COVID's lesson for governments? Learn to synthesize advice

It is past time to embed in policy making the tools and techniques that enable officials to weigh disparate evidence and competing demands.

Handling complex scientific issues in government is never easy – especially during a crisis when uncertainty is high, stakes are huge, and information is changing fast. But for some of the nations that have fared worst in this pandemic, there's a striking imbalance between the quantity and quality of science advice going in and the capacity to make sense of it. Part of the problem has been a failure of synthesis – the ability to combine and transcend the insights of multiple disciplines. Addressing this should now be a priority both for governments and for universities and science.

My interest draws on the time when I ran the UK Government's Strategy Unit in the early 2000s which developed strategies for everything from energy and carbon reduction to healthcare. I helped set up a similar one in Australia later that decade and have advised dozens of other governments, from Canada to Bangladesh, France to Finland.

In each case we try to think and act holistically. But both the theory and practice of synthesis remain inadequate. This has been reinforced for me over the past year as I've helped run the International Public Policy Observatory, based at University College London, with partners including the international network of government science advisors (INGSA). IPPO pulls together evidence syntheses on issues such as teenage mental health, homelessness or care, or lessons from the worldwide experiment in online learning. Our techniques include roundtables, systematic reviews, and global evidence scans.

This kind of evidence synthesis is a vital input to policy making. But governments' capacity to absorb evidence is limited and, anyway, synthesis for decisions has to go much further, **transparently** incorporating assessments of politics, implementation, values, cost and many other factors. This is where there's a glaring gap.

Although there are many good examples of holistic thinking and action, from public health programmes in Finland and cutting street homelessness in the UK in the 2000s to rural poverty reduction in China, many governments' capacities to see things in the round has waned over the past decade. After the financial crisis of 2007, the time horizons of governments in Europe and the Americas shortened. Some struggled with austerity. Others were diverted by populist politics.

As a result even when high quality advice goes into government it's often not used well. We might hope that politicians, or at least senior civil servants will do the job of synthesis once expert advice is handed off. But politicians are too busy and distracted and civil servants are usually much more familiar with law and economics than with science or statistics, or the practicalities of implementation.

The worst governments rely on intuition. But even the best resort to simple heuristics, for example, that it's best to act fast and decisively, or that acting to prioritise health is also good for the economy. This was certainly true in 2020 and 2021. But it may cease being a reliable guide

in 2022 with much higher vaccination and immunity rates – exactly the kind of situation where more synthetic thinking will be needed.

Surprisingly, the capacity to do sophisticated synthesis is often weakest at the heart of governments. Ministries may have plenty of experts but are inevitably siloed within their own specialties – such as agriculture or education. By contrast, the teams around presidents and prime ministers are often much smaller and dominated by fire-fighting.

China is a partial exception with significant central capacity to shape policy (including many officials grounded in science and engineering) which may help as it tries to navigate out of its zero COVID stance. Taiwan, Singapore and South Korea, all did well in leveraging data from tests, mobile phones, financial transactions and much more to guide policy, and the results are there for all to see with dramatically lower excess mortality than countries like the US and UK.

But all have struggled with doing synthesis well, and although some countries (including France and the UK) tried to look at epidemiological models alongside economic ones, none have modelled the social or psychological effects of different policy choices. In recent months, I've addressed teams in No 10 Downing Street, the European Commission and the Chancellory in Berlin about this – and how they might weigh up, for example, possible impacts on mental health and jobs relative to risks to life. But none would claim to have achieved a truly synthetic approach.

What would such an approach look like? It would involve mapping and ranking relevant factors (from potential impacts on hospital capacity to the long-run effects of isolation); using formal and informal models to capture dynamics and feedbacks, trade-offs and synergies; and then more creative work to shape overall options. Usually, this kind of work is best done by teams that bring together multiple disciplines and perspectives with a mix of breadth and depth, including officials and outsiders. Good examples include Singapore's Strategy Group in the Prime Minister's office, which, alongside teams like their Centre for Strategic Futures, helps the country to plan and act in sophisticated ways, on anything from cybercrime to climate resilience. But most big countries lack comparable capacities, though they badly need this now.

We also need a better science of synthesis. Universities are much more comfortable with interdisciplinary projects than with ones that truly synthesise. Although psychology and neuroscience help us understand thought at the individual level, understanding of thought at larger scales, of how whole systems 'think' and could think and act better, remains rudimentary, despite the contributions of behavioural science, complexity theories, computer science and other social sciences.

I hope one legacy of the pandemic will be a concerted effort to improve both the theory and practice of thinking and acting holistically – to help us cope with the many, slower, crises which lie ahead, from transitioning energy and transport to avert climate change, to reducing inequality and rebuilding public trust.