks issued a warning against climate change. As urgent as climate change is, they argued, an unstructured transition into a carbon-free economy could cause massive disruption in the financial system. Reduction of carbon emissions demand massive relocation of capital, and a “carbon-flee” would have short-term social and economic implications to countries, especially emerging and fragile economies.

bbc.in/2ls5dzo



Climate-aware investment

Environmental law organization ClientEarth issued an opinion stating pension fund boards that fail to clearly communicate climate risk to clients can face legal challenges. Pension funds are “entrusted to preserve and increase the value of lifetime savings, giving people security in retirement,” it said. Failure to raise climate awareness, then, may threaten the very future these funds are supposed to preserve, which makes pension boards legally responsible.

iol.co.za

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In a world where unpredictable climate impacts undermine our basic financial infrastructure ...

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A CLIMATE RECKONING

Personifying nature remakes climate accountability

The “diesel-gate” scandals, mass student walk-outs, and “future generation” lawsuits of the late twenty-teens were a mild foreshadowing of legal battles to come. Oil executives, industry lobbyists, and others who engaged in disinformation, regulatory cheating, false disclosures, and other forms of what has become known as “climate fraud” can no longer hide behind legal barriers and political protections. After generations of denial and delay on climate issues, the post-Trump political culture of accountability and anti-corruption has swept in a wave of new laws and mechanisms for punishing those who were directly responsible for environmental pollution and destruction. For example, the legal personhood recognition of various natural features, such as lakes, rivers, glaciers, and even ocean currents, provided a powerful lever for legal protection, creative political representation, and prosecution of excessive emissions.

- The scale (in both space and time) of global climate change required a new way of thinking about responsibility and legal accountability for destructive actions. New legal frameworks have emerged that allowed individuals to be held criminally responsible for actions that could have generational-scale negative impacts.
- Corporations have been using “personhood” as a legal and political tool since the 1880s. The expansion of personhood rights to nature, as absurd as it appeared to many at first, has become a powerful weapon in the protection of the global environment.
- Climate justice became the intersectional umbrella movement that included economic inequality, racial justice, gender relations, indigenous activism, media regulation, and a host of related social and environmental causes. The collective power of these more united groups created an unstoppable political force in the United States, China, and around the world.
- Even with multinational cooperation amongst nations, cross-border and international prosecution of climate criminals is still difficult. Russia, Bahrain, Singapore and a few other rogue nations have become home to exiled corporate managers and lobbyists who have fled in fear of prosecution.
- Thousands of automobiles wait in factory lots as regulators apply strict emissions testing and review before releasing them to customers.

SIGNALS: SEEING THIS FUTURE IN THE PRESENT



The student climate marches

Greta Thunberg is a 16-year old Swedish climate activist. She has led a movement of weekly sit-ins at the Swedish parliament that has inspired a global protest movement. Students around the world follow her example and skip school on Fridays to hold their own climate protests.

cnn.com



VW executives face jail time for their role in emissions scandal

Several executives from VW, including former CEO Martin Winterkorn, are facing criminal trials with the potential for up to a decade in prison due to their role in participating in the “diesel-gate” scandal where their cars cheated regulatory tests, pointing toward new potential liabilities for executives involved in violating environmental laws.

bloomberg.com



Granting personhood rights to nature

In 2017, the Ganges river was granted full personhood rights by a court in India, meaning that harming the body of water is considered legally equivalent to harming a person. These kinds of efforts have succeeded in New Zealand, Colombia, and other countries, highlight efforts to use legal personhood status to protect the climate.

theguardian.com

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In a world where harming the environment means jail time ...

What makes you angry? | What makes you nervous? | What gives you hope?



APPELLATION FIRE SALES

Regional food producers face cascading challenges

By the end of the 2020s, the reputations of many famous geographies had been through the wringer. In 2030, California's Napa Valley produces wines that are consistently ranked lower than barely-established vineyards in Poland and Michigan. Vermont's once-iconic maple syrup industry shut down as the range of the maple tree pushes northwards into Quebec and Newfoundland. Even the global coffee industry has transformed as farms from Kenya to Colombia dry up. As land degradation and climate change alter those landscapes, the long-assumed commercial power inherent to those regions disappears or shifts to entirely new places, creating power vacuums and sometimes turbulent power shifts. As these forces reshape the value of land, they not only remake the geography of food but spark sweeping sell-offs of once-prized land and volatile speculation over the now-precarious value of real estate.

- The decline of famous agricultural regions increasingly comes to be seen as an early indicator of a much wider shift in land use and climate gentrification that is expected to remake the ways we value global real estate and capital investment throughout the twenty-first century.
- The value of residential housing near coastlines has plummeted as homeowners have grown weary of managing constant threats and ongoing rebuilding related to floods.
- The sudden shift of large numbers of wealthy homeowners into new neighborhoods has sparked tensions within cities as low-income renters get pushed out of their homes and into less climate-secure neighborhoods.
- Local tax bases in once wealthy communities erode, further accelerating declines in local services creating a negative cycle of out-migration, government cuts, and reduced business investment in some locations.
- National and sub-national governments have to rapidly understand the come-and-go utility of their land as they scramble to deal with internal population movements combined with huge global population shifts.
- Large manufacturers scramble to insure factories against the potential of climate risk and to develop smaller scale factories across a more distributed geography. While few major disasters have occurred, most business leaders realize that the potential for unpredictable challenges is constant.

SIGNALS: SEEING THIS FUTURE IN THE PRESENT



Wikimedia

Study finds increasing correlation between elevation and real estate prices.

A recent Harvard University study found an increasing correlation between the elevation of property and its sale price. The researchers predict this correlation will become more powerful, and will apply to many cities around the world, leading to a trend of climate gentrification.

[cbsnews.com](https://www.cbsnews.com)



North American cities' climate will shift hundreds of miles in a few decades

A new study by the University of Maryland Center for Environmental Science analyzed how the climates of individual cities will change, comparing them to other regions today. For example, Tampa, Florida's climate will become more like present-day Oaxaca, Mexico. As the global climate changes in ways that are hard to predict, the operations and lives of people in virtually every locale will be affected.

phys.org/news



Italy sees 57% drop in olive harvest as a result of climate change

The last year saw a massive drop in Italy's olive harvest, directly linked to the impact of climate change on the region. Aside from taking a sizable chunk out of one of the country's main commodities, it has spurred on high-intensity farming techniques in the south, where younger trees are planted more densely. Although this may allow production to remain more resilient, it is a stark contrast from the heritage of old-growth, traditional olive orchards.

[theguardian.com](https://www.theguardian.com)

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In a world where doing business means eliminating all forms of waste ...

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ZERO WASTE CITIES

Urban centers make a bid for global leadership with Zero Waste strategies

In 2030, Zero Waste cities are a brand of their own. It's one that seeks to replace the take-make-waste model of traditional consumer economies and replace it with one of socio-economic redistribution. Its buyerarchy of needs takes direct aim at consumerism and traditional waste management, seeking to replace buying with investing in local innovation, local production, and healthy living. Faced with a dire global waste problem—41% of global waste is disposed of via uncontrolled burning and will increase until 2100—the most successful Zero Waste cities have adopted a bio-diversity of strategies rather than a few big infrastructure plays. Whether they were already leaders in climate adaptation or cities struggling to recover from climate disasters, or even megacities with no waste management infrastructure at all, the leading Zero Waste cities all stand out for their highly-engaged citizenry.

- Zero Waste cities innovate at three scales: the household scale, where families reject high consumerism and strive to reduce their landfill waste to near zero; the sector scale, where industries seek to build a circular economy that frees them from dependence on dwindling resources; and the city scale, where regulation and infrastructure seek to balance innovation and equitable asset distribution.
- The Zero Waste family emerges as an alternate lifestyle that focuses on low consumption, voluntary simplicity, family health, and high-value experiences. The new buyerarchy of needs says “no” to non-reusable goods, packaged goods, and excess stuff. Plastics, in particular, are all but eliminated.
- Many cities target Zero Food Waste as a focal point of their strategies, citing the fact that one-third of all the food designated for human consumption is wasted and that food waste in landfills, decomposing into methane gas, is the source of 25% of current global warming.
- In megacities, the chronically unemployed invent new kinds of jobs and new platforms for collective bargaining from the bottom up—for example, to standardize exchange rates for recycled goods and provide safe workspaces for sorting them.
- Zero Waste cities exacerbate the divide between traditional rural communities that depend extensively on tapping natural resources and urban lifestyles that refuse the products of these communities and seek independence from them. Episodic skirmishes across the divide take the form of new categories of hate crimes, sometimes spurring mass shootings.
- Zero Waste innovation inherently shifts the wealth from traditional extractive industries (and their wealth holders) to new renewable sectors and a new class of wealth holders. The challenge for Zero Waste cities is to avoid reinvention of the wealth hierarchies that depend on ownership of core resources—including renewable resources.

SIGNALS: SEEING THIS FUTURE IN THE PRESENT



A Zero Waste lifestyle

In 2008, Bea Johnson launched a zero waste lifestyle movement that blends elements of voluntary simplicity, decluttering, and modern living. Documenting her family's strategies for reducing their annual waste to a jar, Johnson's book, *The Zero Waste Home*, has been translated into 25 languages. Johnson eschews the "back to the earth" culture of earlier simplicity movements in favor of an efficient urban lifestyle that saves money, frees up time, and addresses climate change.

zerowastehome.com



Zero Waste workers form cooperatives

In Buenos Aires, about half of the materials that feed the city's recycling operations are collected by informal workers called *cartoneros*. As part of its strategy to meet Zero Waste targets, the city works with *cartoneros* to create safe spaces for them to sort the materials they collect, while the *cartoneros* themselves have organized into cooperatives that provide an alternative governance model for urban waste management.

sciencedirect.com



Toolkit for Zero Waste Cities

In Europe, more than 400 cities have adopted zero waste targets as part of Zero Waste Cities—a formal network of non-governmental organizations working to support the efforts of Zero Waste Cities. The organization has developed a toolkit of strategies for communities and cities to build their Zero Waste practices.

zerowastecities.eu

PUT YOURSELF IN THIS FUTURE

In a world where doing business means eliminating all forms of waste ...

What makes you angry? | What makes you nervous? | What gives you hope?

SUPERPOWER



REFRAME THE **NARRATIVE**

The power to frame and deliver a narrative to the public was once enjoyed exclusively by large institutions and media gatekeepers. But with the rise and ubiquity of the Internet, connected communities of individuals have repeatedly demonstrated their power to shift the public narrative seemingly overnight. From BlackLivesMatter and #MeToo to the rise of populist candidates and “cancelled” brands, large organizations can no longer afford to treat their brand narrative as a top-down marketing push.

THE POWER PLAY

Organizations that can align authentically with changing cultural norms and narratives—whether those norms involve climate, gender, equity, or other core values—will discover pathways for securing more loyal and passionate audiences. History is rife with narrative reframings that have changed the way we prioritize issues and policies. In recent years, narratives around autism have moved away from purely medical diagnoses towards nuanced understandings of a spectrum of identity characteristics that present challenges but also confer unique abilities. For decades, electric cars were viewed as an inferior-if-not-quixotic project until Tesla demonstrated the performance benefits that accompany the transition from combustion engines.



SIGNALS: SEEING THE FUTURE IN THE PRESENT

These examples highlight a range of ways to **Reframe the Narrative**. Use them as inspiration to plot your path forward.

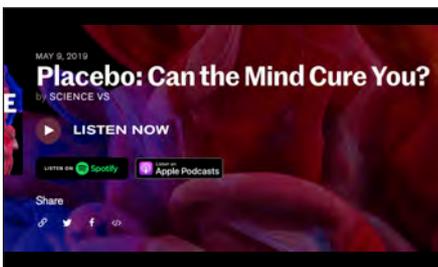


twitter.com

#Mylastshot seeks to publicize the real costs of violence

In 2019, students at Columbine High School in Colorado (the site of a mass school shooting in 1999) launched the #mylastshot campaign. Aimed at provoking new strategies to reduce school violence, the campaign invites students to provide photos that can be used in awareness campaigns should they get killed in gun violence.

cnn.com



gimletmedia.com

Harnessing the benefits of placebo effects

Researchers at Harvard's Program in Placebo Studies have been working for years to help the healthcare industry learn how to reframe the traditional perception of placebo effects as statistical noise into one that recognizes its demonstrated medical value. Their research has led to an emerging practice in medicine aimed at using placebo effects as a therapeutic tool.

tedkaptchuk.com



Inclusive policies as competitive advantage

Increasingly large bodies of evidence are showing that companies that hire for neurodiversity—particularly by developing hiring programs for those on the Autism spectrum—outperform their peers. Similar research from Accenture is showing that workplaces that champion best practices for supporting persons with disabilities are significantly more profitable than those that don't. These kinds of efforts are reframing inclusive design as an opportunity to both promote more humane policies and create new business value.

fastcompany.com

accenture.com

hbr.org

SUPERPOWER

R

REWRITE THE RULES

For the past 30 years, western governments have largely adopted laissez-faire approaches to the market, but fast-moving transformations to our economies and societies create renewed pressures for large-scale regulatory overhauls. In addition to new calls in the West for data privacy, climate change strategies, and safety net policies, the next decade will see increased pressures on platforms that operate with quasi-governmental power to develop more participatory approaches to defining and implementing governance systems.

THE POWER PLAY

The Silicon Valley tech companies that achieved pecuniary nirvana by chanting the mantra “move fast and break things,” later experienced the karmic payback of record fines and massive public backlash. For example, had Facebook worked proactively with regulators before facing a multitude of post-2016 scandals, it may have retained enough goodwill to counteract public clamor for breaking up Big Tech that’s risen across the West. In a world where consequences hit faster and harder than before, it’s more important than ever to define clear rules of play, and be transparent about how they are being followed.



SIGNALS: SEEING THE FUTURE IN THE PRESENT

These examples highlight a range of ways to **Rewrite the Rules**. Use them as inspiration to plot your path forward.



legislation.gov.au

Australian law targets platform owners with jail time

In response to the 2019 Christchurch shootings, lawmakers in Australia passed the Sharing of Abhorrent Violent Material bill. Aimed at ensuring that tech platforms moderate speech on their sites, the law creates the possibility that executives from companies like Facebook, Twitter, and YouTube can be held criminally liable for failing to remove violent content in a timely manner.

cnet.com
theguardian.com



Food industry leaders advocate for carbon pricing

Recognizing that the food and agricultural sectors are extremely vulnerable to climate change, leaders from Nestlé, Mars, Unilever, and Danone have jointly formed the Sustainable Food Policy Alliance to advocate for a variety of policies, including creating a price on carbon emissions aimed at mitigating impacts of climate change on the industry and rewarding businesses that find ways to lower emissions.

foodpolicyalliance.org



ltse.com

Rebalancing shareholder power toward long-term investors

The long-term stock exchange, approved to operate in 2019, is attempting to reinvent the rules around public company reporting and management in order to incentivize long-term strategy over short-term profitability. Among the changes: To be listed, the exchange is eyeing requirements that stock options vest over a decade or longer, short-term investors have less voting power on a per-share basis, and Boards of Directors will have legal accountabilities to evaluate performance beyond share price.

vox.com

SUPERPOWER



REINVENT **MARKETS**

In the last decade, many well-established brands with decades of stability have watched their market share flow to data-centric tech companies that operate at unprecedented speeds and global scale. Developing business strategies that seek long-term value for a wider range of stakeholders can help your organization identify undeveloped niches, reveal new scalable opportunities with potential for long-term profitability, and become resilient to global power shifts.

THE POWER PLAY

Organizations that are prepared to quickly process and adapt to shifts in the business landscape will find new ways to stand out and to seize opportunities. Ikea is reinventing itself as a circular company that takes end-to-end responsibility for its products—and stewardship of the forests it uses to produce goods. By pursuing this transition as a business opportunity, Ikea is developing new products and new business models that are better positioned for emerging market dynamics, shifting consumer values, and changing regulations.



SIGNALS: SEEING THE FUTURE IN THE PRESENT

These examples highlight a range of ways to **Reinvent Markets**. Use them as inspiration to plot your path forward.



adidas.com

Creating business models for the circular economy

Shoe manufacturer Adidas is developing a fully recyclable shoe called Loop that can be collected and turned back into base materials for a new shoe. In addition to overcoming a variety of materials science challenges, the company is inventing a sales process to collect, reuse, and resell materials from the same shoe materials.

fastcompany.com



thenextweb.com

Dedicated autonomous vehicle lanes

To jumpstart the growth of autonomous vehicles and smart infrastructure, while also facilitating more efficient transportation between Beijing and Xiaongan, the Chinese government is building dedicated autonomous car lanes that exclude human drivers—creating an opportunity for the region to establish an early advantage in the real-world use of autonomous cars at scale.

futurecar.com



cleanyst.com

Making home manufacturing a market

Kickstarter project Cleanyst is reinventing the way cleaning products are manufactured and sold. It's developing a desktop manufacturing appliance for home and body care products—which traditionally consist largely of water and come in single use dispensers—and will sell concentrated ingredient pods that can be combined with local water supplies and reusable packaging to produce home products that have a lower environmental impact than traditional home goods.

kickstarter.com

SUPERPOWER



F

REDIRECT FORCE

With the right tools and strategies, it's easier than ever to disrupt established power structures and create outsized impacts. From undermining norms that lack clear enforcement mechanisms to attacking vulnerabilities in creative ways, the increased gray areas of our globally connected systems are opening opportunities for small-scale stakeholders to make large-scale change.

THE POWER PLAY

Outsider political candidates, activist communities, and corporate brands have all discovered the power of social media to quickly change power dynamics between unlikely actors. Beyond trolling, distributed information networks will support new kinds of power-shifting abilities in the coming decade. *Moonshot* is a UK-based group of technologists who mine search data trails (among others) in an attempt to redirect individuals who are looking for hateful information. The group buys ad words for keywords associated with hate groups and targets them with results aimed at de-escalating hate.



SIGNALS: SEEING THE FUTURE IN THE PRESENT

These examples highlight a range of ways to **Redirect Force**. Use them as inspiration to plot your path forward.



Anticipating and identifying anti-vaccine candidates

In an effort to improve vaccination rates and maintain herd immunity—where a sufficiently high percentage of the population is vaccinated to protect the unvaccinated—researchers at the University of Chicago are developing machine learning models to identify which communities and soon-to-be parents are less likely to have their children vaccinated. The goal of this work is to eventually be able to use these models to better target these populations with novel interventions to improve public health.

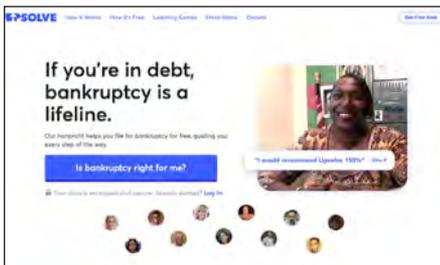
spectrum.ieee.org
dssg.uchicago.edu



Tricking surge price algorithms

In response to pay decreases, a group of approximately 100 Uber and Lyft drivers in the Washington, DC metro area have developed a novel strategy to trick the platform companies' algorithms into turning on surge pricing. At times when they know a lot of planes have just landed, they turn their apps off for a couple of minutes to trigger surge pricing and then resume working at higher rates.

wjla.com



upsolve.org

Making bankruptcy filing affordable

Ironically, one of the bigger challenges of filing for Chapter 7 individual bankruptcy in the United States is that those who are most in need of receiving debt relief lack the funds to file for bankruptcy. Upsolve, a non-profit tech organization funded by Y-Combinator, aims to automate the process of filing for bankruptcy protection by using bots to help individuals generate complex legal paperwork that fits regulatory requirements at a fraction of the cost.

washingtonpost.com
techcrunch.com

SUPERPOWER



R

REINFORCE LOCAL **RESILIENCE**

In the face of many of today's macro challenges, the most devastating impacts are global in reach but hyper-local in direct impact. If and when national and global interventions prove inadequate to mitigate the impacts of disrupted infrastructure, relocated refugees, and deflated economies, local action will be the power play of last resort. With backs against the wall and institutions failing to provide tangible benefits, we should expect to see local communities start to take matters into their own hands. When they do, they will find many new tools and distributed infrastructure plays emerging to shore up their resilience.

POWER PLAY

Rather than waiting for massive regulatory overhauls or societal backlash, organizations can bolster the resilience of local communities in many ways, such as developing new forms of portable infrastructure for growing food, purifying water, and generating electricity. Many of these tools are being developed for emerging economies where volatility is nothing new. In researching the impacts of a deadly heat wave in Chicago, sociologist Eric Klienberg found that *social infrastructure*—including things like friendships with neighbors, third spaces such as restaurants and libraries, and levels of trust—were critically important to determining survival rates.



SIGNALS: SEEING THE FUTURE IN THE PRESENT

These examples highlight a range of ways to **Reinforce Local Resilience**. Use them as inspiration to plot your path forward.



Delivering social connection with the mail

As evidence of the deleterious effects of loneliness has grown, government programs have begun looking for novel strategies to reduce loneliness. One such pilot effort, being developed in the UK, is called “Safe and Connected.” It aims to train postal workers to check in with residents as they deliver the mail and ask them questions—with a goal of providing social services to those who are socially isolated.

qz.com



Using green spaces to reduce crime and improve mental health

Public health researchers have partnered with the Philadelphia Horticultural Society to understand how small-scale improvements, such as clearing trash from abandoned lots, can improve the quality of life in a neighborhood. Over the years of this research partnership, these kinds of small-scale improvements have been shown to reduce gun violence, improve mental health, and reduce stress while saving local governments money in the long-run.

Kleinberg, Eric. *Palaces for the People*.
jama.jamanetwork.com



Solar powered local water treatment

Finnish startup Solar Water Solutions has developed a micro-scale water desalination treatment facility. Aimed at reducing the cost and pollution of turning ocean water into potable water, the system—roughly the size of a shipping container—is powered by solar energy. Currently being tested in a single site in Namibia, the startup hopes their product becomes a solution in islands, campgrounds, and drought-stricken areas for producing clean water at low costs.

fastcompany.com
solarwatersolutions.fi



P

RESHUFFLE THE DECK

This final superpower confronts the wildcard outcomes made possible by our complex and tightly intertwined global systems. Will automation break the fundamentals of intellectual property? Will climate change transform the value of land assets around the world? The butterfly effect of cascading consequences has never been so relevant, or so unpredictable. And while we can't anticipate what exactly will happen as these systems interact, we can build up our strategic readiness through the tools and practices of systems thinking.

POWER PLAY

Systems thinking is an interdisciplinary field that emerged with the complex modern infrastructure of the twentieth century. Rather than viewing the world through highly-specific analytical lenses, this approach considers “whole systems” on their own merits, and assesses the parts, relationships, flows, and governing purpose that make our businesses, governments, and communities what they are. In the brilliant introductory work, *Thinking in Systems: A Primer*, author Donella Meadows observes that “systems thinkers see the world as a collection of ‘feedback processes,’” and encourages us to understand why our systems work the way they do to better inform our assumptions for how they’re likely to change in the future.

SIGNALS: SEEING THE FUTURE IN THE PRESENT

These examples highlight a range of ways to **Reshuffle the Deck**. Use them as inspiration to plot your path forward.

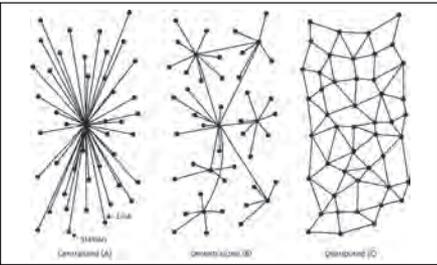


pixelbay.com

Systems approach to AI

A 2019 study produced by the Harvard Business Review analyzed the AI strategies of 8,300 global companies, identifying that most of these firms are missing out on the most transformative potential of new technologies by focusing on siloed use cases rather than whole system impacts. They posit that companies focused on building comprehensive “future systems” led by AI and data-based strategies are positioned to grow their revenue by as much as 30% by 2024.

hbr.org



Paul Baran

Whole systems training builds better teams

The Leeds Teaching Hospital Trust was awarded by the Health Service Journal in 2018 for the whole systems approach it pioneered across its entire organization, developing a leadership and training philosophy that embraces systems thinking at its core. Its teaching philosophy incorporates five pillars that cover diverse needs and perspectives, including “health and wellbeing, recognition and celebration, effective two-way communications and engagement, organisational learning and leadership, and employee journey.”

hsj.co.uk



Complex systems and cybersecurity

One of the fastest growing risk factors for large global companies is the cybersecurity vulnerabilities introduced by modern interconnected computing networks. These threats are particularly pernicious because of how quickly they change, identifying and leveraging weak points as they're introduced into complex systems. Schools like Georgia Tech have started taking an explicitly systems thinking-based approach to cybersecurity, training students not just to address existing problems, but to identify how and where vulnerabilities may emerge in the future.

pe.gatech.edu