Government as a Brain: How Can Governments Better Understand, Think, Create, and Remember, and Avoid the Traps of Collective Stupidity Both in Emergencies and Normal Times

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Governments are evolving new ways to think, combining observation, memory, analysis, models, and creativity. This article describes how they think, how the COVID crisis has accelerated innovation in new ways of thinking, the use of metaphors to understand these processes, the role of democracy and civil society, and the new skills needed.

The crises of 2020, 2021, and 2022 confirmed just how much we rely on governments' capacity to think and act in conditions of great uncertainty and scary speed. As lessons are learned from the very uneven performance of different governments around the world,[1] it may fuel interest in the question of how government thinks and could think better, and the need for a more developed "cognitive political science."

These questions were largely sidelined by the main debates on digital government in the 2010s. These were very much focused on government as a service provider. The idea of government as a platform, for example, was reinterpreted to mean the provision of modular elements that could be combined in service offerings—such as paying tax—reflecting the influence of an influx of people from commercial backgrounds into government digital teams.[2]

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[1]The current knowledge on performance remains in flux, with the most recent data challenging many preconceptions: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)02796-3/fulltext.

[2]See, for example, Tim O'Reilly, *What Is Web 2.0?* [O'Reilly Media, 2009], or many talks and articles by figures associated with Government Digital Services. An earlier generation of ideas about government as a platform had emphasized providing citizens with access to a wide range of service offerings, for example, for education, care, or finance.

These brought many benefits in terms of ease of use for citizens and saving money. But they also brought with them a blind spot. The advocates of new approaches to digital services were much less interested in how government made policy, how it thought, and how it learned, and in some respects the decade saw a backward movement in terms of the openness and transparency of policymaking processes.[3] Here I try to put the balance back, helped by the many ways in which the COVID-19 crisis has forced governments not only to attend to their own systems of cognition but also to engage more actively with business and civil society to create what I call "intelligence assemblies" to monitor, interpret, and act on the many dimensions of the crisis.

The idea of government as a brain is very old. One of the earliest symbols of governance, the Sumerian symbol of the ruler, was the rod and line—a symbol of a surveyor, not a warrior: analytical, cognitive, and controlling. And for millennia government was often imagined as a head, with the ruler's head put on coins. But how does a government think? How does it remember or forget? How does it create? What makes some governments amplify the intelligence of their society while others do the opposite?

GOVERNMENT AS INTELLIGENCE

To answer these questions, a good starting point is to look at how governments observe, analyze, predict, remember, and create. This broader framing is vital for making sense of the specific ways in which governments make use of data or algorithms. As I'll show, one mark of effective government is that it has a high quantity and quality of feedback of all kinds, including from citizens, which it uses to interpret the past and prepare for the future (while avoiding the risk of fetishizing just a few kinds of feedback, like poll ratings or stock price).

So observation is the foundation of government intelligence. From Roman censuses to the 18th-century pioneers of statistics to intelligence agencies today, this has been core to how governments work, and COVID-19 has reinforced how vital it is to observe the right things—with some governments incredibly energetic in testing and tracking, and others wholly lax. Taiwan's "digital fences" and Singapore's use of mobile phone data to trace contacts show just how helpful the right kinds of observation can be (though we will increasingly need new arrangements to govern that data).[4] They are also reminders of the changing patterns of both *what* government observes—with isolation a good example that in the recent past was not measured at all but is now seen as hugely important to physical and mental health—and *how* they observe, for example, now scraping the web or using images from microsatellites. Another interesting example is that some governments— including the UK Office for National Statistics—adjusted GDP figures downward to reflect the harm to education.

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[3]This backward step was very visible in the United Kingdom. In the 2000s government policy processes were very open, with transparent work plans, preliminary papers, and open engagement online. Nearly all of that stopped in the 2010s. In other countries the patterns were different. However, much of the literature retained a narrow focus on service delivery rather than policy or strategy. In terms of literature there were a few exceptions such as Beth Noveck's *Smart Citizens, Smarter State* [Harvard University Press, 2015]. I also attempted in my book *The Art of Public Strategy* [Oxford University Press, 2008] to maintain a focus on broader strategies and outcomes as well as service delivery.

[4]https://www.nesta.org.uk/blog/new-ecosystem-trust/.

Digital Fence Concept Diagram (Taiwan)
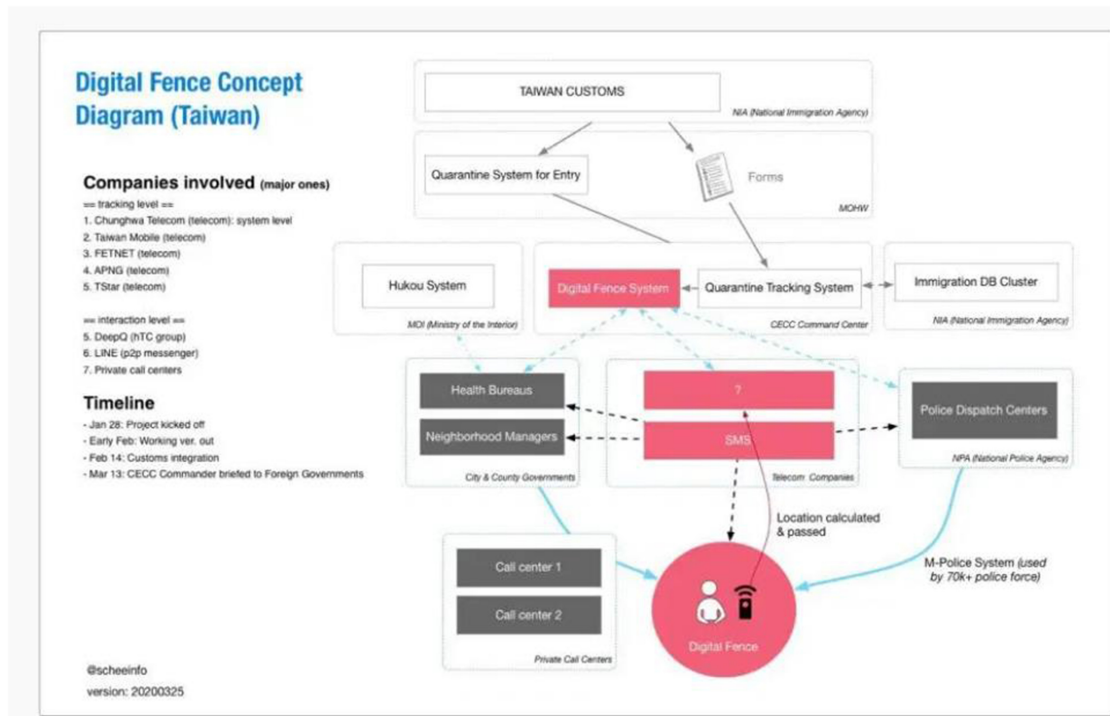
Second, models: a big lesson of recent neuroscience is that models precede observations; they determine what we see as well as what sense we make of it. So the mark of smart government is that it has many models and constantly refines and improves them. Again COVID-19 has re-emphasized this—and the risks of over-dependence on single models. As Scott Page put it in his brilliant book *Model Thinking*,[5] for any complex phenomenon we need many models that can challenge each other, including in this case not just epidemiological ones but also economic and social ones.

Third, creativity: COVID prompted an extraordinary acceleration of innovation, from India turning 10,000 train carriages into ambulances, to Bogota quintupling bike lanes, to Rwanda introducing hand sanitizers in urban centers, to extraordinary efforts to accelerate production of ventilators or development of vaccines. The innovation around online learning is even more striking (summarized in a recent survey from the International Public Policy Observatory).[6] In much of business innovation and R&D are serious activities, with big investments of money and time. Governments are less systematic and even in the beset cases innovation is piecemeal, ignored in public finance, and rarely linked to strategic priorities like solving the care crisis. The UAE remains the only government with a significant budget allocation for its own R&D (as opposed to R&D for the military or health care). And while a few public agencies—like NASA—have embraced collective intelligence, opening up innovation tasks like designing space suits or writing code to anyone anywhere, few public agencies have copied them.

Fourth, memory: this is one justification for a permanent civil service. Unfortunately, this is now quite badly organized thanks to the high turnover of civil servants and ministers and the lack of even a basic

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[5]Scott Page, *The Model Thinker: What You Need to Know to Make Data Work for You* [Basic Books, 2019].
[6]https://covidandsociety.com/online-education-schoolchildren-covid-19-scan-policies-initiatives-around-world/.

knowledge management system in almost all governments. Indeed, memory may have deteriorated since digitization. The one positive is that there's been more success in externalizing memory—in the United Kingdom, for example, through the dozen or so What Works Centres[7] that act as a common store of memory for fields like health care, policing, education, and children's social services. The COVID-19 crisis has seen a spate of parallel initiatives such as SEAN[8] in the United States and the International Public Policy Observatory (IPPO). But these sit outside government and very few governments today have cross-departmental shared knowledge platforms.

Fifth, empathy: Robert MacNamara, once the boss of Ford, the Pentagon, and the World Bank, commented that lack of empathy, the ability to feel and see from the perspective of another country or people, whether a villager in Vietnam or an unemployed 55-year-old, often lay behind the biggest failings of governments. The rapid ditching of the UK government's "herd immunity" strategy was a classic example of an empathy failure—the unsustainability of this strategy would have quickly become apparent if the government had done proper simulation exercises to prepare for pandemics, which had long been identified as the country's number one risk.

More generally empathy is best cultivated by getting civil servants out and about, and it links to better observation. I've long advocated triangulation: that civil servants and advisers should never believe anything the system claims unless it has been checked first-hand, in a local school, business, or GP's surgery, with their own eyes and ears. Sitting in an office and relying on papers and emails, unfortunately, guarantees a distorted view of reality. Instead, it's important for policymakers to develop skills more like journalists and ethnographers: talking, observing, and checking how the world looks from the bottom up rather than the top down. Invariably this shows a gap between the official picture of things and reality. This is particularly important in governments that have embedded methods of "implementation science" and the use of targets. These can bring greater clarity and focus but also often bring with them serious risks of self-deception on the part of bureaucracies, which have strong incentives to convince themselves and others that their targets really are being met. It's also a risk with overdependence on digital representations and dashboards, which, likewise, may distort as well as capture lived reality.

Finally, there is judgment and wisdom—which, as in other fields, draws on experience, ethical sensitivity, and the ability to take a long view, and is often best cultivated by being quite explicit about what you expect to happen and then having open ways to assess why things turn out differently. The best forms of deliberation—whether within parliaments or using new, more online methods—aim to generate wiser decisions, and this has certainly been the experience of many citizens assemblies, from Ireland's assembly on abortion and other issues to the recent French experience with its 2020 citizens assembly on climate change.[9]

This very cursory description of the functional elements of intelligence (there's more in my book *Big Mind*[10]) is intended to encourage looking at government as a system for thought and action, and it provides a diagnostic framework as well as a way for thinking about how new data tools or AI can be applied.

There are of course many other aspects to government cognition—the types of learning that are vital, the ability to repel and confront misinformation or to resist groupthink, particularly at the center of government where there are the biggest risks of error thanks to lack of sleep, the delusions of spin, and sycophancy.

Here I just want to emphasize a few important messages of this description. The first is that the elements of intelligence—as with the human brain—work best if linked together, in real time. This kind of "intelligence assembly," which we take for granted in our personal lives, will, I believe, be critical for the future of

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[7]https://www.nesta.org.uk/blog/celebrating-five-years-of-the-uk-what-works-centres/
[8]https://www.nationalacademies.org/our-work/societal-experts-action-network.
[9]See my paper "Loops for Wisdom" [Demos Helsinki, 2021].
[10]Geoff Mulgan, *Big Mind* [Princeton University Press, 2017].

government. At present it is almost non-existent. Yet COVID-19 has forced faster action to create such assemblies than anything in my lifetime, albeit generally in quite technocratic ways, as is inevitable during a crisis when it is better to act fast and imperfectly than slowly and with more perfect processes. In time we will need comparable arrangements for other much slower burn crises like climate change or aging—linking observation, models, memory, and creativity in coherent ways that help the system as a whole to think, and being able to involve the wider public far more than was possible during the pandemic.[11]

Thought of this kind works best if it is shared and collective. Some of the best COVID strategies have explicitly linked civil society to the tasks of intelligence: gathering data, interpreting, and acting. For example, in the United Kingdom the GoodSam app, developed with my former organization, Nesta, provided the platform for 750,000 people to volunteer to help out in the health service (indeed, it was too successful: the public services were ill-prepared to make use of so much offered time). New platforms like Rallyround organized circles of support for the frail elderly. In many countries community activists hacked combinations of off-the-shelf technology to organize food deliveries and visits.
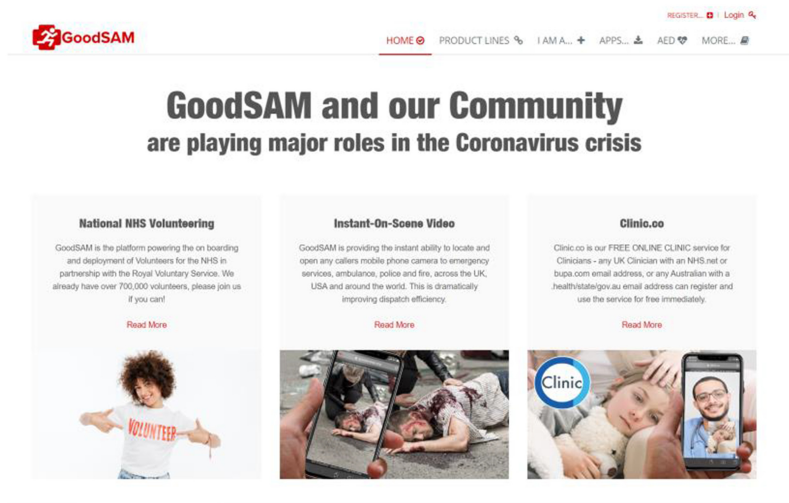
Bangladesh was one country that went further. Its A2i team—one of the best digital government teams in the world—had been working on creating a collective intelligence assembly for the labor market when the COVID crisis hit. This was rapidly reconfigured to work for COVID, linking business, big NGOs like BRAC, and the many government agencies needing to track infections and to help the economy stay in action. Their model is one that points to a future of government organized as a distributed but integrated brain.

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[11]For a good overview of crisis responses see Alfred Moore and Michael MacKenzie, "Policy making during crisis. How diversity and disagreement can manage the politics of expert advice," *BJM* 2020: 371. https://doi.org/10.1136/bmj.m4039.
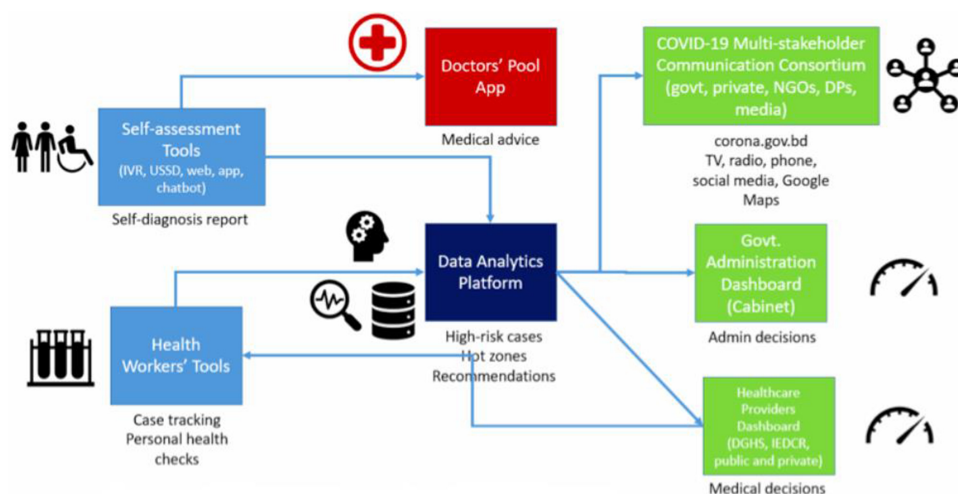
Figure: Bangladesh's COVID19 Collective Data Intelligence System

In a crisis it's natural to move to centralized hierarchies in order to respond in real time. But in retrospect it's surprising that more countries didn't make use of democratic innovations to make judgments on when to lift lockdowns. These decisions required a balance of assessments on physical health risks, mental health risks, and economic and other costs. These judgments might have been more legitimate if influenced by a representative sample of the public.

STRATEGY

A bigger issue for governments is how to link reformed democratic processes and thought to the design and implementation of strategy. I became interested in government's thought processes through a career that included spells in local government and the European Commission, and then in No 10. A first attempt to apply these ideas came with setting up the Social Exclusion Unit, drawing on work done at Demos on how government could operate more holistically. To develop better solutions for poverty and social exclusion, we created mixed teams of insiders and outsiders, working on very clearly defined problems, and using cross-cutting policy, budgets, data, and implementation teams to achieve targets like cutting rough sleeping by two-thirds, halving teenage pregnancy, and reducing the gap between the poorest neighborhoods and the average (perhaps surprisingly, all of these targets were met).

When I took over the Performance and Innovation Unit and evolved it into the Strategy Unit, we provided a similar capacity for problem solving and longer-term thinking across all areas of policy, again linking the aspects of intelligence mentioned earlier. There was, to be explicit, use of evidence (published at the beginning of projects); gathering of data; open processes; mixed teams of civil servants and outsiders, experts and generalists; and active use of methods like red teams and scenarios and formal modelling. One of our best innovations was anonymized exercises to get the true beliefs of the top ministers and civil servants to surface—what they thought but couldn't say. Another project helped put in place a comprehensive system for managing risk[12]— including the framework that identified pandemics as the United Kingdom's top risk—which, again, involved linking observations of possible threats, analysis, prediction, memory, and judgment. The overall approach is summarized in the book *The Art of Public Strategy*, published by Oxford University Press.

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[12]https://www.geoffmulgan.com/post/how-should-government-manage-big-risks-pandemics-to-financial-shocks.

Digital tools were integral to this work. For most projects all working papers were published on the Internet, along with open consultations. There was explicit use of models wherever possible, and new data strategies, for example, pioneering the development of ultra-local data to allow for much more fine-grained policies of community regeneration. The unit grew to around 150, encouraged departments to build up their own strategy teams, and became part of a network of similar teams around the world, from France and Singapore to China, many of which I have worked with subsequently, and all of which exist to help government escape the tyranny of the urgent rather than the important.

This experience convinced me of the practical and theoretical task of better understanding government as a system of cognition, and one that is constantly in a struggle not to be deceived, diverted, and deluded. Apart from everything else that requires better metaphors, government is often imagined as like the COBRA room (the United Kingdom's central committee for handling crises), a command center with a single brain and the prime minister at its heart, and there are a few moments when this is true. IBM's smart city project in Rio is centered around an even more ambitious control center monitoring everything from traffic to social media.

But a much more accurate picture of government accords with the contemporary view of neuroscience, which sees the brain more as a network of sometimes cooperating and often competing modules, constantly jostling for primacy, rather than as a neat pyramid. Within governments multiple different ways of thinking combine and collide. They include the three types of thought that Aristotle described: techne, the practical knowledge on how to build a hospital in a week or distribute emergency loans, which is closest to engineering; episteme, the more analytic knowledge of macroeconomics, or evidence on what works, or the modeling of pandemics, closer to what we call science; and phronesis, the practical wisdom that comes from experience and hopefully includes an ethical sense and an understanding of contexts.[13]

They also include the kinds of knowledge owned by different professions with government, each of which uses digital platforms in different ways:

- Statistical knowledge (e.g., of unemployment rises in the crisis)
- Policy knowledge (e.g., on what works in stimulus packages)
- Scientific knowledge (e.g., antibody testing)
- Professional knowledge (e.g., on treatment options)
- Public opinion (e.g., quantitative poll data and qualitative data)
- Practitioner views and insights (e.g., police experience in handling breaches of the new rules)
- Political knowledge (e.g., on when parliament might revolt)
- Economic knowledge (e.g., on which sectors are likely to contract most)
- "Classic" intelligence (e.g., on how global organized crime might be exploiting the crisis)
- Ethical knowledge about what's right (e.g., on vaccinating children who may have relatively little risk from a disease)
- Technical and engineering knowledge (e.g., on how to design an effective tracing system or build a new high-speed rail line)
- Futures knowledge (foresight, simulations, and scenarios, e.g., about the recovery of city centers)
- Knowledge from lived experience (the testimony and experiences of citizens, usually shared as stories, for e.g., about experiences of the pandemic)

The crucial point is that there is no metatheory to tell which you should pay most attention to at which time. Faced by an epidemic, it's wise to lean on the scientists—but they can't tell you whether it will turn out to be socially acceptable to ban human contact, close the schools, or arrest people for leaving exclusion zones, and in most cases the different types of knowledge will point in conflicting directions.

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[13]Aristotle set this out in his *The Nichomachean Ethics*, which can be found here: http://classics.mit.edu/Aristotle/nicomachaen.html.

Moreover, even if there is good input of advice and intelligence, it needs to be synthesized. Few governments appear to have good methods for doing this synthesis well.[14]

So any government badly needs the integrative intelligence of phronesis, or wisdom, and a space to have an open democratic dialogue about whether the judgments are right. That means being fluent in many frameworks and models and having the experience and judgment to apply the right ones, or combine them, to fit the context.

This willingness to listen, and then decide, has marked some of the more successful leaders over the pandemic, such as Jacinda Ardern in New Zealand and President Tsai Ing-wen in Taiwan.

Yet this kind of wisdom is scarce at the best of times. Leaders with backgrounds in law, journalism, or economics may have little sense of neighboring disciplines, and the same may be true of civil servants. A century ago, the need for some integrative skills justified creating a degree in PPE at Oxford—Politics, Philosophy, and Economics. Similar courses were developed in France for ENA and a generation later at places like Harvard's Kennedy School, which put economics at the core of their approach.

But these elements may be quite poorly suited to today's problems like pandemics or climate change or regulation of global financial markets, which require familiarity with systems thinking and complexity, science and psychology, and digital technology and data in all its forms.

So, for government to work well as a brain, we need not just the infrastructures and systems described above, but also people prepared with a new curriculum that's better suited to the tasks they'll face, a curriculum that helps them use, question, and synthesize multiple kinds of insight, models, and knowledge, and that's given them a feel for how complex and dynamic systems behave in practice.

GLOBAL COLLECTIVE INTELLIGENCE

So far I've focused on national governments, but the global dimension of collective intelligence matters just as much.[15] The last few decades have seen a rise of bodies dedicated to orchestrating knowledge. The IPCC has been the most visible pointer to a future of much more orchestrated collective intelligence, providing the analytic underpinnings for global negotiations on climate change drawing on the work of thousands of scientists and many computer models. Many of the more recently created bodies—like the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)—have also prioritized generating and sharing knowledge in order to influence decisions and attempting to integrate insights from indigenous peoples as well as scientists. Another example is the International Union for Conservation of Nature (IUCN), with 1,400 institutional members that include nation-states and NGOs, scientific and business organizations, and provide analysis and ideas (some of which end up as conventions). Gavi, the vaccines alliance, has been prominent through the pandemic: created by the Gates Foundation, it includes national governments and UN agencies on its board, but in a minority, but its main task is to orchestrate knowledge. These are set to influence existing bodies: for example, a future WHO might have a global Health Knowledge Commons at its core, and the UNDP might take on a bigger role in seeking to influence R&D spending.

These "intelligence assemblies" deliberately try to curate and orchestrate the world's know-how to help the world operate a bit more like a single brain. This includes the state of relevant science, available data, evidence about works, and horizontal linkages between practitioners and innovators.

The key to making these work is to have a strong emphasis on the use of knowledge as well as creation and synthesis—rapid feedback from the users of knowledge, whether policymakers, public health workers, or forestry managers. A weakness of many at the moment is that they are stronger on the supply of knowledge than demand or use. But a UN being built now and not in the 1940s would place data and knowledge on as prominent a footing as finance. These would form its core. So we would not just have a World Bank and an IMF

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[14]I wrote about this late in the pandemic: https://covidandsociety.com/synthesis-gap-reducing-imbalance-advice-absorption-handling-big-challenges-pandemics-net-zero/.

[15]https://www.geoffmulgan.com/post/impossible-and-inevitable-the-twisting-road-to-global-governance.

but a global data fund, a network of "what works" centers, platforms for experimentation, and so on, all aimed at accelerating the achievement of the SDGs by better mobilizing the world's knowledge. It would more directly link into the many global networks around science as well as practical evidence. It's also likely that the world will evolve more efficient shared systems for spotting and responding to pandemics, and around other areas of threat such as cybersecurity.

Systematic orchestration of data and knowledge is, in a sense, what the big commercial platforms already do, but focused on extracting profit from data and selling consumer goods rather than public goals. How equivalents for public data and knowledge would work is set out in more detail in a recent paper[16] that suggests a vision of future global governance focused much more on know-how as a complement to the military force and financial force that shaped the UN at its origin.

How democratic could these be? To some extent they sit alongside the more formal decision-making structures, from national governments to UNGA and the Security Council. So, we should imagine not one person, one vote but rather hybrids that give some role for the peoples and some for the nations, but with a variable geometry to reflect the range of tasks (and in some cases the reality of military and financial power). The biggest role for reformed democracy in the global system should come in the early and late stages of the democratic cycle: the stage of proposing and nominating issues, proposing ideas, and scrutinizing options that come before the moment of decision. Democracy has less role to play in the stages closest to decision that is bound to involve a harder-edged assertion of interests and more secrecy. But it again becomes relevant in the later stages of monitoring and learning.

These are all very amenable to use of digital technologies, as the UN discovered when over 10 million people took part in its global consultation on SDGs[17] (and as it could be finding now with its survey on responses to the pandemic). It would not be hard to imagine a global version of the UN assembly using analytics and visualizations to map citizen inputs on emerging issues, commenting on ideas, and scrutinizing the reality of actions.

A FEW CONCLUSIONS

This should be a golden age for government as a brain, given the data and technologies governments have at their disposal. Around the world are many impressive attempts to mobilize collective intelligence of all kinds—like Taiwan involving millions in decision making, the widespread use of experiments in countries like Canada and Finland, the open data movement, the evidence movement, and the creation of large-scale societal platforms like India's Aadhaar project. Each in their different ways reinforces my message here—that good government depends on the quantity and quality of feedback of all kinds.

But these more systematic approaches to cognition remain the exceptions. While business has dramatically shifted so that the best capitalized are the ones founded on data and knowledge, there has been no comparable shift in the public sector. Meanwhile the digital teams in governments are much more focused on the admittedly useful work of applying the lessons of online services in business rather than addressing how government could think more intelligently.

Yet it's not too hard to describe a more ideal kind of government: one that attends to the various elements of intelligence it needs, from observation to empathy to prediction; one that links them together in intelligence assemblies for all the tasks that matter most; one that is led by officials and politicians with sufficient integrative skills so that they can make sense of complex systems and the messages that come from very different ways of seeing and knowing; and one that integrates the internal decision-making processes with external democratic dialogue.

COVID-19 has shown once again just how dependent we are on the quality of government. Improving its ability to think, act, and learn is probably the greatest meta-task of our times, vital not just for the pandemic but

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[16]https://www.geoffmulgan.com/post/the-vital-missing-support-that-s-needed-for-the-sdgs-and-how-it-could-be-provided.
[17]https://un75.online/.

also for the big tasks ahead. COVID-19 has been a horrible shock and a horrible test for government. But one of its legacies may be to remind us that government is, and should be, quite like a brain, and that on balance it would be better to have one that isn't trapped in delusions but is able to face up to the world as it is, and then change it for the better.

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