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FURTHER READING

SUPERSTRUCTING
Layer micro and massive scales to nurture genomic diversity and everyone in fun, fierce bursts.

Superstruct Strategies
Use renewable and diverse generational differences.

AMPLIFIED OPTIMISM:
Reverse scarcity: resources as rewards.

EXTREME SCALE:
You can use ad hoc agencies can be on-the-spot for addressing complex needs and we're about to see breakthroughs in how extremely small spectrum, we're about to see breakthroughs in how extremely small.

ADAPTIVE EMOTIONS
Experiment with new global interfaces made up of networked opportunities to tap this capacity for collective positive emotion to the extreme-scale response of individuals worldwide creates a use adaptive emotions to build adaptive capacity.

ADAPTIVE POWER


The flip side of vulnerability is that some regions will become safe havens, care and communication systems, good governance, human rights, and change, and these differences are likely to prompt different policy

ADAPTIVE POWER + WATER:
Dissent Among Global Ministers
As a March 2010, seven Latin American countries have called for an alternative global water forum that is clearly within the framework of the UN. These Latin American countries have called for an alternative global water forum within the framework of the United Nations. This forum would be a platform for sharing knowledge and experiences, both at national and international levels.

Unlike most vulnerability forecasts based on future scenarios for climate and socio-economic factors, the Maplecroft Climate Change Vulner


Figure 12

These Latin American countries have called for an alternative global water forum that is clearly within the framework of the UN.

Figure 10

Source: Climate Change Risk Atlas 2010, Maplecroft, 2010, No data

Medium risk

No data

Low risk

High risk

- CRUMBLING LEGITIMACY
- Will of the People
- CRACKLING SYSTEMS
- GLOBAL WARMING
- ADAPTIVE POWER
- DECENTRALIZATION, MASSIVELY MULTIPLYER WORLD POLITICS

Building a new kind of power in which stability emerges from variability and discontinuities continue. How will you live this forecast?

How will you live this forecast?

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The nations of the world are shifting along a spectrum of stability, and a comparison of FSI results from 2009 for a few representative countries shows the range of vulnerability to failure, from Somalia, a country at the highest risk, to the US, which is in the Sustainable category. Somalia is at the highest risk because it is characterized by a near-total collapse of the state, with weak institutions and a long history of violence and conflict. The US, on the other hand, is in the Sustainable category due to its strong institutions, economic diversity, and political stability.

The results produced by the TCU task align well with expert reports of states whose citizens perceive the greatest levels of corruption (Figure 3). The Corruption Perceptions Index (CPI) is a worldwide survey conducted by Transparency International (TI) to assess the degree of perceived public sector corruption in countries around the world. The index ranks countries from 0 (highly corrupt) to 10 (very clean), with a lower number indicating greater perception of corruption. The CPI is based on surveys and expert assessments and is widely regarded as a reliable measure of corruption.

The least corrupt states are in North America, Northern Europe, and Oceania. The most corrupt states are in Sub-Saharan Africa, South Asia, and the Middle East. The CPI highlights the importance of effective governance and the role of civil society in combating corruption. The index also serves as a valuable tool for policymakers and international organizations in developing strategies to combat corruption and promote good governance.

The growth of NGOs serving as consultative organizations with the United Nations has slowed in recent years. There are a number of possible explanations for this slowdown in the growth of ECOSOC NGOs. Equally important in explaining the slowdown of growth in ECOSOC NGOs is a change in the nature of NGOs themselves. Where many NGOs used to be small, local organizations that focused on a narrow range of issues, many are now large, international organizations that have a more diverse set of interests and activities.

For the past decade, countries in the Global South—those that have a low or middle level of income, are less developed, and have a lower degree of political stability—have been the focus of much attention in efforts to reduce global inequality. The current economic crisis and the growing recognition of the importance of sustainability have made it even more important to address the needs of the Global South. A new generation of NGOs has emerged that is working to address these challenges and promote social and economic justice around the world.
The Failed States Index (FSI) is an annual assessment of global corruption by Inter-Action, a nonprofit organization. The index ranks countries based on a variety of indicators including civil society engagement, media freedom, and the rule of law. From 1995 to 2005, the number of NGOs more than doubled. In the past decade, this growth has slowed dramatically—especially in Sub-Saharan Africa (see Figure 3). However, the increase in NGOs has not been reflected in a corresponding increase in the number of failed states. An analysis of the 4425 NGOs included in the index reveals that 78% of these organizations are in North America, Western Europe, and Oceania. The remaining 22% are distributed among 165 countries worldwide, with the majority in the developing world (see Figure 4).

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The index ranks countries based on a variety of factors, including political instability, economic performance, and human rights violations. The top 10 least corrupt countries in 2009 were: Colombia, Turkey, Ukraine, Australia, Canada, Estonia, New Zealand, Switzerland, Finland, and Denmark.

NGOs as Institutions of Global Governance

Over the past three decades, the role of non-governmental organizations (NGOs) in governance has grown exponentially. NGOs play a crucial role in providing services, monitoring government and market behavior, and promoting the welfare of citizens. However, their impact is not without challenges.

The impact of corruption

The legitimacy of any government becomes compromised by perceptions of corruption. Corruption is defined as the abuse of public power for private gain. The Global Corruption Barometer is a survey that measures citizens’ perceptions of corruption in their countries. The results are not only important for comparing the quality of governance among countries, but also for understanding the extent of corruption within a country. In the 2009 index, 38 out of 177 countries were ranked in the top 25 for corruption.

The S-curves of civil society

In the 1980s, civil society was often described as a parallel governance system. However, the growth of NGOs has been described as a shift from a parallel to a networked system of governance. While many NGOs are local or national in scope, a growing number function at a global level, often acting as transnational actors.

Decisions on how to measure the growth of NGOs in the UN system have focused on the number of members and the number of countries in which ECOSOC NGOs are represented. The number of international NGOs has grown significantly over the past few decades. Today, the number of ECOSOC NGOs without a specific region is around 10,000.

A layer of legal frameworks

With the growth of NGOs comes a layer of legal frameworks for managing their activities. The World Bank, for example, provides some of the services traditionally provided by governments and markets, but does so in a way that allows for greater flexibility and innovation. The argument is that licensing agreements with largely Northern interests, typically required by Southern governments and markets, provide a substitute for piracy and do not necessarily act in their best interest. With this shift will come a series of legal frameworks for managing the evolution of open source.
One of the challenges facing governments is to help individuals develop the capacity to respond to extreme-scale climate disruptions. Studies show that while the vulnerability of countries and regions varies widely, the ability of governments to adapt to and mitigate climate change also varies. For example, countries in the Northern Hemisphere are generally more vulnerable to extreme-scale climate disruptions than those in the Southern Hemisphere. However, governments in the Northern Hemisphere are also more capable of adapting to these disruptions. This suggests that there is a need for a more global approach to climate change adaptation, as well as for governments to work together to address the challenges of extreme-scale climate disruptions.
GROWTH
The New Exceptionalism

In the midst of a gradual economic recovery, both popular and state-level responses to complex global problems have the unexpected consequence of sidelining key global institutions. As the United States and European Union pursue a carbon market strategy outside any global agreements, unprecedented weather events and faster-than-expected increases in temperatures lead to unilateral experiments with geoengineering. Public outcries and a weak United Nations response leave the world focused not on institutional intervention but rather on ad hoc mitigation strategies—and markets. China, unburdened by the need to build a national consensus, uses its growing economic might to build an increasingly resilient infrastructure while the United States is unable to rally support for a strong internal policy. Both China and the United States make claims to exceptionalism, asserting that they are occasionally above the Law of Nations because they occupy special positions as guardians of the global welfare. Meanwhile nationalistic movements proliferate around the world, and even in a global economy that continues to leverage liberal trade agreements, the seeds are sown for growing isolationism.

• The mitigation vs. adaptation debate becomes increasingly shrill. Although official policy in most nations remains a commitment to rapid reductions in carbon emissions, on-the-ground efforts focus on successful adaptation to the worst effects of warming. The United States and China both spend more money on adaptation than reduction, gaining popular support within their countries but attracting frustration and sometimes fury from more committed nations with fewer resources.

• Geoengineering looms large as a political issue, even though it is limited to small experiments. Most states offer hesitant support, but the United States ends up on both sides of the debate: government policy is generally opposed to geoengineering, but many of the corporations and NGOs working on the science and technology of geoengineering are Americans.

• With the benefits of even a weakly growing economy, the up-and-coming economic powers consolidate their gains by turning to trade and political alliances within the Global South, seeking to insulate themselves from what they perceive as a “reckless domination” by the North.

• As China’s expanding consumer market gives it increasing economic leverage, it seeks a more commanding role in global policy-making and concessions on issues ranging from African resources to intellectual property to water piracy.

• Despite secret global negotiations and heavy-handed rules against violation of intellectual property rights, the tools for IP piracy become more powerful, more widely distributed, and harder to detect. Government campaigns against piracy boost IP crime syndicates that go the route of drug cartels and Prohibition-era organized crime.

• Even as more nations work together to strengthen Internet protocols and management, there is growing tension over who exactly “controls” the Internet. The United States is reluctant to give up its dominance over Internet Assigned Numbers Authority (IANA); other powers—notably China and India—strike out on their own. Incompatible standards make the fully global Internet a thing of the past, but they also make it easier to slip through controls.

• Mobile technologies remain a significant economic driver worldwide. In both the developing and developed worlds, mobile banking and currencies are commonplace, with tentative efforts to create cross-border financial networks that sometimes fly in the face of established financial institutions and the laws that govern them.

• In the United States, Europe, and Japan, augmented reality technologies are wildly popular, but with unexpected political impacts: augmented reality tools make it easy to identify political opponents and to build bottom-up political profiling networks. These wreak havoc on political campaigns, insert a new level of distrust into everyday society, and occasionally lead to hate crimes and violence.

• Nations around the world confront the social network dilemma: these technologies empower loosely organized non-state actors, enabling them to threaten economic and political agendas of governments and corporations alike. However, clamping down on the technologies weakens a nation’s economic power even as it weakens the crowd.
ACTA NEGOTIATIONS
The Anti-Counterfeiting Trade Agreement (ACTA), currently in negotiation, represents a snapshot of the ongoing struggle between those who wish to protect the rights of intellectual property holders and those who wish to protect the open Internet. ACTA attempts to standardize IP protection laws across signatory countries, but opponents call the process unacceptable. They cite opaque proceedings (with leaks generating outrage), a perceived bias toward copyright conglomerates, and poorly worded drafts suggesting real reductions in civil liberties. While the various trade departments and ministries have begun to open up about the process, both sides see ACTA as a test case: can international trade negotiations be made more transparent?

MOBILE CURRENCIES AND BANKING
The use of mobile phones as financial tools is spreading rapidly in the developing world and is starting to show up in the West, as well. M-Pesa (M for mobile, pesa meaning money in Swahili) was developed by Vodafone and deployed in Kenya by Safaricom. It is described as a “branchless banking service,” allowing for secure financial transactions by SMS, using airtime as a complementary currency. Systems based on M-Pesa are being built in other African nations, as well as in India and Afghanistan. As of now, these mobile currency and banking services remain isolated within their home countries. M-Pesa, however, is looking at implementing an international funds transfer service in the next year.

PROP 8 MAPS
The 2008 election in California included the controversial Proposition 8, which outlawed same-sex marriages in the state. After it passed, opponents combined federally mandated public records of donors in support of the proposition with Google Maps to create an easily used visualization of donor locations. Although campaign donation data had been available for years, the now commonplace “map mashup” technique vastly increased transparency. As political activist groups grow more technologically savvy, it’s clear that they will take advantage of emerging digital tools—including augmented reality—both to further their causes and to undermine their opponents.

Supporters of Prop 8 Maps claim that it allows opponents of Prop 8 to make informed decisions about whether to continue patronage of businesses that donated to the campaign; opponents claim that it is a tool for intimidation.

Among the most explosive of the claims made by ACTA opponents based on early drafts of the treaty is that border security agents will have unlimited rights to search computers, digital music players, and mobile phones for “pirated” music and movies. EU trade representatives respond that border agents have bigger issues to worry about than iPods but don’t dispute the claim.

In the United States, Venmo (now in private beta) is seeking to offer payment services via SMS, tied not to airtime but credit cards. This will compete with Twitpay, already in operation, which links Twitter accounts and Paypal accounts.
In a world where a series of near disasters have galvanized the public will to confront the climate challenge, science-based management becomes the primary tool of governance—and the primary ground for political debates. A broadly accepted global environmental management regime encompasses both major incumbent powers and up-and-coming “leapfrog” nations. Carbon targets and valuations of environmental goods and services come to rely on multi-scale simulations of the environment as the foundation for global, national, and regional policy. Disputes over tactics occasionally threaten to spill over into other issues, including key resources such as water access and energy. While many policy leaders see overall signs of success in this approach, even more complex issues loom. Perhaps the thorniest is the rapid expansion of monitoring and surveillance technologies as a way of both watching the environment and stopping illicit trade—but with significant impacts on privacy.

- Although the global eco-management regime focuses on inter-state concerns, it explicitly sets aside a number of issues as needing a community, rather than world, focus. Top-down approaches deal with large-scale management of issues such as energy, food, water, and geoengineering. Bottom-up, citizen-driven actions, in turn, rally resources to rebuild after disasters, to mitigate local problems, and to retrofit communities for greater resilience.

- The depth of the eco-crisis, coupled with the speed of response, leads critics from the Global South to talk about “environmental shock therapy,” a critique that resonates for many developing nations. Targeted funding and loan forgiveness mitigate some of this resistance in the less-developed nations, but debate flourishes in the more powerful countries of the Global South as to just how much the management regime benefits them.

- Some states, such as Russia, find themselves unable to reach even modest targets. By 2020, they are looking at ways to leave the system, setting up the potential for a new configuration of global political friction.

- As nations look for ways to reduce overall carbon footprints, transportation of goods is a major point of contention. Opponents of efforts to tax (or even label) transportation costs of goods use WTO rules to delay implementation, claiming that such plans violate free-trade rules. Public pressure manages to push through these carbon measures nonetheless, leaving the WTO critically weakened as a result.

- The shift away from petroleum undermines oil-rich states, leading to greater political unrest (some of it state-sponsored). Tools for environmental monitoring and personal accountability are enlisted to fight against the resulting terrorism. Critics argue that eco-management is a gloss over the massive expansion of the surveillance state. This concern is exacerbated by a growing reliance on individual mobile devices as monitoring tools.

- The various efforts to control intellectual piracy online get a boost from improved monitoring technologies, and long-standing resentments about control over the Internet fade while nations deal with more pressing problems. Worries about unwanted content remain, however, and a growing number of countries and regions use “great wall”-style Internet filtering and censorship systems to block out undesirable content.

- Tools for citizen-based “anticipatory governance,” supported by a few key NGOs and corporations, are designed to “route around” national governments, particularly in states where officials have been slow to respond to complex crises. However, transparency indexes that reveal corruption and previously hidden corporate interests in these governments undermine the credibility of these experiments.

- In a world of global cooperation around metrics of wellbeing, the movement for an international treaty for food security gains support across the public and NGO-sectors, establishing a minimum standard of nutrition, creating a world food reserve, and establishing the legal mechanisms to enforce these provisions. It spawns a parallel movement in support of a water security treaty.

- With the growing power of environmental movements, some issues once thought marginal take center stage. An example is the legal rights of nature—including animals, forests, and perhaps even bacteria. Initially intended as a way to give nature “standing” in court, the idea becomes a point of conflict between groups vying to be declared “legal guardians” of regions or species.
**Signals of Constraint in Adaptive Power**

** Tradable Emissions Quotas**
Tradable Emissions Quotas, (TEQs) is a system in development in the United Kingdom for end-user rationing of energy, as a proxy for greenhouse gases. Although similar in many ways to business-to-business carbon-trading mechanisms, TEQs operate at the individual level, giving each adult a personal stake in energy efficiency and emissions reduction. Initially dismissed as unworkable, the United Kingdom is now taking another look at the proposal, as the technology for precise monitoring of energy use and for mass trading is now readily available.

The primary argument for TEQs is that of individual empowerment, rather than a tax or restrictions at the production side. By giving end-users a financial stake in improving their energy efficiency, the TEQs approach hopes to increase both energy/carbon transparency and enthusiasm for taking action.

**New Rules for Shipping Carbon**
Under the 1944 Convention on International Civil Aviation, which still sets the rules for international shipping, fuel for international shipments of goods (whether by air or sea) is exempt from taxes. However, the European Union is set to include air freight in its 2012 emissions-trading regime, setting up a potential conflict between the so-called Chicago Convention and the European Commission. Shipping by sea, however, may prove a bigger problem. A 2008 report from the UN International Maritime Organization claimed that shipping produced 1.12 billion tons of CO2 a year, or 3.5% of the world’s total output, and was set to rise to 1.48 billion tons by 2020 (air transport, by comparison, is reported to produce just under 500 million tons of CO2).

The Beluga Skysail system, now in final testing, uses a kite to add propulsion to cargo ships. Under normal wind conditions, the use of a Skysail reduces fuel consumption by 10-35%, but under optimal conditions, it can cut fuel use by 50%. Several large shipping services, including GE Logistics, have begun testing the sails.

**Rights of Nature**
In 2008, two-thirds of Ecuador’s citizens voted to change the nation’s Constitution, making the country the first to give the natural world explicit rights, including the right to “exist, persist, maintain, and regenerate its vital cycles, structures, functions and its processes in evolution.” The section on nature also requires that the Ecuadorian government apply “precaution,” and prohibits the introduction of organic or inorganic material that would change the “national genetic patrimony.” The Ecuadorian government continues to provide extensive mining and oil production contracts, which its critics claim violates the Constitution it helped write.

“RICANCIE: We are nine indigenous Kichwa communities protecting nature.” The ongoing arguments over mining and oil production underline the challenges of rights-of-nature laws, particularly concerning how a country decides whether an economic activity harms the ability of nature to “maintain and regenerate.”


Source: Beluga Skysails, http://www.skysails.info/

Source: Anti-Petroleum Assembly in Tena, Ecuador, in March 2004. From IndyMedia NL.
Cascading economic, environmental, and political crises around the world leave no state or institution able to provide effective global leadership. A “false dawn” economic recovery succumbs to unresolved weakness in trade and financial structures, and the rising economic tension triggers trade wars, signaling the apparent end of the “globalization” era. Even weak responses to global warming fall by the wayside as states seek to avoid apparent short-term costs. Increasingly, climate disruption is viewed not as an environmental crisis to be solved, but a military-political condition to be managed. Institutional failures are felt most acutely in the countries of the Global South: they lose economic and political ground, with increasing amounts of political violence both within and between nations. Up-and-coming powers like China and India see their growth falter as the global economy staggers. Even though they initially manage to maintain stability, dwindling resources signal increased internal conflict and terrorism. In the developed world, environmental strategies no longer seek to stop global warming, instead looking for ways to adapt quickly and blunt its impact. Ironically, the overall economic decline slows the growth of emissions.

- Bretton Woods institutions lose legitimacy and political support, as the apparent collapse of globalization undermines most organizations linked to international management of the economy.
- The United States begins an aggressive dollar devaluation policy in order to get out from under its international loan burden. China blasts this as “default by another name,” but without strong international institutions, it is unable to muster support for an effective response.
- Smaller nations in the developing world default on their loans in more traditional ways, as both global trade and remittances to home nations by immigrants living in the Global North dry up. Mexico and the Philippines are hit especially hard, and both nations see increases in violent unrest, with strongly authoritarian responses. Across the Global South, optimism fades rapidly.
- A search for alternative institutions of legitimacy empowers separatist and isolationist movements, in both traditionally troubled regions such as the Middle East and seemingly stable developed nations such as the United States. Insurgencies around the world adopt techniques perfected in Iraq and Afghanistan, while disaffected, unemployed veterans of those conflicts swell the ranks of corporate armies and militias alike.
- China accuses the United States of intentionally slowing its response to global warming, in an attempt to weaken the Chinese economy. The United States denies the charge, but claims that Russia is doing so. Russian leaders call this “rubbish.” The European Union blames China for restoring coal-fired power plants as the country responds to local energy crises. In the face of a steadily worsening drought and with famine, Indian leaders claim that any intentional slowing of carbon emissions reductions should be treated as an act of war.
- The problem of piracy that grew rapidly in the 2000s emerges as a global issue. “Water piracy” is a top headline, but piracy of goods is at an all-time high, with a particular focus on food and biofuels. Pro-poor organizations point out that foreign land acquisitions and resource wars in Africa are at the root of piracy and continue to argue for land and other socio-economic reforms. But without an effective global forum, they have little power to sway foreign nations that see both their land interests and their access to basic food and fuel threatened.
- The various efforts to control IP piracy and the overall structure of the Internet that emerged in the early 2010s suffer from weakened monitoring and justice systems both locally and globally. Hackers rush to take advantage of the situation, and all sorts of open-source platforms get a second wind—one of the few bright lights for southern nations who had adopted open-source as a development strategy.
- Internet “brown-outs” are more frequent due to deferred maintenance of network infrastructure, rolling power blackouts, and in particular, widespread hacking and denial of service campaigns. Many believe these attacks are coordinated by intelligence and security ministries.
- Virtual worlds boom as people take refuge in the safety of simulated environments and the satisfaction of creative experiences that they offer. Functioning on extreme scales—with multiple millions of players worldwide—these worlds may be the seeds of a new global hegemony. It is here that a common global culture survives and even thrives.
**QUADRENNIAL DEFENSE REVIEW**

One early signal of the growing military-political aspect of global warming is its rising visibility in official military documents. The Pentagon’s Quadrennial Defense Review (QDR) outlines the major strategic risks and challenges the Department of Defense believes the United States will face in coming years. In the 2010 QDR, climate change is positioned alongside energy as a significant possible driver of conflict, noting both the potential for disputes over dwindling resources and the race to take advantage of territories altered by a shifting environment, such as the Arctic region. Calling the changing climate an “accelerant of instability,” the QDR notes that the American military will be increasingly called upon to serve as first responders in climate-related emergencies and disasters.

![Image of photovoltaic array](https://www.defense.gov/QDR/QDR%20as%20of%2029%20JAN%2010%201600.pdf)

One benefit of the increased focus on climate is the growing recognition of the need to reduce the military’s environmental footprint. In past years, this has meant making explosive materials less toxic, but the real emphasis now is on energy. The Pentagon has begun partnering with local green energy suppliers; this photovoltaic array, in Colorado, was built on a closed landfill, and generates power for 540 homes on the nearby base.

**COMPLEXITIES OF PIRACY**

Piracy against shipping has been a problem for much of the modern era, but the latest wave appears to be driven by forces that are likely to increase over the next decade. Although most reports about modern ocean piracy focus on theft and hostage-taking, there’s a more complex problem to be faced. In Somalia, coastal piracy has been driven in part by European ships’ dumping hospital waste offshore, as well as by rapid increase in illegal fishing by foreign countries, according to the Centre for Globalization Research in Canada.

![Image of Chinese fishing vessel](https://commons.wikimedia.org/wiki/File:Tianyu-8.jpg)

Although the media image of pirates focuses on the criminality, it’s useful to think of them in terms of asymmetric warfare as well. Many Somali pirates refer to themselves as the “Volunteer Coast Guard of Somalia.” The targets of Somali pirates are often European vessels, but as China becomes more involved in Africa, it’s likely to see more attention, as well. Here, pirates hold the crew of the Chinese fishing vessel Tian Yu 8 in November, 2008.

**DEPENDENCE ON REMITTANCES**

Remittances make up a surprisingly large percentage of the GDP of many developing nations. But remittances are very sensitive to changes in the global economy, much to the detriment of the states dependent on them for continued growth. Mexico, which receives more income from remittances than from tourism, saw a 20% drop from 2008 to 2009 (nearly $2 billion), devastating the rural communities that rely most on remittances. Any prolonged decline in the world economy is likely to have a profoundly negative impact on the Global South; in some cases, it could mean the total collapse of local economies.

![Remittances chart](https://www.worldbank.org/en/topic/migration移民和remittances)

In 2008, India and China together received as much in remittances as the next eight recipients combined, but far more vulnerable are places like Tajikistan and Lebanon, which receive a significant proportion of their GDP from their citizens working abroad.

![Remittances chart](https://www.worldbank.org/en/topic/migration移民和remittances)

In a world where dense networks and smart materials give every decision a digital information shadow—and where long-standing institutions of governance remain mired in short-term thinking and self-interest—a wave of citizen-driven programs emerge that offer both greater responsiveness to the local imperatives, and greater transparency into the workings of global governance. By 2020, most countries with widespread information and communication networks have some form of “participatory governance” experiment underway, with widely varying degrees of success. Beyond these direct efforts to re-think government, a host of new “persuasive technologies” are emerging to help various populations self-organize and self-manage according to a combination of values and metrics. Operating at diverse scales—from large-scale context-aware systems to molecular-scale neuro-targeted devices—these persuasive tools drive waves of response and adaptation that outpace and outperform traditional bureaucratic structures.

- Participatory governance groups start in ways that reflect diverse trends. In the United States, they initially focus on the allocation of crisis relief. In China, conversely, they evolve out of collective-buying circles. From the outset, their ad-hoc nature and limited scope make it easy for established leaders to ignore them. As they grow, they expand their purview, however, and their distributed nature makes them harder (but not impossible) to rein in.

- In traditionally democratic states, there’s a great deal of experimentation with differing approaches to participatory governance. Some locales try real-time decision-making, where citizens are asked to offer perspectives as problems arise; others try participatory budgeting, with citizens able to make granular choices about funding allocations. A few even try a games-based approach, where complex policies are simulated.

- At their best, participatory governance strategies allow people to short-circuit cumbersome legislative and bureaucratic processes, but they are often captured by special interests and are subject to the same polarization and obstruction as earlier models.

- The Global North, the participatory governance movement overlaps with a growing debate about the nature of representative democracy in a world of complex problems. Representatives of diverse interests are often driven to superficial, near-term solutions in order to avoid being voted out of office. In this context, some call geographic representation in a post-geographic era anachronistic, and turn to “principles-based alliances” as an alternative model.

- Where successful, experiments in participatory governments prompt big changes in policy-making methods, which in turn lead to substantial efforts to confront large-scale, longer-term issues. Participatory processes underlie “evidence-based governance,” where programs are enacted and evaluated strictly on the basis of well-vetted data, often from outside a country’s borders.

- In more autocratic states, the participatory governance groups are strictly limited in terms of what issues they tackle, and how much control they have over resources. As a result, this movement is both less disruptive and less able to provoke significant changes to policy. Within these strictures, however, they do see some successes, particularly around urban planning and community design.

- The various top-down mechanisms trying to place controls on the Internet run headlong into extremely active—and technologically savvy—principles-based alliances. By 2020, most of the heavy-handed mechanisms in the democratic countries have been relaxed. The systematic expansion of all kinds of open-source offerings establishes parallel markets across many sectors, with multiple, complementary systems for licensing and recognizing value.

- The advent of augmented reality systems, combined with rapidly advancing neuroscience research, leads to abundant experimentation with so-called neuro-social systems. Leveraging a combination of context-awareness, social media, and neuro-targeted messages and experiences, these systems are designed to influence human behavior toward some end. Not unexpectedly, these persuasive projects trigger hot debates about who sets them up, who controls them, and how people can opt in or out of them.

- All of these various models are subject to “griefing”—intentional attacks on the ability of participants to achieve their goals. Although supporters of incumbent institutions and political groups are often blamed for these incidents, griefing is increasingly a tactic of principles-based alliances that don’t get their way.
**SIGNALS OF TRANSFORMATION IN ADAPTIVE POWER**

**PARTICIPATORY BUDGETING**
In 2009, the Australian legislative district of Heathcote experimented with allowing district citizens to decide, via the Internet, how to allocate government funding. Participatory budgeting, first used in Porto Allegre, Brazil, in 1988, has spread to well over 1200 municipalities globally, enhanced by Internet-based tools. Such a process isn’t limited to small communities; the Brazilian city of Belo Horizonte, with 1.7 million voting citizens, has used participatory budgeting since 1993, and more recently switched to an Internet-based method.

Participatory budgeting emerged as a way of giving the poor and other disenfranchised communities greater say in how government funds were allocated. It’s unclear how well this particular goal has been met; continued lack of involvement of the poor and the young remains a frequent criticism.

**NON-GEOGRAPHIC REPRESENTATION**
Traditional mechanisms of representative democracy tie representatives to geographic districts. As the voting citizenry has become more diverse, and as district populations have grown, the ability of a given representative to accurately reflect more than a fraction of constituents has greatly diminished. One proposal gaining increased attention is the notion of non-geographic representation, sometimes called “Personally Accountable Representation” (PAR). Voters across a greatly enlarged district would select representatives from a range of alternatives, seeking the leaders most similar to their personal views. Representatives would then be able to act in ways that more closely reflect the views of their constituents.

Instant-Runoff Voting, used to elect parliaments in Australia and Papua New Guinea, as well as the President of Ireland and the city council in San Francisco, allows voters to rank their preferences among a set of candidates. If a given #1 choice receives the least number of votes, that candidate is dropped and the #2 choice becomes active; this continues until one candidate receives 50%+1 of the vote. Supporters of this method claim it allows people to vote for whom they like most, as opposed to voting for whom they dislike least.

**NEUROPOLITICS**
One of the results of the decreased costs and increased speed of both brain imaging and genetic analysis has been the correlation of numerous behavioral and social traits to particular physiological phenomena. In particular, the brain’s dopamine reward system and the level of activation of the right prefrontal cortex both offer intriguing links to particular political biases. Although the science at this point is more suggestive than certain, there are strong indications that the connection between differing neurological structures and political preferences is very real. It’s very likely that over the next decade, the increased understanding of how the brain functions will allow neuro-targeted political advertising.

Fear is a strong driver of political choices; here is a poster from the United Kingdom highlighting the presence of security on public transit. A 2008 study, published in Science, found that a strong “startle” response correlated with political views favoring strong social protection and obedience beliefs; some took this analysis to mean that conservatives are more driven by fear, but the authors of the study carefully avoid making that claim.

Source: Prensa Municipi Caroni (Caroni, Venezuela)
