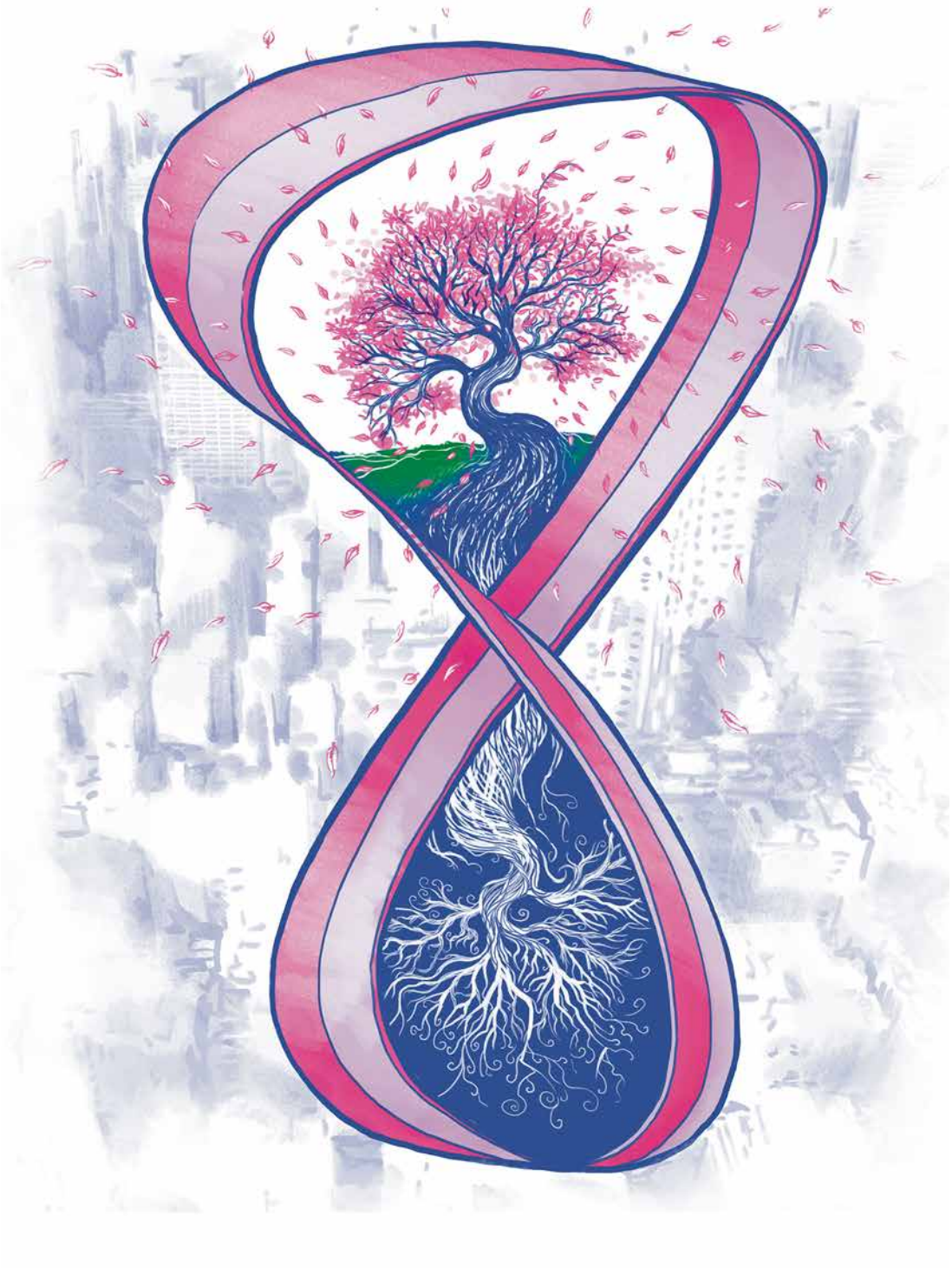
DEMOS HELSINKI



Loops for Wisdom: How to bridge the wisdom gaps in the life of citizens, governments and societies

Geoff Mulgan

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How can an organisation or a society become wiser? This paper shares some answers with a framework that cuts across different disciplines, including philosophy, psychology, computer science and organisational design. It shows how the framework can be used in practical ways by schools, universities, companies, NGOs and governments at different levels– as a tool for design, for training and learning, and for the organisation of governance.

The aim is to take wisdom down from the mountain top – to make it more integrated into daily life – as we come out of the pandemic and face up to the big systemic challenges of the decades ahead.

Contents

1. The problem

What's the problem with wisdom? Isaac Asimov once commented that "the saddest aspect of life right now is that science gathers knowledge faster than society gathers **wisdom**". We certainly live in societies that are far richer in data and knowledge than ever before. But it's not obvious we have become wiser. Indeed the recent explosion of data and information may have diminished rather than amplified wisdom. Too much information can amplify noise rather than useful signals. The very cheapness of data, and the very accessibility of information through search engines may make it harder rather than easier to be wise because it offers instant answers which reduce the need for reflection.

Our dominant technologies, and particularly social media, feed addictive and compulsive behaviours that are the very opposite of wisdom, serving as agents of distraction, disappointment and anger rather than insight. This recent comment from Apple's Tim Cook summed it up:

> **Too many are still asking the question 'How much can we get away with?' when they need to be asking 'What are the consequences?' What are the consequences of prioritizing conspiracy theories and violent incitement simply because of the high rates of engagement? What are the consequences of not just tolerating but rewarding content that undermines public trust in life-saving vaccinations? What are the consequences of seeing thousands of users joining extremist groups and then perpetuating an algorithm that recommends even more?"**

Equally, however, we could ask of his company, Apple, why it has done so little to reduce the vast mountain of e-waste, blocking easy repair of its equipment, locking consumers in, charging excessive prices for peripherals, and moving so slowly on issues of gender, race and ecology? Wisdom seems to be in short supply.

Few would now dispute that social media spread lies faster than truths; that they create echo chambers and grow anger more than understanding. But the problems go further. Public intellectual culture in the age of social media tends to amplify chatter and noise over the deepest ideas, the extroverts over the introverts, the loudest, most self-confident and vain not the wisest, squeezing out space for quieter, slower reflection. Thinkers who become brands become trapped in their own identity, forced to serve up what their audience expects rather than challenging or stretching them.

This squeezing out of thoughtful reflection has also been visible in politics. The pandemic showed dozens of leaders who wanted to rely on rhetoric and intuition rather than facts or science – at huge cost to their societies. Liars and psychopaths sometimes seem to get to the top all too easily.

Then there are the problems of time-scale. We see a world failing to face up to its multiple ecological challenges and failing in its task of thinking about how to secure a safe future for the next generations.

The very institutions that might be expected to be bastions of wisdom seem uncomfortable with that role. The cultivation of wisdom is not part of how most schools think of their task, and it's marginal in universities.

We have even lost ways to talk about wisdom. It's a topic talked about in novels and poetry rather than playing a central role in public life (when did you last hear a mainstream media discussion of the wisdom, or lack of it, of an important political or business leader?).

Wisdom literature and its limits

To help remedy these problems we can turn to the extensive 'wisdom literature' of ancient China, Rome, Greece and India. That literature is often inspiring and much of it doesn't feel dated. It offers extraordinary insights into the dilemmas of life and our place in the universe.

But on its own it's not enough. The dominant images of wisdom that come out of this literature can be quite misleading – suggesting that it's the preserve of old men with beards, perhaps living alone up a mountain or in a monastery, detached from the world and making opaque pronouncements. Such figures may be very wise about spiritual questions but not so wise when it comes to relationships, work, politics, or the big issues of our time like climate change.

Yet this is where we need wisdom to help answer more everyday questions such as how to handle a pandemic or avoid ecological catastrophe. In our personal lives we may need insights on, for example, whether to end a friendship because of a clash of values, or when to give up on an unhappy relationship. We need insights on when to take to the streets against an oppressive government, or how much this generation should sacrifice in the interests of generations to come.

In what follows I don't offer any easy answers to these dilemmas either. But I do suggest some ways of thinking about wisdom, and thinking wisely, that may be helpful to the everyday questions we face, and particularly the ones faced by institutions. My overall argument can be summarised as follows.

First, I argue that **wisdom is best cultivated as a loop, a habit of thinking in loops**. By this I mean consciously thinking about what is likely to happen or what effects our actions may have, and then being willing to learn from what does actually happen. That may seem obvious. But it's very different from the everyday performance of wisdom or how gurus work. These loops, which as I show can take many forms, help us and our organisations to constantly improve their grasp of the world.

Second, I argue that **wisdom requires multiplicity.** Rather than trying to emulate the monk sitting in quiet seclusion, we need to recognise that wisdom depends on having many kinds of knowledge and many models. If you want to be wise in response to a pandemic, for example, you need some grasp of epidemiology and economics, politics and psychology, and of course a good sense of ethics, of how to think about right and wrong. In other words, there is no such thing as ignorant wisdom and in a world replete with knowledge we want the wise to have at least some familiarity with many ways of seeing the world. Decades of inner contemplation may not be much help.

Third, I show that wisdom is collective as well as individual. We are wise when we can mobilise the knowledge of many others to guide us, rather than relying solely on introspection. After all, humans appear much smarter than animals mainly because they can access so much collective knowledge and experience – from language and maths to cars and computers.

Fourth, I suggest that wisdom depends on argument as well as calm. If you're trying to be wise about a complicated situation, perhaps in relationships or politics or business, the key isn't the simplicity or stillness of your thought, but rather whether you have at your disposal many different ways of thinking, many different models and many different perspectives which you can pit against each other. Indeed, it is the ability to organise a vigorous argument inside your head which is crucial for getting to better answers. The more you can get these to clash and see which ones add up, and which ones contradict each other, the more likely you are to find the right thing to do. So wisdom depends on a combination of calm *and* inner conflict. Again, a guru sitting on top of a mountain in blissful peace may be an expert in blissful peace, but not much use as a guide to life.

Fifth, wisdom as integration. Once you have had the vigorous argument in your head you then have to decide to integrate many kinds of knowledge into a conclusion. One of the striking common features of wisdom through the ages is that it is thought to include attention to context,

that is, knowing what's right for a particular time and place or a particular group of people, rather than following abstract, universal and unchanging laws. The challenge then is to know which knowledge, models, methods or approaches to use for what situation. Unfortunately there is no meta-theory to guide you. The only way to learn this is through experience: trying alternatives out and observing what happens. Again, this kind of integrative judgement can only come from experience and reflection. It can't just come from inner contemplation.

I then go on to suggest that these kinds of habits can be thought of as a type of **'dark matter', and that in the best societies this will be widely distributed.** It's not enough to have a tiny cadre of adepts who are guardians of wisdom. Instead we need it everywhere. What really makes societies tick is not just the surface facts of GDP, institutions or law, though these are important. Instead a subtler mix of norms, dispositions and cultures in their wider sense, helps people and places make sense of their world and how to solve their problems. These can be thought of as an equivalent to dark matter in physics. Dark matter isn't seen directly – instead it's been observed through the effects it has, acting as gravity, but turning out to be more widespread than visible matter. The equivalent dark matter of widespread wisdom in societies is what stops conflicts from escalating. When it's widespread it dampens hysteria; doubts and challenges false claims; gives others the benefit of the doubt.

It is perhaps not so far from the idea of *Bildung*[1], the self-cultivation of character, that is credited with giving some nations their success and is also cultivated in the everyday practice of the great religions at their best, though it has fewer obvious homes in modern secular societies. Where there is widespread wisdom, and many people with wise capacities, the effect is to calm and balance. There are more people around to contain impulsive, angry, hateful behaviour, as well as envy or greed. There are more people skilled in the kind of conflict resolution that leads to 'integrative harmony' both externally and internally.[2]

With these skills in plentiful supply society doesn't leap to blame but rather tries first to understand. It doesn't rely on very simple heuristics to make sense of wrong and right but tries to grasp deeper patterns. It is comfortable with contrary views and different ways of seeing the world. As a result, unnecessary harm and suffering are reduced.

The rest of this paper explores these ideas in more detail – before turning to their implications for the practical work of governments and organisations.

1 https://nordicbildung.org/ is a useful current example of a think tank focused on Bildung.
2 To use the language of Dan Shapiro and others in conflict resolution: see Negotiating the Non-Negotiable.

2. What is wisdom?

So what is wisdom? How should it be defined? We sometimes recognise wisdom when we see it. But defining wisdom isn't so easy and isn't helped by the many variants of meaning across different contemporary and ancient languages.[3] Yet there is a burgeoning field of wisdom studies[4] that has attempted to make sense of the many meanings and uses of wisdom.[5] There are widely used frameworks and taxonomies, such as the Berlin Model[6], the three-dimensional wisdom scale, the Balance Framework, the San Diego Wisdom Scale, and others.

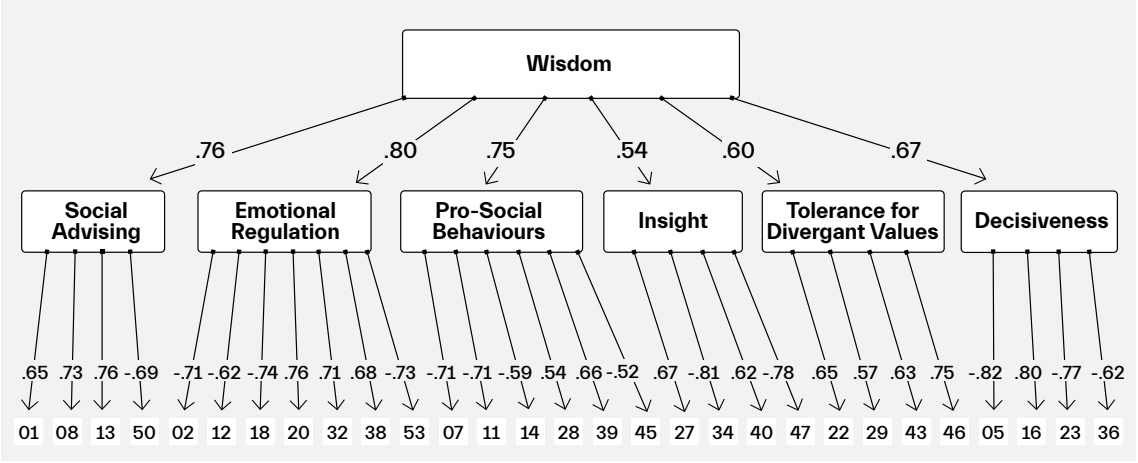

Figure 1. San Diego Wisdom Scale

Some of the research treats the individual as the only relevant unit of analysis[7], and generating a small industry of survey methods to try to measure wisdom[8]. An alternative view emphasises the collective or shared aspect of wisdom. It argues that humans appear much smarter than animals mainly because they can access so much collective knowledge and experience – from language and maths to cars and computers.[9] Alone, we are all pretty stupid[10] and wisdom is more often collective in nature rather than solely individual, or at the very least derives from how people interact with each other rather than just from introspection.

Meanwhile the very different traditions in theology or spiritual thinking, computing and public administration, 'cognitive informatics' and neuroscience, share surprisingly few concepts or frameworks.[11] Although *philosophy* strictly means 'love of wisdom', many contemporary philosophers are uncomfortable talking about it. The origins of the word are touched on at the beginning of undergraduate courses, but wisdom is rarely if ever mentioned again.

3 Sophia (Greek), sapientia (Latin), hokhmah (Hebrew), nebequ (Akkadian), seboyet (ancient egyptian), zhihui (Chinese), prajna (sanskrit), hikma (Arabic), jihye (Korean), all have slightly different meanings and sit in different relationships with neighbouring words.
4 https://evidencebasedwisdom.com/ A good collection and overview is Dili Jeste et al, 'The New Science of Practical Wisdom' Perspectives in biology and medicine, 62,2, 216–236.
5 Stephen Hall, Wisdom: from philosophy to neuroscience, UQP 2010.
6 The Berlin Wisdom Study under Paul Baltes came up with a definition of wisdom; found that it was scarce and that it peaks at around 60.
7 See for example some of the dominant frameworks, such as Three Dimensional Wisdom Scale; Berlin Wisdom Paradigm; the Balance Theory of Wisdom and many others, including the contribution of positive psychology in Character Strengths and Virtues by Christopher Peterson and Martin Seligman.
8 Such as self-report questionnaires the ACL Practical Wisdom Scale and CPI Wisdom Scale; the Acquired Wisdom Scale and Transcendent Wisdom Scale using an open-ended question format; and the observer based CAQ Wisdom Scale.
9 Of course animals are much smarter than us at many things!
10 J Henrich, The Secret of our Success, is the best recent account of the importance of group mind in human evolution
11 One recent attempt is Andrew Targowski, Cognitive Informatics and Wisdom Development: interdisciplinary approaches, 2011.

The components of wisdom

Researchers who have tried to investigate wisdom have found some common patterns in the understanding of wisdom in very different cultures and civilisations across the millennia.[12] Wisdom tends to be associated with particular behavioural traits: calm, detachment, avoidance of impulse and an ability to see multiple perspectives. These are its generic foundations.[13] In much of the literature and in many widely used models a combination of elements are then identified.

Cleverness

One aspect of wisdom is a high level of **cleverness** – or cognitive complexity, the ability to handle multi-faceted questions. Some recent research however suggests a threshold effect: a certain level of cleverness is necessary for wisdom, but beyond that more intelligence adds little.

Knowledge

A related dimension is depth of **knowledge** – familiarity with bodies of knowledge, codes, symbols and disciplines, and including tacit as well as explicit knowledge. This knowledge is a combination of models (theories that state 'if this, then that...') and factual knowledge. Ignorant wisdom is a contradiction in terms. But wisdom also entails recognising what's missing, the crucial data that may lend a very different perspective. And it also involves knowing the limits of knowledge: that we can never fully get inside an object, another person, an historical event, or the meaning of a work of literature.[14]

These two give us what has become a common approach to wisdom in much of academia (other than psychology), summarised in the widely used DIKW framework.

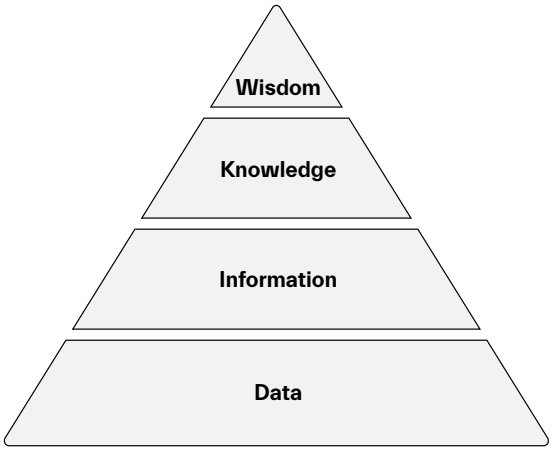

Figure 2. DIKW Framework of Wisdom

In Scott Page's work, for example, the essence of wisdom is the ability to apply multiple models to understanding situations or problems, and then to choose the most appropriate models to guide decision and action.[15]

> Wisdom requires *many model thinking* ... when taking actions, wise people apply multiple models like a doctor's set of diagnostic tests...[and] construct dialogue across models, exploring their overlaps and differences".[16]

Some definitions stop there and see wisdom as a next step beyond data, information and knowledge that asks questions of why as well as how and what, and that's good at knowing which knowledge to apply to a particular task or problem. This gives us a framing for wisdom very similar to the ancient world. Aristotle distinguished *episteme*, the logical thinking that applies rules, *techne*, the practical knowledge

12 I cover this in my book Big Mind (Princeton UP, 2017)
13 Assmann, A. (1994). Wholesome knowledge: Concepts of wisdom in a historical and cross-cultural perspective. Life-span Development and Behavior, 12, 187–224. Baltes, P. B. , & Smith, J. (1990). Toward a psychology of wisdom and its ontogenesis. In R. J. Sternberg (Ed.), Wisdom: Its nature, origins, and development (pp. 87–120). New York: Cambridge University Press. Birren, J. E. , & Fisher, L. M. (1990). The elements of wisdom: Overview and integration. In R. J. Sternberg (Ed.), Wisdom: Its nature, origins, and development (pp. 317–332). New York: Cambridge University Press. Yang, S.-Y. , & Sternberg, R. J. (1997b). Conceptions of intelligence in ancient Chinese philosophy. Journal of Theoretical and Philosophical Psychology, 17, 101–119.
14 This has been a common trope through the history of philosophy, including recent work on 'presence' (such as Derrida, and the movement of object-oriented ontology: see Graham Harman, Object Oriented Ontology, Pelican Books, 2018).
15 Scott Page, The Model Thinker, Basic Books, 2019.
16 Ibid., p 8.

of things, and *phronesis* which is practical wisdom (sitting alongside *sophia*, its more theoretical and abstract counterpart), and suggested that each has its own logic of verification.

Episteme can be verified through logic or formal experiments. It only takes one counter-example to disprove a rule or hypothesis. Techne is tested by practice: does something work or not? Phronesis, on the other hand, is determined by context, and can only be verified through applying it to choices and learning step by step whether decisions really do turn out to be wise or not.

This suggests that the most meaningful definitions of wisdom have to address not just what modes of thought they use but also the link between these and the outcomes they contribute to. There is an inescapable gap, and asymmetry, between the wise thought and the wise, or unwise result, a gap everyone experiences in the planning of their own lives as well as at larger scales. But we cannot avoid addressing wisdom through both dimensions simultaneously – the thought and the result.

Three additional dimensions or loops

However, this framework is only a starting point. Although it's undoubtedly a good advance on unreflective faith in data, or knowledge within a single discipline, and *many model thinking* is far preferable to fetishizing single models, if we look at how wisdom has been understood in many contexts it soon becomes clear that these frameworks are not complete. Most uses of the word and its equivalents in different civilisations, also refer to several different and additional elements which include what could be called a *stance* as well as the use of models:

Ethics – the most important is the ability to reason ethically and apply ethical principles to new situations. Wisdom has to involve judgements about right and wrong and it is hard to imagine any commentary on a situation, or any problem-solving that could count as wise that hadn't engaged with judgements of this kind, and that took no stand on what counts as a good life. Some of these judgements are cognitive – and are essentially about knowledge and reasoning. But, crucially, others are non-cognitive, involving emotion, empathy, compassion and intuition, and the stance taken with respect to the people or the situation. Ethics in other words involves both justice and mercy, reason and feeling, detachment and commitment. Indeed, this is one of the reasons why in many traditions it is thought that experience of suffering and setbacks can enhance wisdom, transforming it from something that is only cognitive.[17]

Time and the long view – another crucial element that links into the role of ethics, and the looped nature of wisdom, is sensitivity to the long view. This is the ability to grasp the relationships of the present to both past and future, to see issues in their temporal context, and to spot what future potential lies in present things, whether seeds, landscapes, people and societies. This must always have been part of what associated wisdom with the perspective of old age. But we can go further and suggest that wisdom has to involve some sense of what today, and the dilemmas of the today, might look like from the future (while recognising the unavoidable uncertainty about what that will actually be), and some commitment to making that future better (again, what we see here is a stance as well as the use of models).

Presence – finally in many, but not all, descriptions of wisdom we find a valuing of engagement, the willingness of the wise man or woman to be within the problem and not outside, and a commitment or even love that is very different from a cold, detached intellect. This can coincide with an ability to see things with non-attachment (and there is strong evidence for 'self-distancing' – seeing your own dilemma as if it was someone else's makes it easier to reason wisely). But some aspect of wisdom involves a willingness to share ownership of a situation, to have a stake, or to recognise how

17 There is an extensive psychological literature on how, in some circumstances, suffering and trauma can aid psychological growth, see e.g. Jayawickreme, E., and L.E.R. Blackie. 2016. Exploring the psychological benefits of hardship: A critical reassessment of posttraumatic growth. Switzerland: Springer.

much we ourselves are part of the problems we observe. In contrast, when we see bads and evils as 'over there' and fully outside us, unwise actions often follow. I discuss later some of the complexities of this dimension, and, in particular, the issues it raises for science.

It is hard to recognise anything as wisdom that doesn't have at least the above three additional elements.[18]

Spiritual depth

Most civilisations also respect spiritual depth as in some ways crucially connected to wisdom. This is the ability to experience profound states and to make sense of them, even though these cannot usually be distilled into models or heuristics, or easily communicated. This is the wisdom that gets people closer to underlying and hidden realities, that in many traditions sees the unity or wholeness behind the apparent differentiation of the world and deeper truths that lie behind surface appearances. The insights achieved are referred to by Plato as that which cannot be described and as experiential, achieved through practice and contemplation rather than reading (which, of course, is why it is so difficult to write about sensibly).[19] In some traditions this requires detachment from the world (the Buddhist Dhammapada says that "wise ones should leave the dark state of ordinary life... leaving all worldly pleasures behind and calling nothing their own, wise ones should purge themselves of all the vices of the mind")[20].

Ethos and self-knowledge

Some definitions – including the ones from US psychology – add in other elements that are better described as an ethos, attitude or mindset. In addition to the ones mentioned earlier – calm, detachment, openness to other perspectives – reference is often made to humility, curiosity, care, humour, acceptance of change, willingness to listen – and even some physiological characteristics.[21] The wise are generally serious, but also don't take themselves too seriously. In Chinese traditions there is a particularly strong association between wisdom and harmony, as well as self-effacement.

In the Buddhist tradition the wise work on themselves: "irrigators guide the water, fletchers straighten the arrows, wise people shape themselves" and they also show equanimity ("wise people are not shaken by praise or blame").[22] A common theme is that the wise have high levels of self-knowledge and can use that self-knowledge to offer insights to others grappling with their own selves (since we are all human beings), even if they have little to say about other issues.

18 These three additional elements can be loosely linked to Page's framework if we interpret these as the application of ethical models or heuristics on the one hand, temporal ones on the other, and of models in which the subject is part of the model.
19 "It is not something that can be put into words like other branches of learning; only after long partnership in a common life devoted to this very thing does truth flash upon the soul. No treatise by me concerning it exists, or ever will exist". Plato, Seventh Epistle. For a long and thoughtful investigation of many of these issues, including depth, see Ken Wilber, Sex, Ecology and Spirituality, Shambhala, 1995.
20 Dhammapada, Jaico Publishing, Delhi 2003.
21 https://evidencebasedwisdom.com/a-heart-and-a-mind-self-distancing-facilitates-the-association-between-heart-rate-variability-and-wise-reasoning-grossman-sahdra-ciarrochi-2016/.
22 Dhammapada, p, 27, Jaico Publishing, Delhi 2003.

3. Putting the pieces together

So, wisdom is not a single thing. It includes some convergent elements and correlates with other factors (and even the state of microbes in your gut)[23]. But these different dimensions of wisdom may not be very closely correlated with each other. Some people are very adept in some dimensions but not in others. You can be very knowledgeable but not so clever; ethically fluent but lacking in other ways of knowing. Wisdom is most likely to be recognised where there is a combination of all of these five (cleverness, knowledge, ethics, the long view, and presence). But it should already be apparent that few, if any, people can expect to combine all of these features across many domains: from science to being a parent, politics to health.

Moreover, research has struggled to confirm that some people are wise in any general sense (as opposed to in specific circumstances).[24] Indeed, it's much more plausible to believe that some people are wise in some situations and at some times, rather than in all situations and at all times.[25]

This is why we should be sceptical of the traditional view of wisdom as the property of a small and select group of people who can then apply their wisdom to anything. This is a very common view on much of the literature and in popular culture. But it is misleading. Instead it's more useful to think of wisdom as a practical, learned knowledge, that is best understood as a loop, and that grows through experience and reflection.

The next critical question to ask is: how can the many incommensurable and disparate elements of wisdom be combined or integrated? How does anyone – or any organisation – decide which ones to prioritise or attend to, and then what to do? We complicate to understand and simplify to act: but how?

The first part of the answer is that **we organise arguments either inside our head or in groups**, the more vigorous the better. The many frameworks and models we have for thinking about a question have to be pitted against each other to discover which one is most relevant and most coherent. This kind of shuffling between different modes of thought is easier in conditions of calm: exterior silence allows for internal cacophony and argument. Out of this competition of frames, models and ideas emerge patterns or winners, helped by our stances, our relationship to the people or issue at stake.[26]

Then we have to integrate and simplify – seeking what Oliver Wendell Holmes called the "simplicity on the other side of complexity".[27] This ability to integrate is clearly key to complex thought. It also has its place in imagination which John Dewey described as "a *way* of seeing and feeling things as they compose an integral whole. It is the large and generous blending of interests at the point where the mind comes in contact with the world".[28] It involves both *valuation* – how we decide what matters, and which kinds of knowledge or heuristic to apply to which situation – and then melding different kinds of knowledge into a judgement or deci-

23 https://ucsdnews.ucsd.edu/pressrelease/wisdom-loneliness-and-your-intestinal-multitude
24 One recent study concluded: "to date we have found no statistical evidence for wise or virtuous people". It suggested that "the concepts of the consistently wise person and of practical wisdom logically seem incompatible". McGrath, R.E. The Mathematics of Wisdom. J Value Inquiry 53, 455–457 (2019).
25 This was the conclusion of Robert Sternberg after a lifetime studying the topic: see Sternberg, R.J. Four Ways to Conceive of Wisdom: Wisdom as a Function of Person, Situation, Person/Situation Interaction, or Action. J Value Inquiry 53, 479–485 (2019).
26 William Whewell, in his book 'The Philosophy of the Inductive Sciences', coined the word consilience to describe what happens 'when an induction, obtained from one class of facts, coincides with an induction, obtained from another class. This Consilience is a test of the truth of the Theory in which it occurs' Quoted in EO Wilson, Consilience, p7.
27 As Oliver Wendell Holmes put it: "I would not give a fig for the simplicity this side of complexity, but I would give my life for the simplicity on the other side of complexity".
28 John Dewey, Late Works, 10:271.

sion. And it always involves choosing to ignore and disregard as well as taking into account, because the information and knowledge potentially relevant to a situation is infinite (as William James put it, *wisdom is learning what to overlook*).

Indeed, there exists no meta-theory to guide complex decisions; no super knowledge that sits on top of every other kind of knowledge. At a certain point, after much rational analysis, many people rely on feel or intuition to guide their decisions (or gut). Even ethics has to be guided by what we learn from knowledge, and part of ethical fluency is knowing just how far to push an ethical line of reasoning. If we picture in our minds a control room that rationally synthesises multiple elements we're almost certainly being misled. There is no commander. Instead, judgement and wisdom emerge from the competition and collaboration of multiple parts of the brain.

Such judgements about what to value and attend to, and how to integrate diverse sources into a single conclusion, can only be made on the basis of experience: like any skill this requires repetition and then feedback as to what ways of thinking and what resulting actions lead to outcomes that are in some way desirable.

Reinforcement learning provides one neuroscientific approach to this (with the rewards in terms of food, sex, recognition, status, or dopamine), mirroring machine learning in computers. In these cases, the 'reward' is simple. In the case of more sophisticated intelligence the rewards are likely to be complex and multiple, much slower, and much less obvious since there are likely to be many more factors involved.

But at a minimum it must be through experience that anyone learns which kinds of wisdom have proven useful, impressive, or insightful and which ones have not. And this learning must be multi-contextual rather than universal, arising from observing multiple different contexts of thought and action which give a wider menu of insights, but not ones that are universally applicable.

With no experience it is impossible to be wise (except about internal experience); and with only a limited experience it is hard. However, people differ greatly in how much information or experience they need in order to learn, generalise, and extend. One aspect of wisdom may be the ability to leverage the smallest experience for the greatest insight – something seen in the best novelists and playwrights, doctors and leaders of all kinds, as well as in philosophers. Their combination of critical thinking and selection – the ability to see what is significant or useful in a mass of information – is very different from the accumulation of knowledge or experience (and there is a parallel major theme in artificial intelligence research and neuromorphic computing which is seeking out much more frugal alternatives to the voracious hunger for data of machine learning).

Again, however, this capacity will be improved through experience, which gives people more confidence to generalise, and to decide what is the right action or the appropriate knowledge to draw from, fitted to the context, and through discussion with others. In my view it is not best understood as a 'cardinal virtue' which a few unique people possess and which then guides them as to what actions are right for what circumstances.

So, integrative wisdom and intelligence are grown through loops of thought involving arguments within our heads, that lead to judgements, which are then improved through reflection on what actually happens, the feedback we get from the world.

These loops parallel the Bayesian inference that underpins much artificial intelligence and data science: first you decide on a 'prior' or estimated fact, along with an estimated probability; then you observe the true facts; then you adjust your model, and your probabilities accordingly.

This can lead to some very dynamic loops that enrich a certain kind of wisdom fitted to a position: politicians learn what kinds of speeches work with audiences (perhaps reinforcing their own confidence in an infectious way); entrepreneurs get feedback as to the kinds of strategy that work (perhaps reinforcing their confidence in breaking rules); doctors learn more intuitive kinds of diagnosis through experience. The challenge however is to know when

conditions have changed and when it's time to jump to another heuristic or approach.

This diagram summarises these points, situating wisdom within a world that generates tasks, situations and problems; sees wisdom as a constellation of capabilities; with experience guiding us as to which are most appropriate for which task, feeding into integrative judgement, which feeds into actions and then an outcome in the world:

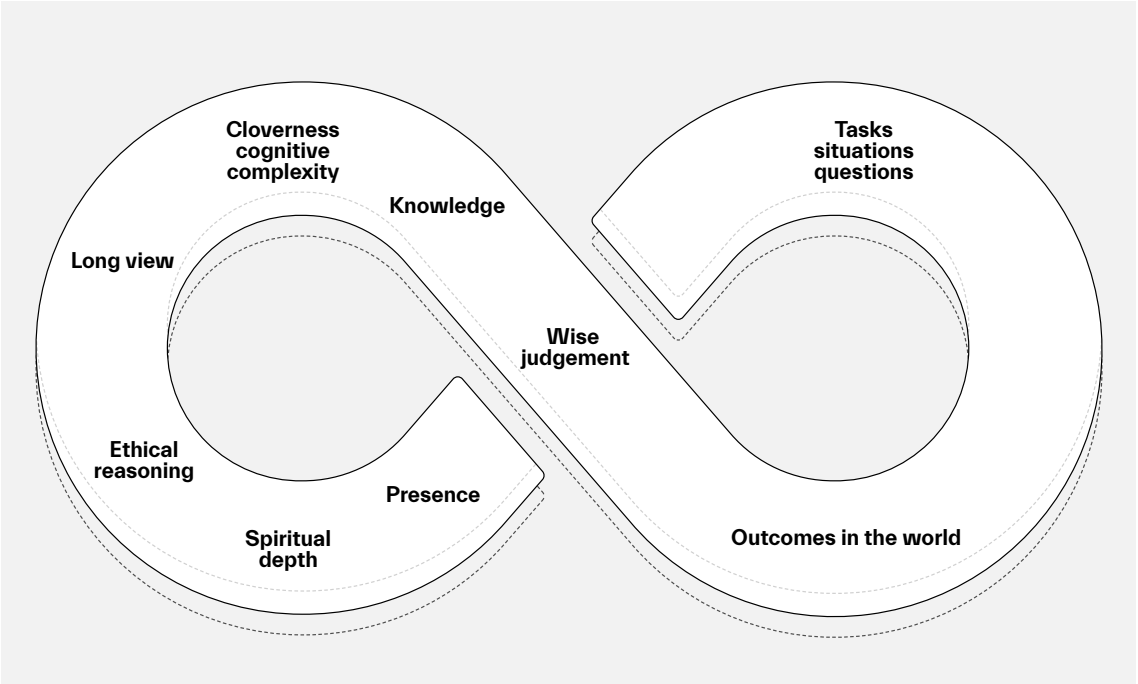

Figure 3. Dynamic Loops of Wisdom

A crucial implication of this analysis is that wisdom can be learned – albeit slowly – in relation to different domains, and that it is best learned, just as many other skills are learned, through practice and reflection, and, in particular, through consciously mobilising arguments between different models, frameworks and theories, and then through conscious reflection on past integrative judgements and how well, or badly, they have fared.[29]

29 Much writing on wisdom implies that the writer is wise and offers insights from a uniquely advanced standpoint. I make no such claim: indeed I've found it most useful to address this field through reflecting on the many times when I have not acted wisely.

4. Learning loops

I've already pointed to the looping thought that is essential to wisdom. Here I suggest a way to think of different kinds of loop that are useful both in our individual lives but even more for organisations or societies. The mark of any intelligent creature, institution, or system is that it is able to learn. It may make mistakes, but it won't generally repeat them.

First-loop learning is the most basic, but in everyday life the most useful. We begin with models of how the world works as well as models of thinking, and then we gather data about the external and internal world, based on categories. Then we act and observe when the world does or does not respond as expected, and adjust our actions and the details of our models in response to the data.

Imagine you drive your children to school each morning: two mornings in succession a particular road is blocked, so you adopt a new route. This is an everyday example of first loop learning. It's done on a grander scale by the airline industry which learns from crashes or near misses in this way; good hospitals regularly review data and lessons learned, as do competent companies. The key is to do this systematically and to watch out for surprising events. This basic loop embeds a certain humility towards the world, a willingness to doubt our existing patterns and assumptions and to see them as capable of improvement.

This habit is common in the best sports and music where relentless self-criticism and improvement is recognised as essential to high performance. However many institutions lack even basic learning loops of this kind, and so continue to make unnecessary mistakes, assume facts that aren't true, and deny the obvious.

Second-loop learning becomes relevant when the models no longer work or there are too many surprises. It may be necessary to generate new categories because the old ones don't work. Imagine that in your town opinion is concerned about air pollution harming children. So you now think about your options for driving your children to school through this very different lens: not just how to get from A to B efficiently but also the effects on children's health.

Third-loop learning involves the ability to reflect on and change how we think – our underlying ontologies, epistemologies, and types of logic. At its grandest, this may involve the creation of a system of science, or something like the growth of independent media or spread of predictive analytics. Using the car example again we could imagine the town shifting over to driverless cars – introducing a quite novel model of cognition. Most fundamental social change also involves such third-loop learning – not just doing new things to others. This is the implication of Audre Lorde's famous comment that we cannot use the master's tools to dismantle the master's house. Radical change always involves new ways of seeing and thinking as well as new ways of doing.

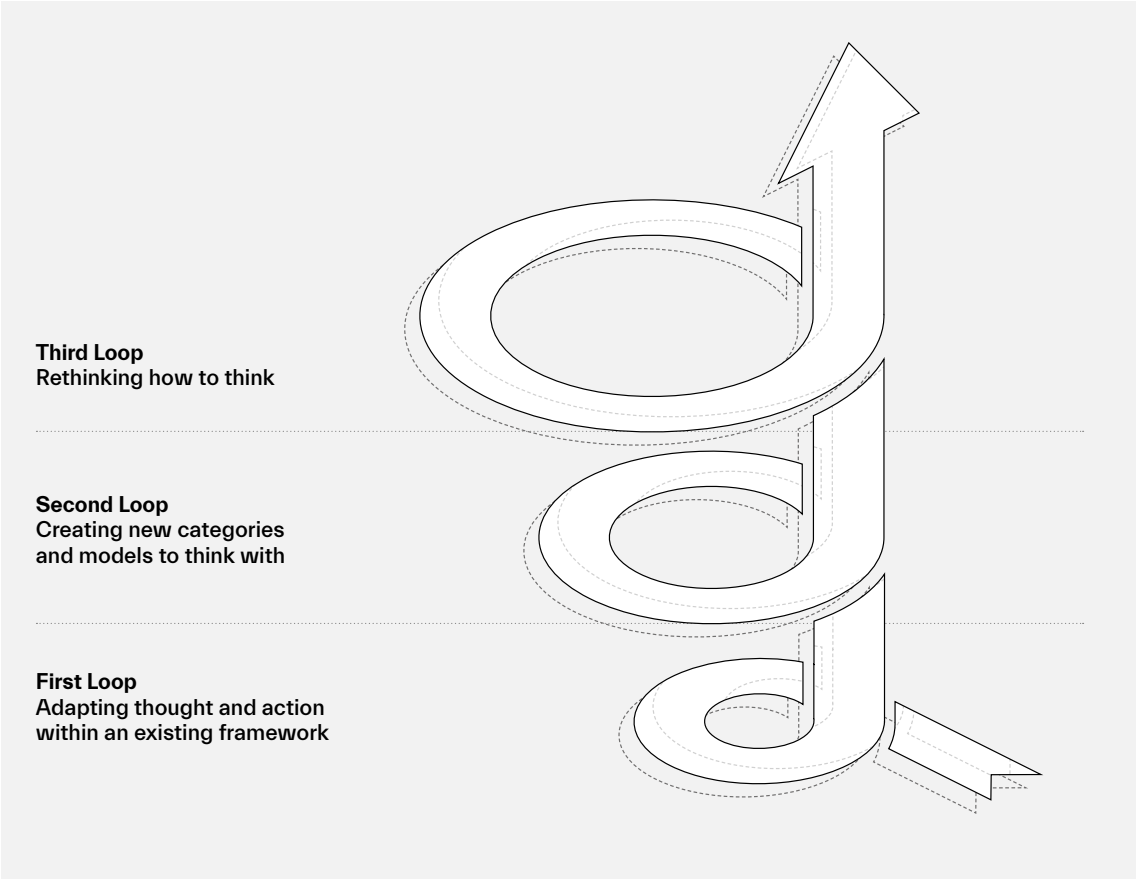

Figure 4. Loops of Learning

As I'll show a basic question for any institution is whether it has good processes for doing all of these different types of learning: everyday processes for tracking data and what works; more occasional processes for asking whether existing categories still work; and even more occasional processes for rethinking how it thinks.

There is some overlap between this approach and other types of loop, such as the famous *OODA loop* approach of US Air Force Colonel John Boyd. He advocated continuous cycles of observe–orient–decide–act in combat situations and also linked this to a competitive model for constantly disrupting and disorienting the enemy's equivalent loops, a model that can be highly effective in war situations but can be disastrous when applied to situations dependent on collaboration.

5. Collective wisdom in groups

We rely heavily on certain kinds of groups to be wise: committees, boards, Supreme Courts, Parliaments. Various handbooks over the years tried to establish ground rules for how meetings should be run – like Robert's Rules of Order in the 1870s or Walter Citrine's ABC of chairmanship in the 1930s – mainly designed to reconcile giving everyone a chance to speak with the need to reach conclusions.

Much more complex processes can be found in the newer institutions like the IPCC that attempt to consolidate global wisdom on patterns such as climate change or the IPBES doing the same for biodiversity. It matters greatly whether the methods they use for holding meetings, reaching consensus and making decisions really are likely to amplify and not diminish wisdom.

There is strong evidence on how some kinds of groups achieve higher levels of intelligence than individuals. This was the theme of James Surowiecki's famous book *The Wisdom of Crowds* which mainly looked at how groups acquire knowledge, answer questions, or achieve group coordination and cooperation. It is also covered in Jon Elster and Helene Landemore's collection on *Collective Wisdom*. Most of this literature is more about collective problem-solving than wisdom in the ways it is usually understood, but it is still useful. More recent mathematical and experimental evidence has tried to deepen its insights.

There are some clear conclusions from this work, such as that the average prediction of a crowd is superior to the prediction of the average member and indeed superior to all but a handful of individuals. Research[30] has also explored what kinds of groups show signs of wisdom in the sense of superior problem solving, pointing to the importance of combining diversity, sophistication and integration. Diversity, in the sense of negatively correlated predictions, produces better outcomes. In other words, the diversity has to be relevant – generating different viewpoints. Sophistication means that there needs to be some deep knowledge in the group, though without diversity this leads to errors. Integration means, as above, abilities to make sense of which model or knowledge to use for what task, but there is also interesting evidence that adding an element of randomness into group interactions improves their performance[31]. All of these matter much more than the number of the crowd.

There is also quite a lot of knowledge and experience with the detailed design of meeting structures to promote wisdom (which I cover in the chapter on meetings in my book *Big Mind*). Drawing on the science of meetings I emphasise in particular:

- Methods that tap into the insights of introverts, not just the extroverts, or that prevent too much domination by the highest status
- The use of multiple formal roles to guide the meeting (eg someone to keep to time, to manage the agenda, someone else to regularly synthesise the emerging conclusions, and sometimes someone else to challenge and question)
- The use of stages (for example to separate diagnosis from prescription)
- The use of multiple media in parallel (as increasingly happens with the chat function in Zoom and Teams)

30 Again, this is addressed well in the work of Scott Page, including in The Model Thinker.
31 http://humannaturelab.net/publications/locally-noisy-autonomous-agents-improve-global-human-coordination-in-network-experiments.

One example is structuring meetings on complex, multi-dimensional issues using the fable of the blind men and the elephant as a prompt[32]. For example a meeting on air quality might bring in climate experts, physicists, economists, sociologists, psychologists, transport experts, architects and others to share their perspectives and then adapt their insights in the light of what they have learned from others.

Some of these methods deliberately encourage argument: "he that wrestles with us strengthens our nerves and sharpens our skill. Our antagonist is our helper" as Edmund Burke put it.[33] Certainly argument and challenge generate better information and insight, though they are not useful for the later stage of integration and decision. Other methods aim to create a sense of collective efficacy: the field of collaborative positive psychology, for example, shows how negative emotions such as sadness, guilt, shame, anger and anxiety can be catalysts for critical systems thinking and collective responses to shared problems.[34]

Mobilising group intelligence has become a major new area of activity – crowdsourcing ideas in business, or for agencies like NASA; crowd design and democratic decision making, for example in Taiwan; crowd observation and engagement in citizen science. All of these are grappling with how the insights of a large group can lead to wiser decisions. An interesting example from fiction was the *Black Mirror* episode in which an individual and an online crowd advise someone on a date, giving them a larger menu of options and a much bigger pool of experience to draw on.

However, what's surprising is how few of the methods that evidence suggests are most effective are used in the meetings that we most rely on to be wise, including around topics such as science advice or the generation of global consensus on complex challenges.

Many of the methods that would help them are easy to use. Looking to the future they may also be helped by technologies. There is an interesting experiment underway around how technologies can help groups to think better, and in effect to be wiser. AI tools like Polis help groups move towards consensus. AI-powered coaches can track how people are acting and give them prompts as to how to work better as a team; they can allow each member of the group to see how others are thinking and deciding, speeding up coordination. Chatbots can help groups share skills and expertise that are relevant to decision making. Many of these aim to counter the everyday human dynamics that often work against group wisdom (such as the well-evidenced finding that people often don't share the most relevant information in group contexts).

32 https://www.geoffmulgan.com/post/elephant-safaris-organising-meetings-that-help-us-grasp-complexity.
33 Reflections on the Revolution in France.
34 "Collaborative positive psychology: solidarity, meaning, resilience, wellbeing, and virtue in a time of crisis", Michael J. Hogan, International Review of Psychiatry, 2020.

6. Wisdom embedded into institutions

To help a society made up of more wise people, and wiser meetings, we would also want institutions to be wiser too. That should mean fewer unnecessary mistakes, fewer delusions, fewer false promises and doomed strategies. Supported by the dark matter of wisdom described earlier, it should help societies avoid damaging conflicts or self-destructive acts of the kind that are all too common in history.

Specialists in wisdom

Most societies designated specialised institutions to focus on being wise or at least wiser than the rest. These are often less powerful or rich than others but have the privilege of being partly protected from the everyday pressures of markets, votes or media so that they can take the long view. They sit alongside the core decision making places mentioned in the earlier section – such as parliaments, supreme courts or business boards. These more specialist organisations include the foundation and the trust; the research institute and the religious institution; central banks and auditors; and the core bodies of the key professions. All are meant to be guardians of wisdom and to influence more mainstream institutions. Their role is to be influencers on other more powerful institutions, and they are expected to reason ethically, to understand multiple perspectives and to take a long view, in each case more than mainstream institutions. The IPCC is a recent example. It has no formal power but has considerable influence in shaping the various treaties and national plans that aim to avert catastrophic climate change.[35]

Mainstream institutions

For the more mainstream institutions, wisdom depends on both internal and external factors.

Internal factors

Internal ones include the conscious cultivation of cleverness, knowledge, ethics, compassion, the long-view and presence (and sometimes, perhaps, spiritual depth).

But they also involve processes: support for leaders to enable reflection; formal orchestration of moments of learning – as described earlier – when decision-makers regularly reflect on data, their past judgements, their expectations of what would happen, the facts as to what actually happened, and therefore how they need to adjust their methods for understanding. Coaches; mentors; reverse mentors; 360 degree feedback – all bring insights to the surface that are likely otherwise to be invisible. These all help to reinforce cultures which encourage peripheral vision, that can draw on a wide collective input of information, insights, ideas, and that ensure that cognition is distributed, open and shared (a contrary view is visible in countries like Iran where the Supreme Ayatollah, and the Guardian Council he appoints, are there to offer wisdom in relation to the actions of government; or in countries like Thailand where a monarch plays a similar role).

To use the language suggested earlier the best of these processes help the organisation to use all three types of learning loop – to keep focused on data on effectiveness; to look out for new categories; and sometimes to redesign the whole system of cognition.

Wiser institutions avoid the risk of being

35 For a good recent overview see Oran Young's book Governing complex systems: social capital for the anthropocene, which points out that even quite messy and anarchic environmental governance arrangements have sometimes had significant impact, as have approaches based on ethics and principles rather than regulation or incentives.

trapped in simplistic metrics or targets, but can keep more than one goal in mind at once (so that, for example, even if profit is the primary goal, they also attend to the sources of long-term profit, such as research, human capital, reputation and relationships).

External influences

These internal capabilities are then also influenced by external institutions that either provide useful feedback or distorting feedback. Free and critical media committed to truth can make all institutions behave better, while media committed to sensation or ideology can have the opposite effect. Institutions of inspection, oversight and audit, can reduce the space for careless, reckless or unethical behaviour (again, dependent in turn, on the ethos of their professions). By contrast, opposite pressures come from powerful forces of organised crime, corruption or disinformation in the surrounding environment.

So institutional wisdom is best understood in terms of the combination of ethos, leaders, and the internal organisation of intelligence, alongside a wider division of labour that generates wisdom as an emergent property of their interaction. To summarise these include:

- Audit, oversight, inspection – to constrain abuse and assert deeper values of integrity
- Transparency and accountability – literally the likelihood of being called to account for your actions
- Evidence and experiment – to discover the new in objective terms, and then share these findings
- Visible ethical reasoning – eg on technologies – always with explicit reasoning and challenge
- Rights – for example for whistle-blowers, or rights of voice for those who are to be affected by decisions
- Governance structures that formally empower a wider community of stakeholders to act as guardians of values (eg the role of members in charity law, supervisory boards in business)

Indeed, an interesting common pattern for wise complex problem solving is the combination of at least three different elements which complement each other:

- Inputs of analysis, science and modelling that aim at achieving a widely shared diagnosis (and can draw on many of the factors listed above)
- Intermediary roles to distil this into a prescription and recommendations for action (for example by an appointed review, commission or a formal adviser), necessarily simplifying the many complex perspectives of the earlier stage
- Decision-making by a politician or other

Crucially, those responsible for the integrative judgements and decisions need to be held to account over both short and longer timescales, asked to explain why they drew on some models, knowledge or heuristics and not others. This forms part of both the individual and collective learning process.

New tools for collective wisdom

The last few decades have brought big advances in how we organise collective intelligence of all kinds. Repositories of global scientific knowledge like Microsoft Academic Graph make it possible to find, and distil, millions of research articles at great speed. We're also beginning to see new tools for organising trust and reputation – which could be used to increase the influence of people with proven track records of wisdom.

These methods echo those used by Google's Page Rank to show the social graph of different individuals in a network: whose work is valued, retweeted or commented on positively. They can go further to ask people in a network to explicitly rank others according to their knowledge, insight and wisdom. The tools of liquid democracy then make it possible to lend votes or decision-making power to others who you think are better able to act wisely.

These methods are still in their infancy, and still more useful for networks organising knowledge rather than decision-making where money or formal power is involved. But they point to a future landscape in which there are more explicit loops to assess the wisdom, and trust-worthiness of others.

7. Wisdom, science and expertise

These methods are likely to be particularly important in reshaping the relationship of wisdom to expertise. Experts play vital roles in many fields. They have been very visible during the COVID crisis, advising on the epidemiology, behavioural dynamics and economic effects. They are vital to handling climate change; and also vital to guiding societies making judgements about powerful technologies from artificial intelligence to gene editing.

There is a very long history of organised expertise, and of institutions created to guard, cultivate and spread wisdom, like the *House of Wisdom* in Baghdad, which gathered the great books of its time and of antiquity.

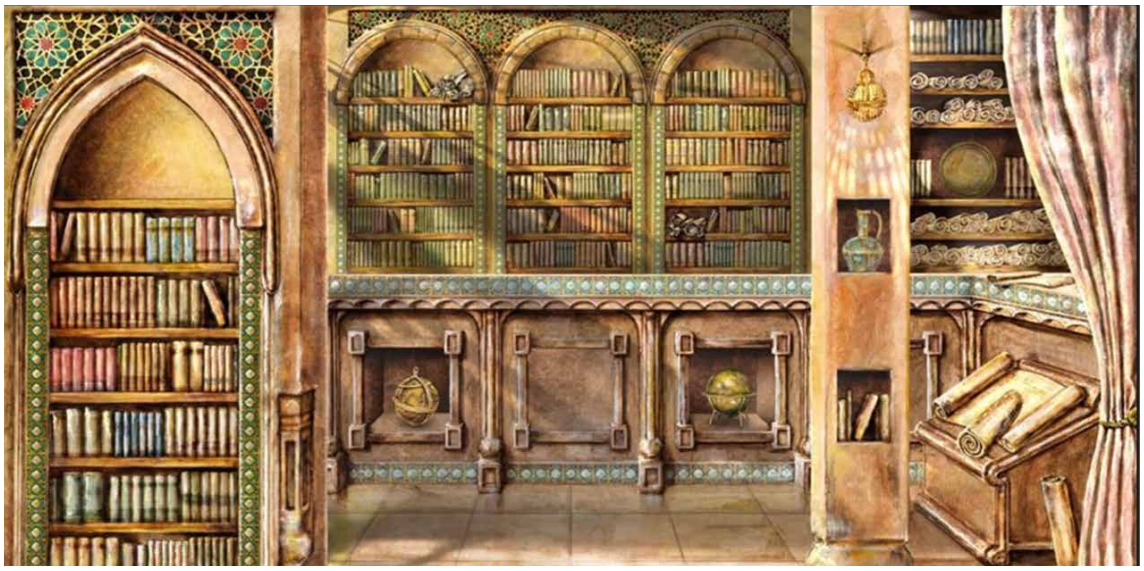

Figure 5. Bayt-al-Hikmah: The House of Wisdom (8th Century AD)

The more recent equivalents are commissions and committees of scientists. The traditional science advice view argues for gathering a diversity of types of expertise, ideally combining natural and social sciences; having robust processes for argument and interrogation; transparent and competing models; and then feeding advice into processes – often run by politicians – that are then thought of as entirely separate. The politicians are then held accountable for their decisions, but it is less clear exactly how the experts should be held accountable.

A contrary view argues that the experts are too powerful; that the solidity of their knowledge is often exaggerated; that they smuggle values into their advice; and that they need to be demoted from their pedestals.

The view proposed here implies respect for expertise, but within limits. Multiple forms of expertise are a vital input to judgements that need to be wise. In most real situations multiple kinds of knowledge will be relevant to decisions – scientific, economic, values, public opinion, politics – with no meta-theory to guide what weight to give each, only learning from experience. In many of these, ethical considerations will be vital, if complex. In the COVID crisis, for example, leaders were often guided by ethical

considerations as much as expert advice, to impose rapid lockdowns. It follows that some of the loops need to be transparent and shared, with experts making explicit predictions about 'if x, then y'; decision makers doing the same; and explicit processes for learning when x leads to z rather than y. Indeed, the crucial question then is how that experience is orchestrated, reflected on, explained and used to feed future learning – through case studies, history and reflective dialogue.

This seems to be the direction of travel. It implies much more visible and open processes for advice, and then for holding advisers to account in retrospect; deliberate use of multiple disciplines and frames, as well as multiple models; recognition of uncertainty; and rapid, and also visible, taking stock of what did or didn't work.

Oddly at the moment politicians are expected to be held to account much more than experts. For example, you can look in vain for the moments when eminent economists were held to account for misreading the run-up to the financial crash of 2007/8. But wise systems depend on using these loops for all the different kinds of knowledge that feed into decisions and actions. And increasingly we will use more distributed networks to orchestrate this type of learned wisdom, using social graphs as well as formal academic status and hierarchical position.

8. Wisdom, time and rhythms of change

I have become interested over the years in the relationship of time to wisdom. So many things we have to do in life have a pace and a rhythm: bringing up a child, evolving our relationships or trying to change the world. Sometimes the pace of change is obvious – like growing plants in a garden. If you try to force the pace too much your plants will die! Equally if you are in the midst of a crisis it's better to make fast but imperfect decisions than deeply considered ones.

But there is surprisingly little useful theory to guide us in most areas of life and to help us grasp latency, inertia or momentum in a situation. This became very apparent to me working with governments. You soon learn that there are very different rhythms of change for different things: at one extreme there are the very long time horizons of transforming infrastructures, developing new drugs or changing the make-up of the armed forces. At the other extreme there are the very short time horizons of news cycles, or software development. In between are the rhythms of schools and hospitals, political programmes and the quite complex patterns of culture and behaviour change.

I became convinced that often governments did slowly what they should have done fast (their internal processes were far more sluggish than they needed to be) but then also often tried to do fast things that had to be slow (particularly changes designed to shift attitudes and cultures). As I put it in my book *The Art of Public Strategy*, they therefore tended to overestimate how much could change in the short-term and underestimate how much could change in the longer term.

Other fields also tend to gravitate to particular time horizons more for reasons of convenience than logic. Most big foundations want their programmes to achieve impacts in a 3–5 year time frame, mainly because this is the typical lifespan of boards and CEOs. Companies often develop strategies and change programmes with a similar timescale and for similar reasons.

Other fields shift their time scales. Science now moves more slowly than in the past – with longer projects, more complex teams all contributing to the apparent slowdown in productivity (though in the COVID-19 crisis these dramatically accelerated, to great effect in relation to vaccines). Marketing is now even faster than in the past, thanks to the instant feedback of data.

In the absence of any useful guides, or much useful insight from the social sciences, this is territory one has to learn through wisdom: through observation and reflection, drawing on the experience of others too. Indeed, this sensitivity to time and rhythm may be one of the keys to wisdom.

9. Wisdom for COVID-19 and climate change

The two most visible overlapping crises of our time – the COVID-19 crisis and the slower crisis of climate change - are very obvious cases where wisdom has been needed. So here I briefly apply the framework set out earlier to these. Let's start with COVID:

- Loops – the world started off with limited knowledge on what the pandemic would look like or how it would develop. So countries had to learn fast, had to be willing to change course rapidly and to admit error. Some countries that did well in the early phases did badly in the later phases and vice versa. But the ones that were willing to be open and humble, and to learn fast, have generally coped best. By contrast hubris and arrogance have been severely punished.
- Multiplicity – the immediate aspects of the crisis have been about biology and epidemiology but the responses have required attention to psychology, economics, legitimacy, trust and many other issues as well. So governments have had to evolve ways of tapping into multiple sources of knowledge.
- Collective - none of the work on COVID-19 has been done by lone individuals. Instead all of the important work has required collaborations both larger and small, from the development of vaccines to treatments. Indeed 2020 saw perhaps the most impressive mobilisation of global knowledge ever seen, including many tens of thousands of new research papers.
- Argument – finding the right responses to COVID-19 has required argument, recognising the virtues of alternative views and where possible turning them into models that can be argued with and interrogated.
- Integration – finally, of course, decision-makers have had to integrate these different kinds of knowledge to guide action – often in conditions of great uncertainty, and in a context where fast and imperfect action has often been better than waiting for certainty.

Almost all of the same issues apply to the much slower crisis of climate change. Again we need loops to learn fast what works in changing behaviour, designing taxes, reshaping supply chains or circular economies. We need multiplicity – mobilising multiple disciplines and perspectives. We need collective insight and wisdom, vigorous argument about alternatives and then a bias towards action.

All of these will be needed just as much for the recovery from COVID-19, to address the scarring that has affected so many young people, the damage to so many businesses and to make sense of the potential for new ways of working, living and learning using digital tools.

I hope it will be clear that these types of wisdom are rather different from the detached, quiet, lone wisdom of traditional stereotypes. They can certainly be helped by an awareness of our connectedness with nature and a recognition of the extent to which our selves and our interests are partly illusory. But these are not sufficient to give us the wisdom the world needs.

10. Cultivating wisdom for action

The approaches set out above can be learned and used – with decision-makers, politicians and citizens as a whole. The key point is that they can be used both to design processes and institutions, and as habits of reflection.

Specifically, the key for any institution or group is to encourage habits of looped thinking, and to try to make this detached from ego and status. That can involve:

- Explicit prediction, reflection and learning: whether by ministers, officials, doctors, teachers or judges. 'If x, then y'. This is rare and hard: but it's much better if this can become part of everyday routines rather than dependent on periodic audits and inquiries.
- A related point is systematic learning from error and surprise. This is institutionalised in some fields, such as air travel. Every near miss or accident leads to a report. Data is increasingly fed in real time from engines to their manufacturers. Some hospitals do the same. But in most systems there is nothing quite comparable because of fear of blame or being sued.
- Next comes good argument: using the array of tools such as red teams to provide healthy challenge and interrogation, so as to sharpen up plans and projects, ideally helped by a culture in which people leave ego at the door.
- Good meetings: apply what is known about how to bring out the full collective intelligence of the room (or Zoom)
- Integration – cultivating the generalist ability to integrate, literacy in science, dynamics, a different curriculum for civil servants and politicians
- Explanatory decision-making – a style of leadership in which much more is explained along the way, including what causal mechanisms are being used, alternatives considered and rejected, milestones at which to judge success or failure or a need to adapt.

Traditional view of wisdom	**Progressive view of wisdom**
static	dynamic
old, male	any age and background
individual	collective
singular	multiplicity
generic	specific
small commissions of elders, experts or grandees	wider networks using social graphs, trust and reputational devices
opaque pronouncements that can't be disproven	clear predictions with learning loops
the preserve of a small elite cadre	widely distributed as society's dark matter

A citizens' assembly for making sense of COVID-19?

In 2021 and the years ahead we will need more than a little collective wisdom. A first priority will be to make sense of what happened during the COVID-19 pandemic and what lessons can be learned. In many countries there will be various kinds of expert or official inquiry to apportion blame for mistakes.

Certainly the crisis was an unprecedented challenge to societal wisdom as decisions had to be made under pressure, with limited knowledge, on the boundaries of epidemiology, economics, public behaviour and trust.

But this could be an opportunity to grow social dark matter instead. In recent years Citizen Assemblies have been used to advise governments and parliaments on contentious issues. Ireland set up a series on issues including abortion, ageing and climate change. More recently Emmanuel Macron set one up to advise him on climate change. But perhaps the Assembly model could also be used to make sense of the complex decisions which so many societies had to make during 2020, so as to use this as an opportunity for enlarging societal wisdom.

Wisdom sometimes seems out of reach, too vague as an aspiration. And while wisdom literature is often wonderful for helping us as individuals, it is often rather useless for the real situations in which we have to work with others. I hope the ideas set out here may partly remedy this.

There is no reason why an era so rich in data and information cannot also be rich in wisdom.