A Loop Theory of Wisdom: ideas on how we might bridge the wisdom gap

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THE QUESTION
Is it possible for an organisation, a system or a society, to become wiser? If so, how could we make this real and not just a vague invocation – like wishing people would be kinder or more loving?

In this paper I share some answers and suggest a framework that cuts across different disciplines, including philosophy, psychology, computer science and organisational design.

I argue that progress in this field is badly needed, and not just because of the very visible lack of wisdom amongst many leaders and institutions, but also because rapid progress in use of data and artificial intelligence has not led to obviously wiser actions, in part because these fields lack a coherent view of the relationship between data, knowledge and wisdom.

I argue that wisdom, and thought about wisdom matters, because it should sit above other types of knowledge, including scientific knowledge, or the insights of particular disciplines or professions. Wisdom depends on expertise, but sits above it – and, as I argue, this should shape how we design institutions and laws, as well as science advice and governance, the design of digital technologies, and the crucial institutions that help the world make wiser decisions about complex long-term challenges – such as the IPCC and others around climate change, or IPBES concerned with biodiversity and ecosystems.1
The paper challenges some conventional views of this topic which see wisdom as static rather than dynamic, individual rather than collective, introspective rather than involving argument and open learning, and general rather than domain specific.

All of these assumptions may be misleading. I argue that instead of thinking of wisdom as an attribute we should understand it as a series of loops — loops linking thought, action and results; loops involving feedback from others; and loops involving argument and decision.

**Background and main themes**

I’ve become interested in this question through several convergent routes (including reflecting on when I have been less than wise!). One is research and practice around **collective intelligence**, some of which sees a hierarchical progress from data, through information and knowledge to collective wisdom. A second is interest in the evolution of **consciousness**, and the possible historical movement towards higher and deeper states. A third is interest in **how to design institutions, technologies and systems** to help them think and act more effectively, and better resolve conflicts.

The paper shows why attempts at definition and taxonomy have been unsatisfactory and why wisdom is not a single thing but rather a shifting assembly of elements linked by what I call integrative judgement, that is in turn guided by reflection on experience. I suggest how institutions could be designed in ways that partly mimic the sometimes competing and sometimes cooperating parts of the individual brain to come closer to a capacity for wisdom.

I present wisdom as an inherently **looped concept**. I question the idea that wisdom is an attribute of particular people or institutions, presenting it more in terms of processes and actions. What is wise is what in the long run turns out to be wise. We can only truly recognise wisdom in retrospect, or from a distance. Words alone cannot be wise (and putting too much weight on the declarative, verbal side of wisdom opens
up greater risks of hypocrisy and error, and greater risks of taking at face value the traditional hierarchical associations of wisdom - age, status, gender etc).

But if wisdom is looped, as I suggest, this also means that it can be learned, whether by individuals or organisations, through habits that partly mirror those of Bayesian inference. Moreover it is possible to address head-on processes that run counter to wisdom –algorithms that circulate lies, media dynamics that tend to amplify attention to people with vivid but misleading ideas, or legal processes that fuel discord.

I also suggest that wisdom is to some extent collective – dependent on others and their feedback – and that it is contextual; we can only judge it from a vantage point. There is no such thing as universal wisdom and wisdom is unstable because the environment that makes up its context is fluid, meaning that what is wise at one point may not be at another point. Wisdom is also looped in another sense. To **think wisely we have to learn both to go out, and then to come back:** to go out in the sense of exploring other perspectives, ways of seeing and thinking; and to come back in the sense of returning to an action or decision that will always be simpler than the thoughts that guide it.

Drawing on this idea I show how it is possible to cultivate wisdom; to build it into institutions and systems, usually through a division of labour; and how to embed it into physical objects and into a further evolution of knowledge management and search tools, as well as artificial intelligence. I also address how wisdom can be cultivated in making sense of new fields of science and technology, bringing with them uncertain risks and benefits.

**By making the pursuit of wisdom more explicit** with claims, predictions and formal processes that allow for shared reflection and learning, along with a constant iteration of questions and answers, I argue that we can improve the quality of thought not only of individuals but also of organisations and whole systems. By removing some of the mystique surrounding wisdom we can do more to promote it.
None of this would matter if the world was replete with wisdom. But it’s not. Wisdom is fragile, elusive and often undervalued. In a world where data and information have become ever more ubiquitous and cheap, wisdom may have become even rarer.
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OLD IDEALS AND NEW AMBIGUITIES

For most of human history and prehistory wisdom came from experience. Elders were valued for their accumulated knowledge and experience, revered and listened to when they were no longer strong enough to help with the hunt, gathering fruits or growing crops. Their knowledge helped the community when it was hit by shocks – a change in the weather, disappearing food sources, internal conflicts or external threats. Confucianism and other traditions later turned that perspective into a comprehensive social and political philosophy, emphasising hierarchy, deference and respect for experience as essential to the natural and social order.\textsuperscript{iv} A vast ‘wisdom literature’ can be found all over the world that aimed to pass on the insights of the elders, thinkers and prophets.\textsuperscript{v}

In more modern societies there has been much more ambivalence about wisdom and disagreement about who has it, what it means or how it can be recognised.\textsuperscript{vi} In fast-changing environments old knowledge and past experience is as likely to be misleading as illuminating – leaving the old as often scorned as respected, as happened in the China of the cultural revolution or the US and Europe at a similar time.

In periods when values are changing rapidly what looks like wisdom to one person can seem like inflexible orthodoxy or dogma to another. It can seem anti-ethical rather than the essence of ethics. What, after all, is wisdom in relation to gay marriage, driving a car or eating meat? Since the Romantics, too, the modern world has sought to break from, or rupture, the accumulated wisdom of the present. The ideal of self-transcendence implies that the richest and truest life is one in which we take big risks and embark on great adventures that almost by definition are \textit{not} wise or prudent. And the beliefs of the past can easily come to seem very unwise. As Ralph Waldo Emerson put it in one of the most influential ‘wisdom books’ of the 19\textsuperscript{th} century: ‘as men’s prayers are a disease of the will, so are their creeds a disease of the intellect’.
So the search for wisdom is not as easy as it may seem at first. It may not be enough just to gather some grand elders and hope that they can offer insight into solving the problems of the world. Yet wisdom clearly matters, and we can easily see its absence, whether in leaders who are the epitome of folly; in institutions that make grave errors; dominant systems that degrade wisdom; or in vastly expanded education systems lacking space for wise reflection.

From the vantage point of the 21st century it’s also hard not to be struck by the lack of progress in wisdom: thinkers from more than two millennia ago still appear wise in their insights and still relevant today, while knowledge in every other field has advanced dramatically.

I DEFINITIONS OF WISDOM – AND THEIR USES

What is wisdom? How should it be defined? Answering these questions isn’t helped by the many variants of meaning across different contemporary and ancient languages. Yet there is a burgeoning field of wisdom studies that has attempted to make sense of the many meanings and uses of wisdom. Significant sums have been spent by bodies like the Templeton Foundation trying to advance understanding, usually producing lists and catalogues of what might be the elements of wisdom.

One recent literature survey on ‘commonly cited sub-components of wisdom’, for example, found that these included knowledge of life, pro-social values, self-understanding, acknowledgement of uncertainty, emotional homeostasis, tolerance, openness, spirituality, and sense of humour. There are widely used frameworks and taxonomies, such as the Berlin Model, the three-dimensional wisdom scale, the ‘Balance Framework’ and others.
Some of the research has attempted to be inter-disciplinary. In the academic literature, however, psychology has dominated, usually treating the individual as the only relevant unit of analysis\textsuperscript{v}, and generating a small industry of survey methods to try to measure wisdom\textsuperscript{vi}.

These approaches are mirrored in a very typical model of research which seeks out obviously wise people (Jesus, the Buddha, Gandhi ...) and tries to find common patterns and attributes. So far this kind of work, though very readable, has been criticised for extracting people from their contexts and collaborators, and for turning out to have very little if any predictive power.

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.\textsuperscript{vii} Alone, we are all pretty stupid\textsuperscript{viii} and, as I will show, 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.\textsuperscript{ix} Although philosophy strictly means ‘love of wisdom’, many contemporary philosophers are uncomfortable talking about it (the origins of the word are mentioned at the beginning of undergraduate courses, but wisdom is
usually never mentioned again). It’s seen as a throwback by the analytical traditions, or as an illusion by many others.

**Wisdom as cleverness and knowledge: data/information/knowledge/wisdom**

However, 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.xx 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. xxi In many of the literatures and widely used models a combination of elements are then identified.

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One aspect of wisdom is a high level of **cleverness** – or cognitive complexity, the ability to handle multi-faceted questions (some of which is captured in frameworks such as Michael Commons’ Model of Hierarchical Complexity, MHC, shown on the left).

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.xxii

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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.

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.xxiii

‘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’.xxiv

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 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."xxv

**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, 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, a stance as well as 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. But some aspect of wisdom involves a willingness to share ownership of a situation, to have a stake, or to recognise how 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 these three additional elements.

**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).xxvii 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’)xxviii.

**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.xxx 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’).xxx 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.

**Performance**

Finally, there is an interesting aspect of wisdom which is performative. We associate wisdom with age; to be seen as wise in many cultures it’s best to keep the register of the voice low; to speak slowly and calmly, without heightened emotion; to use elliptical rather than direct language (and perhaps to grow a long grey beard). These performative methods can easily persuade audiences that what is being said is wise. But, as I discuss below, they may not be, or rather they may work better in prompting wise reflection in the listener than being wise in themselves.xxxi
PLURALITY AND OUTCOMES
So wisdom is not a single thing though it includes some convergent elements. These different dimensions 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.

This may explain why, although the many attempts at mapping and defining wisdom have their place, they have turned out to have surprisingly little utility as guides, and have had very little influence on how wisdom is organised in the real world, whether in education or making complex decisions (perhaps, one aspect of wisdom is understanding the limits of definitions and boundaries, taxonomies and frameworks, and the virtue of seeing words more as language games).xxxii

Moreover, research has struggled to confirm that some people are wise in any general sense (as opposed to in specific circumstances).xxxiii 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.xxxiv

This is why we should be sceptical of the traditional view of wisdom as the property of a small and select group of people. Instead it’s more useful to think of wisdom as a practical, learned knowledge, that is best understood as a loop: what we should most respect as wisdom is what in retrospect contributes to the best outcomes for the individual, the community or the ecosystem.

In other words, what counts as wisdom depends on whether its insights or advice turn out to look wise and make sense as time passes. There is no wisdom in advance. It is perfectly possible for advice to sound profound but turn out to be foolish. Indeed, overly confident wisdom may not be wisdom at all.

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**WISDOM AS HUMILITY**

This takes us to a key feature of wisdom that should always encourage a degree of scepticism.

All knowledge of the future is, in reality, knowledge of the past. But whereas for some kinds of knowledge we can predict with reasonable confidence, for all serious kinds of wisdom this asymmetry between a knowable past and an unknowable future, is stark.

So the wise man or woman is humble about what they can know, a humility that may be helped by experiences of failure and pain.

As Hegel put it, ‘the owl of Minerva spreads its wings only with the falling of the dusk’.

He was referring to the fact that we can only truly understand a historical moment or system when it is already disappearing. But there is surely here a more general point that wisdom, or true understanding, can only itself be judged late, after the facts.

Seen through this lens it’s also obvious that wisdom may not always be unambiguously good. What is wise for one person may not be for another. While we might aspire to a truly universal Kantian ethics, this is hard to square with how wisdom is thought about in the real world.

A bigger field of vision is generally associated with wisdom. But it isn’t always better than a smaller one, in the vein of Henry Sidgwick’s famous phrase about ethics as ‘taking the point of view of the universe’. Is it for example wise to privilege the cosmos or Gaia over humanity? Is it wise to be deeply troubled about the implosion of a distant galaxy? We live in constraints of place, time and the certainty of death. Wisdom is woven into this reality and does not sit separate from it.

**IS WISDOM DEPTH?**

The approach I suggest here also calls into question some of the associations between wisdom and depth. It’s often assumed that wisdom means depth, in at least three different senses.

The first is depth of understanding. In making sense of a situation, wisdom involves going beneath the surface, asking why, seeking the underlying causes not the
superficial patterns. This may mean getting down to underlying issues of identity or culture or historic resentments and fears that may be invisible to the protagonists themselves. Indeed, we assume that for any situation the more it’s possible to uncover deeper layers, the truer the understanding and therefore the greater prospects of finding a genuine solution.

The second is the depth needed for imagination. This is the idea that the most important and transformative new ideas come from deep within us, and require an ability to still, quieten or ignore surface thoughts.

The third is depth of character, the idea that wisdom has to involve going deeper and deeper into the self, into ever more self-knowledge and, through the self, into ever more knowledge of the hidden truths of the universe (the infinite hidden within the finite). Out of this come wise people who can then apply their wisdom to any number of questions.

Experience and logic, however, challenge some of these associations between depth and wisdom. What we find deep within may be our genetic make-up, the legacy we have from millions of years of evolution as apes, which our civilisation has learned to see as often the opposite of wise. In some fields deeper understanding may not necessarily mean better understanding. Psychology is a good example. Over the decades it has discovered many treatments that work. But most of these treat symptoms rather than being based on a detailed understanding of causal mechanisms. It would be preferable if there was some stronger theory to underpin a discipline that has only ever replicated 1% of its trials. But the field gets by all the same, and many of the deeper theories have proven less reliable than the superficial ones.

In our own daily lives, we are not too troubled by a parallel situation. We find a spouse or partner or buy a house without much in the way of deep theory to guide us (and if we do find a theory it’s as likely to mislead us as to help us). We probably use rough and ready tools like pros/cons lists, or simple heuristics, but not much in the way of deep thought.
Does it matter? Probably not. Drugs like penicillin were discovered and manufactured long before there was a detailed understanding of how they worked at a cellular level. Again, it mattered more that they worked than that we knew how they worked.

In computing many theories have grown up to justify machine learning methods that are satisfactory – sufficiently generalisable – but don’t attempt to construct comprehensive causal models. Examples include Lesley Valiant’s ‘probably approximately correct’ algorithms which are adaptive mechanisms that try to do better than the alternatives. In economics, many concur with Milton Friedman’s advocacy for parsimonious but strongly predictive models in economics. The models don’t need to be plausible as explanations as to why the economy works the way it does, or deep in any recognisable sense, but can nevertheless be useful.

So depth may not always be wise. If we look at individuals there are also reasons to doubt some aspects of depth, and, in particular, the implication that there is a generic wisdom, a ‘w’ comparable to the ‘I’ of general intelligence. I have often seen very wise people, with spiritual depth, who are quite ‘out of their depth’ in other fields when asked to offer their insights. There are exceptions – but they have generally had a lot of experience of the world (in the way that Popes, or the Dalai Lama, have spent much time dealing with politics, finance, social conflicts, clashing egos and the like). And they are wise enough to recognise the limits of their wisdom and are often unafraid to say: ‘I don’t know’ (not least about topics like parenting of which they have no experience).

Someone with deep spiritual wisdom may have little useful to say about dilemmas in work, science or relationships for example. So wisdom may be better understood as a shifting assembly of multiple parts that are combined for different tasks and contexts.

Indeed, depth can be an illusory concept or metaphor. Clearly in some fields an accumulation of experience or knowledge is vital, and the metaphor of depth resonates well for spiritual experience, inner experience and insight. But the ability to
display skilful wisdom may be better understood as reflecting *agility* in selecting, combining and modifying relevant knowledge rather than depth as such.xxxvii

**WISDOM AS DOUBT (INCLUDING DOUBT ABOUT WISDOM)**

Such agility can be helped by asking questions, which oddly may become harder with depth of knowledge (there is now plenty of evidence showing how experts are often worse at making predictions than non-experts)xxxviii. Socrates believed that writing would impede thought in part because it would privilege answers over the capacity to question, and, through questions, get to the heart of issues.xxxix As we’ll see, in a world where answers and facts are more ubiquitous, accessible and apparently cheap, the capacity to ask questions, again and again, and from different angles becomes more important than ever. So another aspect of wisdom is the ability to question facts and interpretations as well as one’s own mental habits, in a spirit of doubt.

Four centuries ago Francis Bacon wrote of the need to fight the ‘idols of the mind’, which included the tribe, the marketplace and the theatre, each of which distorted our vision. He encouraged people to try to see things as they really are. Recent psychological literature has emphasised not only how strongly we resist clear observation and thought (for example, because of confirmation bias), but also why our social nature may explain why we have evolved in this way.xl Many other traditions make a similar case, such as Theravada Buddhism with its emphasis on ‘satipatthana’, bare awareness and mindfulness, a skill cultivated through meditation that helps us to see things, including our own thoughts and emotions, with clarity and detachment.

So it’s healthy to doubt not only facts and claims but also thoughts and judgements. But doubt is a tool, not a resting place, a means for getting closer to truths which then has to be suspended as we have to act in the real world, always with less information than we need. If we never escape from the doubt (which is a common affliction of thoughtful people) we risk being becalmed in inaction. But without an ability to take detours through questioning and doubt, it’s hard to reach a wise conclusion.
INTEGRATIVE INTELLIGENCE, JUDGEMENT AND ARGUMENTS INSIDE OUR HEAD

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

The first part of the answer is that we organise arguments inside our head, 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.

Then we have to integrate and simplify — seeking what Oliver Wendell Holmes called the ‘simplicity on the other side of complexity’. 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.” 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 decision. 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).

There exists no meta-theory to guide these 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 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 other words, integrative wisdom and intelligence are grown through loops of thought involving arguments within our heads, and integrative 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.

However, there is one important problem with these feedback loops. For the individual offering wise opinions or advice the key feedback is likely to be social and immediate: in other words, do they receive feedback from their audience that their views appear to be wise (which is in turn more likely if they take advantage of cultural associations of wisdom with age, speaking style, opacity)? This may correlate only loosely with a more objective assessment of whether their advice turns out in reality to be wise. This again, is why any culture needs to sustain a critical, reflective view of wisdom and to encourage continuous learning rather than the performance of wisdom.

This more reflecting kind of thinking can be encouraged in groups - through sharing predictions, estimates of probability and reflections on confidence levels – and then reflection on what actually transpires. Indeed socialising thought in this way is often essential because reflection of this kind is hard work. We would generally rather stick with our assumptions or jump to conclusions; but peer pressure can help us to learn better habits.xliv
Collective intelligence assemblies

Moreover, some of the experience that’s relevant to integrative judgement can be collective – shared in a community of practice, or partly codified in the accumulated wisdom of an institution or profession, like medical doctors or soldiers. It is hard for this wisdom to be captured in a formal way – since the range of possible situations is usually far too big to make this feasible (which is also partly why the big investment in AI expert systems in the 1980s and 1990s proved so disappointing). But it can be supported by processes (some of which I discuss later on) which orchestrate collective wisdom, usually in small groups reflecting together on experience, sometimes aided by data and computation.

It can also be helped by what I call ‘intelligence assemblies’ that bring together multiple elements – observations, analyses, memory, creativity and judgement – to enable institutions or whole systems to be wise, and including both human and machine intelligence (I set out why this is the case in much more detail in my book Big Mind).

This diagram attempts to summarise 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:
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.xlv

Indeed, if there is one main conclusion in this paper it is that we need more situations and moments when people are able to reflect on past judgement; to compare what they expected to happen with what actually happened; and in the light of that to adjust their beliefs. These moments generally need to be consciously organised; to be safe spaces where honesty is possible; and to involve others (it’s very hard to do this alone). They can be helped by data, evaluations and audits; and by formal rules that require errors to be acknowledged and interpreted (as in aerospace). But they depend just as much on a healthily supportive culture which doesn’t rush too fast to blame.

There are a few partial examples of how this is done well – in medicine (when doctors together reflect on patterns, surprises and new knowledge, or ‘Schwartz Rounds’ in [Type here]
hospitals where staff share evidence and experience of patient care); in teaching (such as study circles) or the military (lessons learned exercises). It can happen a lot in coaching.

But these moments are relatively rare. Many roles and institutions that are meant to be wise – from judges to parliaments to boards – literally never have these moments of shared conscious learning reflecting on the loops that connect thought, action and results.

II DIAGNOSIS; DISSIPATED AND WASTED WISDOM

Why should we worry about wisdom? The simple answer is that we should worry if wisdom is threatened, ignored or undervalued. There are some healthy signs of higher levels of overall wisdom: better education, availability of knowledge, more tolerance, awareness of issues such as ecology or mental health, less violence and so on.

But the recent explosion of data and information may have diminished rather than amplified wisdom (to use the classic hierarchy). 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. Anyone – like me – who spends a lot of time around the artificial intelligence world cannot help be struck by how little attention is paid to wisdom in the senses described here.

There are some obvious reasons – like social media algorithms that circulate lies or media dynamics that tend to amplify attention to people with vivid but misleading ideas. There are also subtler reasons. The apparent certainty of data squeezes out the kind of looped processes that are necessary for wisdom; the loss of perception of timescales that social media seem to encourage leaves people in an eternal present without the sense of past and future that’s so essential to wisdom; and feedback can be over-rapid, again squeezing out reflection. Meanwhile, modern computing has

[Type here]
encouraged overconfidence in non-contextual solutions, reducing attention to context of people, place and time; and many of the most powerful shapers of the digital world have been monocultures, again lacking the kind of vigorous internal arguments and diversity so essential to wise actions.

We also see far too many leaders who appear lacking in any of the descriptions suggested above (as feedback loops of media, social media and public enthusiasm reward performance rather than effective action). We see a world failing to face up to the multiple ecological challenges it faces – where awareness on its own is not enough. We worry that the ways in which children are educated or brought up may do too little to cultivate wisdom.

We also often see dangerous clashes between experts and the public. The latter disregard the insights of science. But the former often display a lack of wisdom, including insufficient attention to issues of ethics, or to context. The US NIAID Director Anthony Fauci recently said ‘science is truth’ – an understandable reaction against widespread lies and conspiracy theories. But it would be wiser to say that science is a search for truth, and is never the whole truth.

In short, we have reasons for concern about:

- People – that our societies fail to cultivate wise people; that they are good at cultivating cleverness but that this is often too narrow and linear; that key influential groups – computer scientists to experts and entrepreneurs – lack an ethical sense or broader perspectives.
- Institutions – that institutions which should be guardians of wisdom may have lost their moral compass. Religious institutions; universities; and professions may be too fixated on the short-term, or on their narrow interests.
- Systems – that our dominant systems – media, markets, politics – may be designed in ways that squeeze out wisdom.
- Language – that we have lost ways to talk about wisdom which as a result is pushed to the margins, to the culture of 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?).

- Technologies – that our dominant ones, 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.

We may also worry but many of our dominant ways of thinking are focused too far downstream and therefore miss out the crucial insights of wisdom, so:

- economics takes preferences as given, and lacks theories of preference formation, or an ability to see the connections between the economy and the health of ecosystems or mental health
- political science too emphasises democracy as decision-making machineries rather than addressing where values or preferences come from and how they might be better shaped
- computer science and data science have almost nothing to say about how the hierarchy works downwards, eg wisdom influencing data.

**WISE CULTURE AS DARK MATTER**

The subtler concern is that we may be corroding the very capacities that help our societies function. 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. We see them through their effects on other things rather than directly.

This dark matter is the everyday presence of the attributes listed above – cleverness, knowledge, ethics and compassion, the long-view, presence and so on. It is this kind of everyday wisdom that stops conflicts from escalating; dampens hysteria; doubts [Type here]
and challenges false claims; gives others the benefit of the doubt. And it can be widespread or scarce.

It is perhaps not so far from the idea of ‘Bildung’\textsuperscript{xlvi}, 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.\textsuperscript{xlvii} As a result, unnecessary harm and suffering are reduced.

III PROMOTING WISDOM

If we wanted to spread and promote wisdom what might we do? The traditional spiritual view (and the implication of much wisdom research) emphasises the individual as the primary unit of influence. The implication is that if we could only cultivate wisdom in people, perhaps just a small cadre with specialised insight, this might somehow permeate or catalyse the rest of the community.

Clearly the presence of wise people does have an effect. But, of course, if they are sequestered in monasteries their influence will be limited at best. And a consistent lesson of social psychology – the Fundamental Attribution Error – suggests that we tend to over-estimate dispositional as opposed to situational influences on behaviour.

The Confucian and other traditions have also focused on individuals, though primarily leaders: if only we could cultivate wise and ethical leaders then their virtue would permeate the rest of society. Clearly, again, we should want wise leaders. But we also know that the Confucian perspective is at best a partial truth. History has shown repeatedly that people’s behaviours are greatly shaped by circumstance and
environment as much as by character, and many leaders who began wise became ever more corrupt the longer they stayed in power.

So we should instead look more broadly at how to promote wisdom on a wide enough scale that it influences the grain of everyday life, including individuals and leaders but also looking at wisdom’s many sources and potentially reinforcing elements, some provided by schools, or universities; others by media that provide a running commentary on public and private life; others still by law that is meant to embed not only justice but a deeper wisdom to apply justice to complex cases.

In this section I sketch out a more detailed programme for wisdom and show how we might understand it more as an emergent property of complex systems.

**LEARNING WISDOM**

No-one is born wise. It is acquired and learned through a combination of experience and reflection.

The family is obviously one source where children observe how parents and older siblings grapple with difficult challenges. Self-knowledge can be encouraged from an early age, helped by mindfulness and meditation, if they are cultivated as everyday habits, and exercised regularly like a muscle. These help children to contain drives to anger, envy or settling scores. Parents and siblings can teach children to see from another’s point of view (extending what psychologists call the ‘theory of mind’), asking of any situation: ‘how does this look to others involved’ as well as ‘what would be the right thing to do here?’?

The school can be another source, especially if it goes beyond the transmission of knowledge and disciplines and encourages multiple perspectives and integrative thinking. Ever since Friedrich Schiller’s ‘Letters of Aesthetic Education’, one justification for immersing young people in literature and art is that, by seeing inside others, or even inside other things, a deeper understanding is achieved. A similar
effect is promised by travelling and being immersed in other cultures so that our own can be seen in a clearer light.

Aristotle argued that the practical wisdom of phronesis can only be learned through observation – watching people who have it - and practice in one’s own life. The combination of doing things and critically reflecting on them can then help a child to understand how the particular hints at the universal. However, schools are generally not set up to teach this. Learning in schools tends to prioritise knowledge acquisition; it’s generally individual rather than encouraging peer feedback; and it’s generally detached from practice.

But as information and knowledge become ever easier to access school’s role in promoting critical thinking of all kinds, including wisdom, arguably becomes more important. So alongside acquisition of disciplinary knowledge it becomes important for children to learn the habits of thoughtful reflection on their actions and consequences, and of how to choose the right combination of ways of thinking for different tasks.

A well-established route towards cultivating wisdom in all of the senses described above is learning fluency with a very wide variety of types of questions which require the use of multiple frames or models, and then seeing their connections. For example: there are questions of the physical world around us: why is a tree the way it is and how does it grow? What are sand, a mountain range, coral or storms the way they are? Then there are questions of abstraction or concept: what is sacred? What are metaphor, homonymy, probability, dimensions? Questions of dynamics are particularly useful: why do fires spread, grass grow, civil wars start and stop? How are we different from, or the same as, a chimpanzee, a fish, a bird? Why do we find some things ugly or disgusting? There are questions of the social world: what is a constitution, a firm, a profession, a craft? There are questions in personal relationships: what are the dynamics of romantic love and long-lasting relationships? Should a child ever admonish a parent? And of course, there are questions that are
inherently hard to answer, or at least where it’s hard to explain the answers, since they depend on experience. These questions are found at the limits of explanation and translation, in sports, music and especially in the spiritual.

Why mention all of these? Partly because they remind us that much of education and upbringing should be not so much about the sharing of answers (the accumulation of knowledge in the framework above) but rather about taking children through the right questions in order to gain perspectives and cultivate integrative judgement.

With a grounding in good questions, and familiarity with finding answers that require multi-dimensional thinking, it then becomes easier to reflect: why did this project succeed or fail? Why were my expectations about this political situation right or wrong? How did I misjudge this friendship or relationship?

Ancient Greece had the idea of ‘paideia’, the rearing and education of the ideal member of the polis or state, and presumably we would want them to be rich in both sophia and phronesis, since a society with a higher proportion of people with personal attributes of wisdom - more of the cleverness, knowledge, ethics, long-view and presence described above would be a happier one. Their aggregate decisions would presumably be wiser than otherwise – and they would be less vulnerable to deception, manipulation and lies, which perhaps become even more of a threat in societies overwhelmed with the sheer quantity of information.

**COLLECTIVE WISDOM IN GROUPS**

If these are some of the ways that individual wisdom could be enhanced (and sometimes challenged), what of the group? We rely heavily on certain kinds of group 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 and 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 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! 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), including how to tap into the insights of introverts, the use of
multiple formal roles to guide the meeting, multiple media and the use of stages (for example to separate diagnosis from prescription). One example is structuring meetings on complex, multi-dimensional issues using the fable of the blind men and the elephant as a prompt.\textsuperscript{ii}

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.\textsuperscript{iii} 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 a catalyst for critical systems thinking and collective responses to shared problems.\textsuperscript{iii}

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 interesting experiment underway around how technologies can help groups to think better, and in effect to be wiser. 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).

**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.

**Specialists in wisdom**

Most societies have some more specialised institutions designed to be wise or wiser. 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; 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 more than mainstream institutions.

**Mainstream institutions**

For the more mainstream institutions, wisdom depends on both internal and external factors. Internal ones include the conscious cultivation of cleverness, knowledge, ethics, compassion, the long-view and presence (and sometimes, perhaps, spiritual depth); 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).

Similarly wiser institutions avoid the risk of being 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

Finally, and 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, knowledges or heuristics and not others. This forms part of both the individual and collective learning process.

The next diagram summarises some of these points – the attributes of the wise institution mirror those of wisdom in general but with an added institutional division of labour:

[Type here]
They can all be summarised as the abilities of institutions to look and think broadly; and to have multiple channels of feedback which then feed into decisions and actions (in short, the **breadth and richness of their loops**).

**WISDOM EMBEDDED INTO SYSTEMS, SCIENCE AND TECHNOLOGY**

Looking further out this analysis suggests that it is also meaningful to talk of wisdom at the level of a whole system. A wise system is one with a similar mix of features, including cleverness, knowledge, ethics, time horizons, multiple perspectives including empathy, and processes of looped reflection that feed back into its designs and decisions.

As a thought experiment we could apply this framework to imagining an energy or transport system that was wise. It would be able to access and deploy multiple kinds of knowledge (from engineering challenges of supply to market dynamics, to psychology, usage patterns, consumer needs and potential alternatives). It would
be able to think in multiple dimensions. It would be competent in ethical reasoning – so able to cope with the ethical dimension of its impacts on poverty, climate change or geopolitics. It would be able to situate itself in a temporal context – perhaps understanding how it might need to evolve to sharply cut carbon emissions or change behaviours.

Some systems do have reasonably good capabilities of this kind – distributed within major companies, campaigning groups, regulators, and also shared across the system. Others have only a limited capacity for cognition and can only think in one or two dimensions. Some methods such as Health Collaboratives, systems dynamics simulations and big scenario exercises are attempts to help large numbers of people within a system to take part in feedback processes of this kind, enhancing the system’s capacity to be wise.

Some of the newer global institutions are live experiments in how to organise wisdom, particularly in relation to fields that involve scientific knowledge from many disciplines.

The IUCN brings together nation states, NGOs, science and business to make sense of conservation and advocate for new conventions, but has no formal power. The IPCC – founded over 30 years ago – draws on vast inputs of data, sophisticated models and scientific argument to synthesise a shared global understanding of climate change. Since 2014 it has also recognised the need to include ‘indigenous, local, and traditional knowledge systems and practices, including indigenous peoples’ holistic view of community and environment’, and its processes include argument, review, evaluation and reflection – all aspects of wisdom.

The IPBES - the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services – set up in 2012 is another fascinating test case for the organisation of global wisdom. Set up under the auspices of the UN it exists to provide assessments on the current state and future of biodiversity and ecosystems, policy support to help conservation and restoration, while also building capacity &
knowledge and communicating its messages. The work focuses on topics like pollination, land degradation or how to value nature, drawing on a lot of voluntary input from scientists as well as indigenous knowledge, and has arguably gone further than the IPCC in trying to be truly transdisciplinary and to cover multiple kinds of knowledge. But like the IPCC its main job is analysis – rather than organising the kind of loops of learning that I’ve described in this paper.

These arguably achieve the combination of diversity, sophistication and integration described in the section above on collective wisdom in groups. Alongside many other new global tools – such as the Global Flood Awareness System – they involve continuous looped learning as predictions are compared with outcomes, and the use of multiple models.

But they remain detached from the roles of decision and action, involving politicians, officials and businesses. They tend to use very traditional meeting methods that don’t make the most of collective intelligence. They have no links into the kinds of formal reflection and learning process described earlier, and thus no ways to tap into practical learning on the ground.

And although they play some role in shaping public understanding, this is relatively limited too. Hopefully, their future equivalents may widen out these loops a step further.

**WISDOM EMBEDDED INTO AI, PLATFORMS AND SEARCH TOOLS**

Much has been written about the tension between artificial intelligence and wisdom. AI tends to be smart at particular types of task, including spotting patterns in large data sets but is generally very poor and unhelpful for the kind of integrative thinking and wide peripheral vision described in this paper.

There have been many attempts to create alternatives to the logic models that computing has followed ever since Alan Turing, including Japan’s attempts at creating
‘wisdom computing’, summarised in this diagram from Kazuo Iwano, of the Center for Research and Development Strategy in the Japan Science and Technology Agency:

So far, however, although these are opening up interesting dialogues on how to create ecosystems combining machines and people, they are some way short of delivering useable results.

As I showed in my book Big Mind, AI can be used to systematise judgements of all kinds. It can help with labelling, selecting and sorting huge quantities of information and it can help to guide and challenge human judgement (for example on a clinical diagnosis). Conversely, it’s often useful to mobilise human judgement to oversee and challenge AI recommendations (as for example in Facebook’s army of people who scrutinise content to block hate speech). The rapidly advancing research on how best to combine artificial intelligence and collective intelligence is promising, for example showing how AI can feed back to a group in real time the shifting patterns of opinion.
in order to facilitate consensus. As such it looks likely to open up better insights into wisdom than the mainstream of AI research\textsuperscript{lv} in which this has been a blindspot.

This work can also draw on interesting mathematical approaches such as ‘distributed Thompson sampling’, which is designed to choose from actions with unknown results in ways that combine exploitation and exploration, and can be adapted to combine sampling of views from a group.\textsuperscript{lvii}

I’ve also been fascinated for decades by the problems of knowledge management in organisations. How do they know what they know? Despite decades of investment and experiment none of the systems used in business or government work very well. There are often strong disincentives to sharing knowledge, and it’s always a challenge to get people to tag knowledge in coherent ways. Moreover, what is usually needed is a combination of explicit knowledge and tacit knowledge (which means finding the person who had worked on a similar problem in the past).\textsuperscript{lvii}

There are many ways these could be improved, but one that is relevant to the discussion here is to reconfigure internal knowledge management platforms, and search engines of all kinds, to combine questions and answers. Google and other tools are designed to locate popular, and linked, answers to any question. But often this gets people quickly to the wrong answer; or to an answer that only works in particular contexts. The model of information retrieval often works counter to the aim of wisdom.

There has been much discussion in the past on adding in truth dimensions to search (so that when you search for something on Google you get to be told how reliable or verifiable the information is, not just how many links it has).\textsuperscript{lviii}

A different way of organising knowledge is always to combine the answer with a suggestion, steer or question. For example: the search engine or knowledge repository can respond to a search by saying: this idea or example may be the answer to your question, but if you haven’t already mastered x,y and z you risk misunderstanding it.
Or: this may be the answer but before implementing it ask yourself the following vital questions, which will help you know if it really solves your problem and really is appropriate to your context.

These combinations of answers and questions can then be curated through a mix of AI and human input – experimenting with different types of search and then refining the answers that come back, rather than relying only on a single dimension of ranking. In other words, alongside offering answers to the ‘frequently asked questions’ there is a need for ‘frequently needed questions’ too.

**WISDOM IN THINGS**

So wisdom could be embedded in how search engines or knowledge management systems are organised – and the means for doing so would be to embed repeated loops. Wisdom can also be embedded into things. More recent understandings of thought of all kinds now emphasise that it happens in networks that include non-human objects\(^{\text{lix}}\). These help with observation, interpretation, decision, and they include a vast range of things, from road markings to measuring tools, computers to animals.

Much of the history of design has been focused on automating functions in order to free up brainpower for other things. So our utility systems operate invisibly; we rely on food systems to deliver us food that is safe to eat. Energy systems automatically adjust power sources, flows and loads, with ever less human intervention. Minimisation of friction is the usual goal.

I’ve already suggested how the system as a whole might be wiser, so that the automated optimisation of energy flows was matched with conscious reflections on the other dimensions of the systems design and behaviour that aren’t yet automated, such as its effects on economic location or the ecology.

But another approach would deliberately encourage things that promote wisdom. A well-designed car might help a driver to drive more wisely by stopping foolish actions...
that might directly lead to a crash but also by giving feedback to promote better habits. Food systems are increasingly educational as well as functional – with information on contents and calories. Home energy systems can now be designed in ways that educate the consumer to better understand how much energy their appliances use and how they might reduce usage and bills. We could imagine a school of engineering and design that more deliberately addressed the capabilities of its users.

This also takes us to the broader issue of mind-enhancing environments. The trend for a century or more has been to make urban environments frictionless. But a recent counter trend has tried to slow things down; to create pedestrianised areas; to make children’s play areas slightly less safe, to help them learn about risk. Going further we could imagine environments that prompt wisdom, not just by providing quiet spaces for contemplation but through organised stimulus: alongside commercial advertising prompts and messages that encourage critical thought; online maps and AR that give easy access to history and experience as well as to future plans; or environments that prompt insight and empathy, or that respond to your movements or expressions in ways that make you feel more alive.

IV UNTYING THE LOOPS

In this penultimate section I turn to the times where wisdom requires a capacity to challenge wisdom itself – to untie the loops of learning and reflection.

PARADOXES OF UNLEARNING

The first concerns novelty. If wisdom has to be learned through experience and reflection, how does it cope with radically novel situations? This has been the dilemma through the ages for the old and wise: confronted by the truly new their thought may be insufficiently flexible and open, and their repertoire of responses too narrow to be useful.

If we face threats of extinction and existential threats of all kinds or if human civilisation is about to be wiped out by our own actions (human inspired climate...
change, proliferating artificial intelligences) or by forces beyond our control (a meteor), then we cannot easily draw on a stock of past experiences and models because these are largely new threats.

So in these situations wisdom requires a leap of imagination as well as knowledge; to unlearn and find a ‘beginners mind’ as well as expertise. People with too much experience and familiarity with established systems and ways of thinking may struggle to imagine adequately just as they struggle to make good forecasts\(^x\).

**PARADOXES OF UNWISDOM**

A second paradox concerns folly. One lesson of wisdom itself is that it should not be too total. Creativity requires a willingness to challenge, disrupt and recombine. William Blake wrote that ‘if the fool would persist in his folly he would become wise’ and believed in an imagination that would sometimes undermine and challenge wisdom.

The wisest people often like jokes and irreverence, admitting what they don’t know and mocking themselves. They recognise that life involves play, pulling apart as well as putting together, and, occasionally, childishness. The wisest rulers traditionally had a fool close to them, to mock them and keep them true.

The overly sober, dull orthodoxy of priesthoods and their secular equivalents deadens thought, whereas it is out of chaos that the new is born. Too much prudence, conformism and consensus may in the end not be wise. This is the romantic insight – that sometimes we have to make leaps that are bold, imprudent, imaginative and go far beyond prudence. When we do so we feel more alive, and any society needs spaces for heresy, dissent and speculation that will be different in spirit to wisdom, which is often dampening, and calming in nature.

**PARADOXES OF EMBODIMENT**

A third paradox concerns the body. Sometimes we need to trust our bodies more than our minds. Here again we may learn to challenge our own wisdom, or rather to listen
to the ‘folk wisdom’ which encourages people to trust their stomach or their gut when they have to make particularly important decisions. Much more thought is embodied than appreciated in the past and more is being learned about how this happens; how traumas are captured in the body; and how the body can signal to the mind the right response to a situation.

These patterns are not straightforward; they can mislead as well as guide. But it’s useful to learn how to listen to them, and to see this as another loop, from mind to body and back, with mind aware of body and in a dialogue with it.

**PARADOXES OF ATTACHMENT AND PRESENCE**

A fourth paradox concerns attachment. In making sense of a complex situation, it’s vital to be detached, clear-headed and analytical. But at a certain point wisdom requires a switch: to being inside the problem, committed and engaged. This is a different kind of suspension of self, and compatible with non-attachment. Indeed, this is essential to most difficult problems. If we see them as distant, and outside us, we are unlikely to contribute to solving them. This is particularly true with the attribution of evil to others – other countries, companies or people – as an explanation for phenomena. Wisdom by contrast recognises that there is a dark side, and some evil, in all of us, and therefore starts with a willingness to step inside a problem rather than to shout at it from afar. This paradox matters for science which has grown up as an ethos and method of detachment. By standing back you can see more and more clearly, just as standing on higher ground helps you see the city more accurately, or an unfolding battle. Yet to solve common problems also requires commitment. Indeed many collective action problems appear insoluble without this additional step – since it is barely rational to seek to solve them, yet often satisfying to blame them on others. A purely cognitive wisdom might promote inaction (and this has long been part of the critique of some strands of Buddhism). Why vote when each individual vote has no effect on the outcome? Why believe climate change can be dealt with when there are
so many reasons to believe it can’t be? Why make sacrifices for people many generations into the future? The answers are not entirely rational.
V POSSIBLE RESEARCH AGENDAS

What do we need to know about wisdom? Wisdom resists research, though there is a vast literature on it going back thousands of years. Its looped nature makes it hard to define or contain in boxes. This may be why, although there have been many research programmes on wisdom – usually trying to pin it down with definitions – they have not generally been seen as successful. But it is not impossible to research wisdom and to enrich our understanding of it.

This topic is a vehicle for thinking about thinking; for reflecting on what types of thought and action we should value most; and for asking how best to support these in the face of innumerable opposite pulls of status, conformity, pleasure or greed, or undigestible flows of data. As individuals prone to unwise thoughts and actions we need help. And as societies prone to lurches towards collective stupidity and folly it matters a lot to better understand wisdom and how it can be cultivated.

I have chosen the phrase ‘loop theory’ to highlight the central idea – that we should apply critical thinking, and loops, to wisdom itself, rather than just attempting to map or describe accounts of wisdom, or to see it as a possession or attribute.

Here I suggest some possible avenues for researching wisdom in a looped way, that’s very different from the standard research methods that have generally been used in the recent literature. Specifically, that may mean:

- **Exploring the relationship between measures of wisdom and evidence of outcomes** or results. There *should* be correlations or causal links between evidence of wisdom and evidence of wise results (building on the growing research literature on groups and their abilities to solve problems). But there has been surprisingly little research exploring this loop which could be done at the level of whole populations or within individual institutions. These might include whole population analysis of some of the features of wisdom, or analysis of their presence in leaderships of institutions, and some result in the
real world: ability to cope with crises and shocks for example.\textsuperscript{lxii} Research could analyse which institutional ecosystems have proven most able to adapt to radically different environments (an overlap with the analysis of very long-lasting institutions).

- **Dig deeper into ways of using collective intelligence to complement AI** and contribute to greater wisdom. Huge amounts have been invested into AI in recent years, achieving some breakthroughs but also hitting some barriers. Belatedly research is being done on how CI can be combined with AI – whether by big platforms to handle content dilemmas or to assist with problem solving. This needs to be built on, so as to explore how different combinations of CI and AI can handle more complex and multi-dimensional reasoning, including helping groups to reason more effectively.

- **Dig deeper into the nature of integrative intelligence**: what is happening within the individual brain or the group when diverse and non-commensurable types of knowledge are being integrated to contribute to decisions? How in practice do we learn this – is it from observation of outcomes, or from feedback from other people? How is codified collective wisdom integrated with tacit individual experience?

- **Explore dark matter**: can we describe through thick ethnography the differences between societies that are rich in everyday wisdom and able to deploy it to defuse problems or avoid conflicts?

- **Explore a particular domain** of difficult wisdom, such as advice, diagnosis and action around climate change; the design of robust pensions policies; coping with critical decline in a city; or perhaps how intelligence services coped with a major shift of relevant alliances. A combination of ethnography, institutional analysis and assessment of outcomes could prove richly informative.

- **Experiment with new ways of organising global knowledge synthesis institutions** – IPCC, IPBES, ICUN, International – using some of the principles
described here. I am particularly interested in how science advice can more explicitly apply some of the ideas set out here.

- **Test new search and knowledge management tools**: explore the addition of ‘frequently needed questions’ and combinations of AI and expert judgement to the circulation and orchestration of knowledge within organisations or systems (and other designs that are likely to be ‘wisdom-enhancing’ rather than wisdom-reducing).

These all point to radically different ways of organising wisdom studies to the current dominant methods which have mainly taken the form of literature reviews and semantic analysis rather than research that connects thoughts, actions and results.

If we could apply looped thinking to wisdom itself, that is to say research methods that continuously reflect on the links between thought, action and results, it’s possible we might find out new and useful insights about this elusive word.

This is work that will never be complete: there will never be a definitive theory of wisdom. But we can hope for better practice. As Rabbi Tarphon put it in ‘The Wisdom of the Fathers’: ‘you are not required to complete the work, but neither are you free to desist from it’.
The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. These bodies often discuss how they can be better informed; but not how they can be wise.


Twenty years ago I wrote a book (Connexity) suggesting that one the most important tasks for any society is to cultivate the right kinds of mindsets. I still think this and wish more attention had been paid to how the wrong kinds of mindsets were being encouraged by changing technological environments.

Confucius, whose life was full of disappointments, himself said: ‘By three methods we may learn wisdom: First, by reflection, which is noblest; Second, by imitation, which is easiest; and third by experience, which is the bitterest.’

Harold Bloom’s ‘Where is Wisdom to be Found’ is one good overview of some of this literature, Riverhead Books, 2004


The group called ‘The Elders’ part founded by Nelson Mandela - was an interesting example of this approach while also showing its limitations: https://www.theelders.org/

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.

[https://evidencedbasedwisdom.com/](https://evidencedbasedwisdom.com/)

Stephen Hall, *Wisdom: from philosophy to neuroscience*, UQP 2010

The Arete Initiative at the University of Chicago called their $2 million research project into wisdom ‘Defining Wisdom’


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.

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.

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.

Of course animals are much smarter than us at many things!

J Henrich, *The Secret of our Success*, is the best recent account of the importance of group mind in human evolution.

One recent attempt is Andrew Targowski, *Cognitive Informatics and Wisdom Development: interdisciplinary approaches*, 2011

I cover this in my book *Big Mind* (Princeton UP, 2017)


xxii 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

xxiii Scott Page, The Model Thinker, Basic Books, 2019

xxiv The Model Thinker, p 8

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

xxvi 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

xxvii ‘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

xxviii Dhammapada


xxx Dhammapada, p 27, Jaico Publishing, Delhi 2003

xxxi There is a remarkable history of the wise turning out to be not so wise: popular preachers who turned out to be deeply hypocritical; gurus and seers who turned out to be corrupt. At the very least we can conclude that a wise society will combine respect and scepticism and learn to judge by actions and results rather than only words. One of many recent examples of the gap between the two involved the world’s

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Hanzi Freinacht offers a very good critique of many of the confusions around wisdom – in their recent book ‘The Listening Society’.

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).

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).

In the famous account by Plato the Delphic oracle tells Socrates that he is the wisest person in Athens. He doubts this, looks for wiser people and finds that he alone recognises the limits of his knowledge, and so in this sense, at least, really is the wisest.

And we also of course suffer from hindsight bias, which makes it particularly hard to see these links objectively, like the many forecasters who genuinely only remember their accurate forecasts.

Nick Chater, The Mind is Flat, Penguin 2019

The theme of much of Philip Tetlock’s work, eg Expert Political Judgement, 2005

In the famous passage ascribed to Socrates, Thamus says to Thoth: “here is something that, once learned, will make the Egyptians wiser and will improve their memory; I have discovered a potion for memory and for wisdom.” But Thoth replies that his idea will ‘provide your students with the appearance of wisdom, not with its reality. Your invention will enable them to hear many things without being properly taught, and they will imagine that they have come to know much while for the most part they will know nothing. And they will be difficult to get along with, since they will merely appear to be wise instead of really being so.”

See eg recent work of Mercier and Sperber or Steven Sloman and Philip Fernbach “The Knowledge Illusion: Why We Never Think Alone” (Riverhead)

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.

xliii 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.’

John Dewey, Late Works, 10:271

xliv There are some useful insights in the field of interpersonal neurobiology https://www.drdansiegel.com/about/interpersonal_neurobiology/

xlv 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.

https://nordicbildung.org/ is a useful current example of a thinktank focused on Bildung

xlvii To use the language of Dan Shapiro and others in conflict resolution: see Negotiating the Non-Negotiable

xlviii The Six Perfections in Mahayana Buddhist ethics, for example, are designed to help people move from suffering and confusion to happiness and wisdom, partly through learning patience and meditation.

Again, this is addressed well in the work of Scott Page, including in The Model Thinker


See https://www.geoffmulgan.com/post/elephant-safaris-organising-meetings-that-help-us-grasp-complexity

in Reflections on the Revolution in France.
‘Collaborative positive psychology: solidarity, meaning, resilience, wellbeing, and virtue in a time of crisis’, Michael J. Hogan, International Review of Psychiatry, 2020

For a very useful survey of research combining AI and CI see: https://www.nesta.org.uk/project-updates/ai-ci-researchmapping/


In the early 2000s I helped design a knowledge management system for the UK government that was never implemented (I was head of the government Strategy Unit at the time). I’m sure it would have paid for itself many times over. Consultancies tend to do this best – partly because they have the authority to impose rules, because individual consultants and partners become curators of fields of knowledge, and partly because they have the resources to invest heavily in technical systems.

I tried to persuade various people in Google of this in the early 2000s, but with no success.

This is the claim of the ‘Actor Network Theory’ movement, founded by Bruno Latour.

A consistent finding in the work of Philip Tetlock, as described in his book ‘Expert Political Judgement’


See for example the work of Shalom Schwartz.