Thinking Ahead Institute

Better decision-making: a toolkit

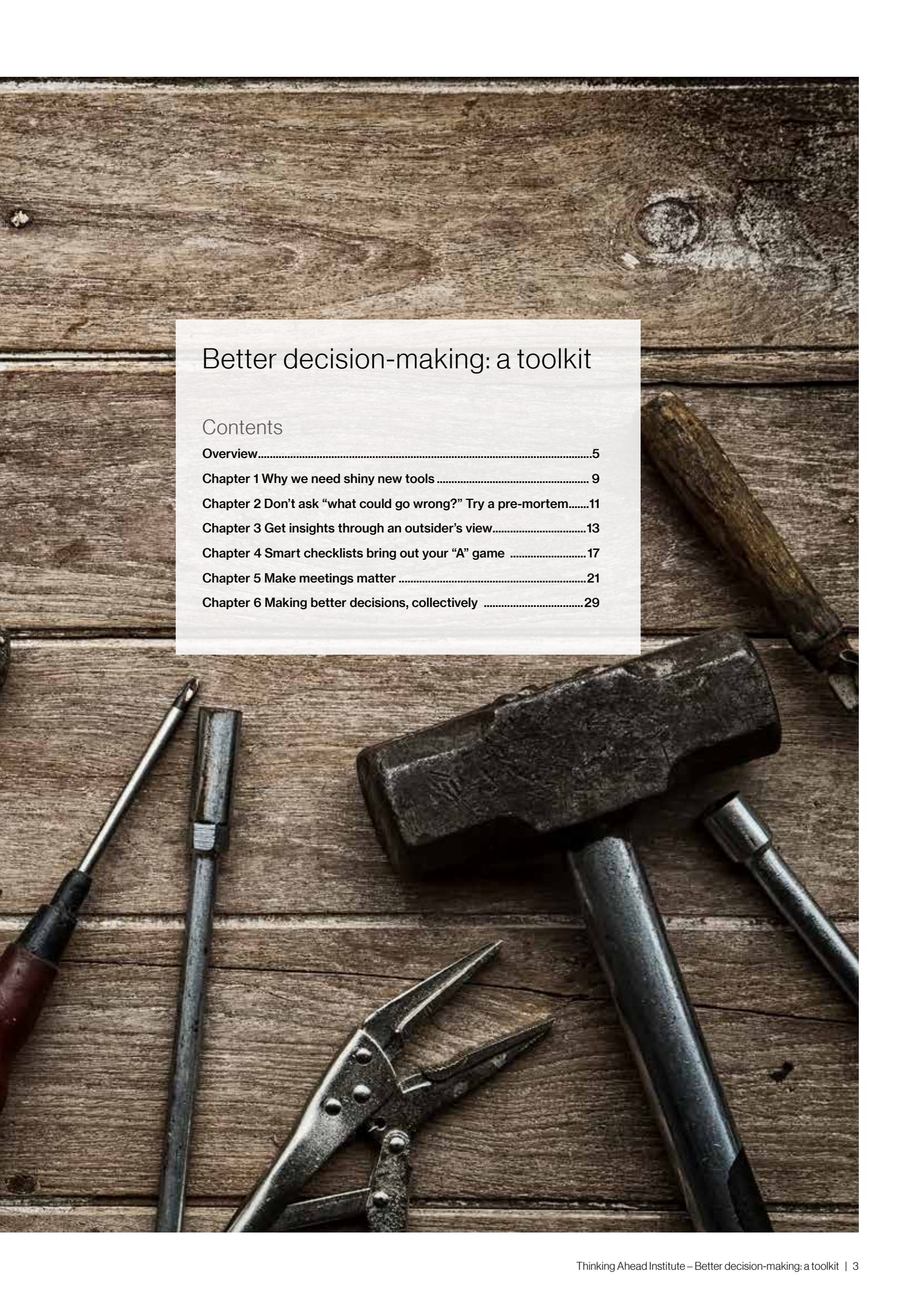December 2018

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Decision-making working group

This document has been written by members of the Thinking Ahead Group 2.0 (Liang Yin, Bob Collie) following the research and discussion conducted by the Thinking Ahead Institute's decision-making working group. The authors are very grateful to the members of the working group for their input and guidance, but stress that the authors alone are responsible for any errors of omission or commission in this paper.

While the key objective of the group is to deliver to Thinking Ahead Institute members a series of publications that form a practical framework to improve the quality of investment-related decisions, a secondary objective is to positively influence the investment industry outside the membership. We hope this paper serves both purposes.

The members of this working group are as follows:

- Chris Stangroome, Barclays UK Retirement Fund

- Craig Baker, Willis Towers Watson

- Craig Chambers, Old Mutual Investment Group

- David Griffiths, BT Pension Scheme Management

- Herschel Pant, AXA Investment Managers

- Jeffrey Klein, Aptitude Investment Management

- Jenny Segal,   Affiliated Managers Group

- Peter Brackett, State Street Global Advisors

- Peter Flanagan, Pensions UK & Ireland at DHL

Overview

Despite the central role that decision-making plays in the institutional investment process, most investment professionals would, if pushed, express at least some dissatisfaction with both the process and the outcome of key decisions.

The Thinking Ahead Institute's working group on better decisions has conducted a year-long exploration of institutional decision-making. It has drawn on both theory – ie, academic research, including management science – and practice – the collective experience of senior investment professionals working in different roles within the industry.

Earlier this year, the group produced How to choose? A primer on decision-making in institutional investing. That paper described the difficulty of the challenges, identifying two key areas for improvement: (1) the use of technology/ machines and (2) the mechanics of groups.

In this paper, we describe a range of possible responses to these challenges, focusing on those facing decision-making groups. Examples include a variety of investment committees and management committees although we believe the learning of this paper can apply to all decision-making groups.

These responses can be thought of as a toolkit. While this is not the most original analogy, it is probably the most apt. For a start, each of the ideas (tools) we cover in this paper is applicable to specific challenges in specific contexts. While some of the ideas are easier to apply than others, they are all – like a craftsman's tools – more useful in the hands of experienced users. And like any toolkit, this one doesn't contain everything that might be useful.

First up, a couple of planning tools and checklists

The first tool we will describe in this paper is a simple one that doesn't require much expertise on the part of the user: the *pre-mortem*. It's a handy tool in group planning when a full exploration of what might go wrong is essential.

The pre-mortem involves looking at a decision from the perspective of an imagined future. This change of perspective opens up a different part of our brains, the part that is great at finding explanations for anything… anything, that is, that has already happened. It's the part of our brain responsible for hindsight bias. Tapping into this part of the brain typically produces a much fuller range of explanations than simply asking "what could go wrong?"

Having anticipated possible pitfalls, the group is better placed to respond to them and perhaps even to prevent them. The pre-mortem is fairly easy to apply: it just involves re-framing the planning analysis.

The second tool is another way to change the group's perspective: *taking the outsider's view*. This tool is ideal when you need a fresh perspective, and avoid the trap of overconfidence.

The outsider's view is especially useful when you need a more accurate assessment of the probability of success. It's the outside view that reminds us that only 50% of drivers (or, indeed, investment managers) can be above average, and that projects tend to run over time and over budget.

Also in our toolkit is a variety of *checklists*. Dull, but useful, checklists are necessary because, without them, in a hectic world things get overlooked.

There are several types of checklist. From the simple and ubiquitous to-do list, to the step-by-step operational guide, checklists bring order to a process.

Next, better meetings

We move on to tools designed for use in meetings. These tools can help fix common problems, such as if people show up to meetings underprepared. Or if participation in the conversation is unbalanced. Or when your meetings wander off track.

Ending up with…collective decision-making

Dig deeper into our toolkit and there are ideas devoted to improving collective decision-making.

Investment decisions are, increasingly, team-based. Luba Nikulina, global head of manager research at Willis Towers Watson, notes an observable trend towards team-based approaches. While the shift is subtle and difficult to quantify precisely, the overall pattern is a move away from reliance on individual stars in favour of group-driven processes.

That brings both advantages and disadvantages. It certainly changes the dynamics of the investment process.

The tools around this shift take a little practice to master. Knowing when to call a vote, teasing out diverse opinions by creating psychological safe zones and structuring the conversation so that everyone has a voice are all techniques that can seem obtrusive or clunky at first. But over time they create a more effective team environment.

This is important as organisations seek to build more diverse teams. Diversity brings broader insight to the table. But insight can be worthless if it is not integrated into the decision-making process. There's no point putting a diverse team together if nobody listens to what anybody else is saying.

Just as with a physical toolkit, all of the tools (summarised in exhibit 1, right) we present in this paper are about getting the job done better. Different people might use them differently, and will most likely have different favourites.

Exhibit 1: Tools for more effective collective decision-making

Aim	Tool	Chapter	Examples in investment organisations
To improve the quality of inputs to decision-making	Pre-mortem: look at a decision from the perspective of an imagined future	2	Strategic offsite; consider an organisational restructure
	Bring an outsider's perspective	3	Business planning; consider entering a new asset class that has performed very well
	Use narrative; avoid data-dump	5	Performance review; company analysis report
	Improve the level of cognitive diversity in the team	6	Your core investment team have worked together for a long time
To improve the processing of inputs	Use checklists	4	Due diligence
	Share information before the discussion	5	Investment/product committee meetings
	Agile meetings – small autonomous, cross-functional teams	5	New product development
	Parking lot: ideas outside scope are siphoned into new channel/time	5	Your research team loves to explore new ideas
To improve group dynamics for decision-making meetings	Co-chairing: separate social leader from content leader role	5	Projects where the most senior person is one of the subject matter experts
	Do something different (eg, standing) to energise the meeting	5	IC meetings with a very long agenda
	Equal turn-taking	5	Meetings dominated by a few seniors
	Encourage/train people to understand better others' mental/emotional states	6	Your investment committee is made up of individuals each accustomed to being in charge
	Make it psychologically safe for group members to express themselves	6	You have new team members who are keen not to make mistakes
To actually make the decision	Two rounds of confidential voting, before and after discussion	6	A substantial commitment to an illiquid asset
	Quantify confidence level with numeric probabilities	6	A substantial size manager selection exercise
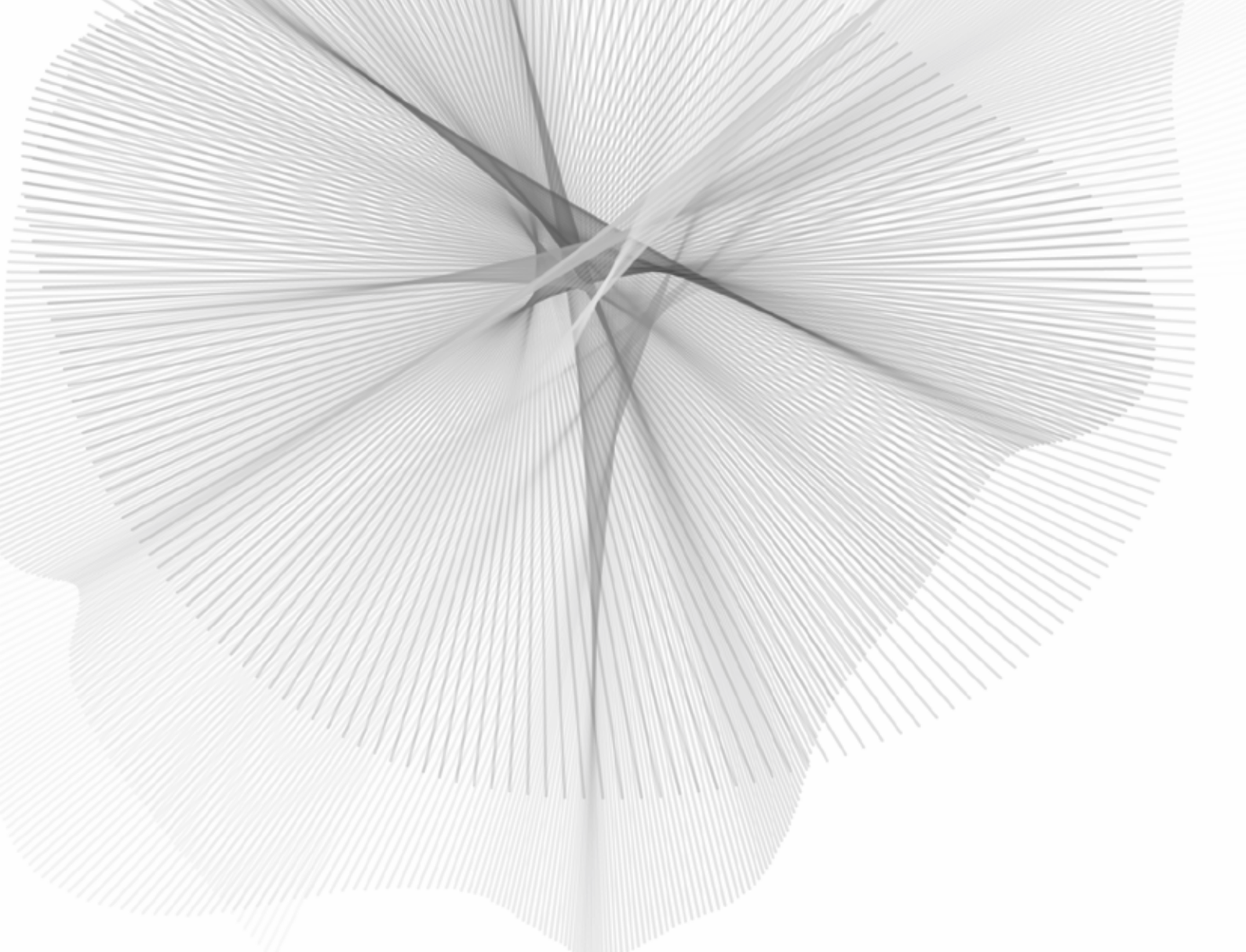
Post-decision assessment

We have not included a chapter on what you should do after an important decision is made, but this is a topic worth highlighting. The fastest way to get better at anything is to receive accurate, immediate feedback, a luxury we rarely have in the investment world. But while the results of some investment decisions are obsessed over, other decisions are never revisited. For example, even though most investment committees know exactly how their portfolio – and probably each sub-portfolio – has performed against its benchmark, few ever review the effectiveness of the asset allocation decision or the choice of benchmark.

A post-decision assessment is often triggered by a major failure of some sorts. But we should also study our successes. A decision followed by happy outcomes doesn't mean there is nothing to learn. It is not always easy, but if you're serious about getting better, you need to examine both good and bad outcomes. Otherwise hindsight bias kicks in; we like to be right about things, so our memories tend to spin the facts in our own favour. We'll never get better that way.

Something useful and practical in the hands of investors

Note that the ideas in this paper cannot guarantee better results. It is not an exhaustive list of everything that management science has to offer, but rather a collection of tools that we believe investors will find helpful in practice.

There is no magic here. Better decision-making is – like every skill – a combination of natural aptitude, formal training and experience. When it comes to decision-making, formal instruction is rare. We hope and believe that, in some small way at least, this paper fills that gap.

Chapter 1

Why we need shiny new tools

Key messages

- Uncertainty should be better incorporated into decision-making tools because the range of possible outcomes is rarely fully defined

- The decision-making process itself, and its documentation, is a critical output of decision-making

- Technology is working its way into every aspect of the investment decision-making process

Tools to fit the task

A sizeable toolkit is needed because the problems that need fixing are not all the same. Some types of decision are made (with minor variations) repeatedly, others are one-offs. Some are more important than others. These features affect the decision-making process.

Uncertainty is a key concept. Not just because the outcome of decisions is unknown, but because the range of possible outcomes is rarely fully defined. Investment is not like spinning a roulette wheel, where the odds are known. The degree of underlying uncertainty varies between one decision and another and that affects the decision-making process.

How a decision is made can be as important as the decision itself

Suppose an investment committee is considering hiring money manager X, or adopting strategy Y. The decision they make may be, at first glance, simple: do it or don't do it. Allocate 5% or 3% or nothing. But the way the decision was reached has knock-on effects.

Perhaps the committee makes decisions based on the HiPPO principle – where decisions ultimately rest with the highest paid person's opinions. (That's a common way to make decisions, even though it's not common to admit it.)

Two years on, and perhaps there are some performance wobbles (there nearly always are at some point). Does the group stick with the original decision, or does it bail? That probably depends on personalities and relationships, on whether the original HiPPO is still around, on whether the others in the room felt committed to the decision when it was made. So the process used has an impact years later.

Perhaps the committee followed the other common practice of requiring a consensus. Consensus is a good thing when achieved authentically, but if every decision needs to be consensual, it can be difficult to fully explore all possibilities. The awkward questions might not get asked. Perhaps it's only when performance wobbles that those awkward questions finally pop up – two years later than they should have.

Then there are the decisions that are susceptible to being criticised with the benefit of hindsight, the sorts of decisions that worry the lawyers. Suppose, for example, that a portfolio management team decides to disinvest from companies with poor environmental records. Or that a corporate defined contribution plan decides to move significantly away from the peer group average asset allocation in its default strategy to increase the probability of meeting the plan's objectives.

These decisions may lead to losses, even if they are based on prudent and rigorous analysis. If that happens, it's not enough simply to have made a sound decision, you also need to be able to demonstrate that you did so. So the process itself, and the documentation of the process, is a critical output of decision-making.

Finally, few investment decisions are standalone decisions. Most groups do not come together to make a single decision. The way each decision is made feeds back into the group dynamics, and shapes the next discussion. An open conversation creates the conditions for a better decision at subsequent meetings, as the group becomes comfortable with one another. Groups tend to become more cohesive and effective over time. Occasionally, this can go too far, however, creating the possibility of groupthink – that's when it's time to bring in the outsider view, or to consider shaking up the team (uncomfortable as that may be).

The role of technology

Our tools are focused largely on improving the investment decision processes of groups. But our previous paper identified another area for improvement: technology. What, then, is the role of machines?

Our decision-making toolkit is being transformed by technology. For example, it is now possible to track the distribution of speaking share at a meeting unobtrusively. So it's becoming possible to measure things that could not have been accurately measured before. Video conferencing offers a better meeting experience than voice calls alone and the benefits will continue to grow as the technology advances. Technology is working its way into every aspect of the investment decision-making process.

The role of machines is not a story of how machines will replace humans in the investment process. Rather, it's about the power of humans *plus* machines.

Chapter 2

Don't ask "what could go wrong?"
Try a pre-mortem

Key messages

- Mental time travel into the future gives us the benefit of prospective hindsight, which taps into our natural desire to explain known outcomes

- A pre-mortem – a thought experiment based on mental time travel – makes it easier to challenge collective assumptions and encourages creative thinking, countering overconfidence and groupthink

- A pre-mortem is easy to implement

- A pre-mortem does not always have to focus on the downside

What is a pre-mortem?

Gary Klein[1] is credited as the first to introduce the concept of pre-mortem in management practice. Klein said: "Unlike a typical critiquing session, in which project team members are asked what might go wrong, the pre-mortem operates on the assumption that the patient has died, and so asks what did go wrong. The team members' task is to generate plausible reasons for the project's failure".

Why is it worth doing?

Research[2] in the area of prospective hindsight – we go forward in time and then look back to explain a future event as if it had already happened – laid the scientific foundation for the pre-mortem. It appears that people look at past and future events differently: we tend to explain the past (why did the S&P 500 dive 3% yesterday?), but predict the future (what will happen to the S&P 500 tomorrow?).

However, it is not time per se that drives this difference. After all, we don't treat events that happened a year ago that differently from those of two years ago. Rather, it is to do with uncertainty. When outcomes are already known – i.e. there is zero uncertainty – human brains turn their attention to producing a set of narratives explaining "why"[3]. However, when faced with uncertainty, our brains are inclined to focus on a narrow set of possible paths, as a way of suppressing uncertainty.

Therefore, what makes a pre-mortem exercise fundamentally different from a what-could-go-wrong discussion is the elimination of uncertainty. The discussion is framed as if the future has already arrived with a known outcome, thus encouraging a focus on unpacking the why. The research mentioned above suggests that prospective hindsight significantly increases the ability to correctly identify reasons for future outcomes.

In addition to a deeper understanding of alternative scenarios, a pre-mortem creates a safe environment – a psychological safe zone – for team members to openly talk about failure. This is valuable from a cultural and teamwork perspective: it can head off fears that discussing things going wrong will be perceived as an attack on leaders' judgement or as evidence of being a poor team player. It takes the team out of the context of defending its plan. In addition, an effective pre-mortem makes team members feel valued for their intelligence and creativity to think differently, a countering act against overconfidence and group-think.

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[1] "Performing a project premortem", Gary Klein, Harvard Business Review, September 2007

[2] "Back to the future: temporal perspective in the explanation of events", Mitchell et al, Journal of Behavioral Decision Making, 1989

[3] For a brief thesis of how our brains work and make decisions, please see "How to choose? A primer on decision-making in institutional investing", Thinking Ahead Institute, 2018

How to do it?

As Daniel Kahneman put it[4], "the beauty of the pre-mortem is that it is very easy to do". In fact, compared to a "what could go wrong" discussion, the incremental resource and time requirement and added complexity is minimal. It really just boils down to reframing the same question, with surprising extra benefits.

Inspired by Gary Klein, we set out below a simple four-step guide to help institutional investors adopt this method:

01

Describe the method and ask the question

The facilitator explains the idea of a pre-mortem and asks a carefully crafted question (eg imagine that we are two years into the future and the project X has failed spectacularly on a number of fronts. "What went wrong?"

02

Present all the responses

Following a short (say 10 minutes) period of silence when everyone is asked to write down their responses, the facilitator goes around the room and asks everyone to share one item on their list and records them so visible to all (eg whiteboard or a projected screen). After each person has shared one item, continue to go around the room, sharing one more each time, until everyone has exhausted their lists

03

Prioritise

Create a practical mechanism to seek input on priorities - eg rank the top three risk factors. This can be done by an old-fashion show of hands approach (say each team member is given three votes) or assisted by technology (eg Slido). Allow time for team members to consider their choice but do not allow discussion to preserve independence

04

Brainstorm mitigation strategies

Create a lively dialogue to brainstorm strategies that can mitigate top risk factors selected by stage #3. Discussion best-practice applies here: encourage equal turn-taking/avoid dominating voice; encourage precision questioning and constructive confrontation etc. A list of strategies should be accurately recorded and made available to key decision-makers

Implications for investment organisations

We believe the pre-mortem can be a valuable exercise for investment organisations, especially when making strategically-important decisions, whether investment-related (eg, awarding a significant investment mandate to an investment manager or investing a substantial amount of capital in a stock) or business-related (eg, insourcing/outsourcing decisions; M&A decisions).

Pre-mortems could potentially lead to a preoccupation with the downside and risk aversion, which itself is a risk factor for the mission. However, although pre-mortems are generally framed in terms of things going wrong, the principle of prospective hindsight can be applied more widely to any sort of scenario planning context. It is, for example, entirely possible to use the exercise to challenge an overly negative assumption: we decided not to invest in this company and, five years down the line, it has delivered exceptional value to its shareholders. Why was it so successful?

So, next time, before you consider a key decision, rather than discussing "what could go wrong?", try a pre-mortem instead.

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4 "Strategic decisions: when can you trust your gut?", McKinsey Quarterly, March 2010

Chapter 3

Get insights through an outsider's view

Key messages

- The outsider's perspective is an unnatural, but often effective way to correct cognitive and motivational biases in decision-making
- The outsider's perspective can be accessed by: (1) giving an experienced outsider a meaningful role in the decision-making process; (2) starting with how common something is within a broader class (the base rate) and adjusting for specific conditions, and/ or (3) pretending to be an outsider using third-person imagery
- Our industry's obsession with track record is partly due to a lack of outsider viewpoints

What is an outsider view?

Imagine that you are planning to build an extension to your house. You speak to a couple of builders, investigate the cost of raw materials and source the going labour rate. You even build a spreadsheet to estimate the total cost (£X) and how long it will take to complete the project (Y months).

Then a colleague who did something similar points out that you need to add 25% to both the cost and time because people always under-budget. Perhaps you dismiss her advice, reasoning that your job is to build financial models for sophisticated investors so you can surely create a good model for this too. The chances are that Y months later you will discover that you are wrong and your colleague is right.

The mistake you are making is to base your estimate on what Kahneman and Lovallo[5] called an insider's view, while ignoring the outside view provided by your colleague. An insider's view focuses on the unique task at hand: the plan, the obstacles, and your ability to execute the plan and overcome the obstacles. An outsider's view, on the other hand, ignores the detail of the task at hand. It is about seeking the viewpoint of others who have faced similar problems and, if so, how they dealt with them.

It so happens that there is a technical term, familiar to statisticians, for the outside view: the base rate. That is, how common something is within a broader class.

Why is it worth doing?

The insider view is natural to us all. As Kahneman and Lovallo point out, it is human nature to include all of a decision's various details into our judgement process. And that leads us to see every decision as unique.

However, there is a problem associated with an insider's perspective: it's a biased view. We all tend to be overconfident in our own ability. For example, 93% of American drivers believe they are above-average drivers[6]. It's the outsider's view that reminds us that only 50% of drivers can be above average.

The outsider view is unnatural to us. It asks us to set aside the information that makes us feel unique and that we believe will give us an edge in judgement. That is a hard thing to do.

Research[7] strongly suggests that it is also a rewarding thing to do. It helps us distance ourselves mentally from a specific context and consider the broad range of decisions to which it belongs. And that – like your colleague's advice about your planned extension – is what is required to reduce the effect of overconfidence.

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[5] "Timid choices and bold forecasts: a cognitive perspective on risk taking", Daniel Kahneman and Dan Lovallo, Management Science, 1993

[6] "Are we all less risky and more skillful than our fellow drivers?", Ola Svenson, Acta Psychologica. 1981

[7] "Judgement in managerial decision making", Max Bazerman and Dan Moore, 2009

How to do it?

Taking an outsider's view could mean literally giving an outsider (eg, an independent non-exec director or a trusted consultant) a role in the decision-making process. The key is to bring in a meaningful voice to challenge overly-strong insider views and overconfidence.

Decision-making processes can be built to combine outsider and insider views[8] by:

1. Identifying an appropriate reference class that is broad enough to be statistically significant but narrow enough to be useful for the specific decision

2. Getting the statistics of the reference class – not just the mean and standard deviation, sometimes the entire distribution is informative – and use them to generate a baseline prediction

3. Using specific information about the case to adjust the baseline prediction.

This is exactly what so-called superforecasters[9] – those who have consistently produced better forecasts of various events over pro-longed periods – do. As Tetlock and Gardner point out, while it is important to use the insider view (step 3) to fine-tune the outside view (steps 1 and 2), the outsider view should always come first.

That is because of the so-called anchoring bias: the well-documented propensity to rely too heavily on the first piece of information we get[10]. The outsider view is a much better anchor than the insider view – hence offers a distinct advantage in decision-making. Indeed, based on research on "third-person imagery"[11], even just *pretending* to be an outsider can be surprisingly effective in dealing with cognitive and motivational biases (see exhibit 2).

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[8] "Thinking, fast and slow", Daniel Kahneman, 2011 and "Think Twice", Michael Mauboussin, 2009

[9] "Superforecasting: the art and science of prediction", Philip Tetlock and Dan Gardner, 2016

[10] "Judgement under uncertainty: heuristics and biases", Amos Tversky and Daniel Kahneman, Science, New Series, 1974

[11] "Perspectives on prediction: does third-person imagery improve task completion estimates?", Buehler et al, Organizational Behavior and Human Decision Processes, 2012

Exhibit 2: Third-person imagery

Freek Vermeulen* quotes an illuminating story about Gordon Moore**, the CEO of Intel when the company was still focused on producing memory chips back in 1985. Moore struggled with the idea of abandoning memory chips in favour of more profitable microprocessors because memory chips "had made the company".

Andy Grove, then-Director of Engineering of Intel, asked Moore what a new management team would do if they were replaced. The answer was clear: move out of memory chips. The rest is history.

Vermeulen called this "the revolving door approach": go through the revolving door, come back in and take the perspective of an outsider – someone new in your position without the emotional baggage. It can help you see things more clearly.

* "Take the bias out of strategy decisions", Freek Vermeulen, Harvard Business Review, 2014

** From Andy Grove's 1999 book "Only the paranoid survive: how to exploit the crisis points that challenge"

Implications for investment organisations

One obvious area where the outsider view would help in investment is in understanding the relationship between investment manager skill and performance. Many hire and fire decisions are based primarily on past performance, implicitly taking the view that this is the best indication of manager skill. Willis Towers Watson research (see exhibit 3) suggests that this assumption is based on an insider view – good returns have been generated by this manager – while ignoring the outsider view – there are vastly more unskilled managers than skilled ones in the manager universe.

Exhibit 3: Don't hire managers for past performance

A Willis Towers Watson paper identifies three types of managers: skilled ones, mediocre ones and bad ones, all with a tracking error of 5% a year, and expected to generate annual excess returns of 2%, 0% and -2%. In the manager universe, the relative weightings of these three manager types are assumed to be 10%, 20% and 70%. "Good performance" is defined as an excess return above 2% a year over a three-year period. Assuming standard distribution, the probabilities for skilled, mediocre and bad managers to deliver good performance are therefore around 48%, 25% and 12% respectively. Although skilled managers have a clear advantage, once the relative prevalence (the base rate) of each type is taken into account, they represent only 21% of all the managers with good past performance. Put another way, if you only hire managers with good past performance, only 21% of your candidate managers will be skilled.

"Do not hire managers for past performance", Willis Towers Watson, 2011

Chapter 4

Smart checklists bring out your "A" game

Key messages

- Checklists are a simple but effective tool to ensure we apply our knowledge and skill consistently and systematically
- Creating a good checklist is a balancing act: it needs to be general enough to allow for changing conditions and specific enough to guide action
- Checklists are not supposed to tell people how to make a decision step-by-step; their value is to help avoid avoidable mistakes
- Checklists promote a culture of discipline by helping guard against our emotions and overconfidence

What is a checklist?

Oxford Dictionaries define checklist as "a list of items required, things to be done, or points to be considered, used as a reminder".

Why is it worth doing?

Atul Gawande, in his book "The Checklist Manifesto", explains two types of mistakes. Mistakes of ignorance happen when we don't know enough to perform the task correctly. This type of mistake is unavoidable. Mistakes of ineptitude, however, are completely avoidable. We often make mistakes because we don't make proper use of what we already know. Failures in the modern world, as Gawande argues, are often the result of this type of mistake.

A checklist is a simple but effective way to protect us from this kind of failure. The function of a checklist is not to improve skill or expand knowledge. It is a mechanism to improve outcomes by applying existing skill and knowledge properly. It is about bringing your "A" game consistently.

This ought to be valuable to decision-makers in any investment organisation. Decisions made in a competitive landscape need to provide competitive edges. Skill is not the only source of that edge. The edge can also come from making fewer errors than your competitor.

Exhibit 4: Checklists used in investment

Geoffrey Smart* studied a wide range of decision-making styles among venture capitalists. By far the most common style was what Smart called "art critics". These are venture capitalists who believe they can approach investment based on intuition or gut feeling – as an art critic judges a painting. Some of these investors probably have skill. But they do not apply their skills systematically and consistently. They are destined to make mistakes that can be easily avoided.

On the other hand, a small minority (13%) of the venture capitalists are "airline captains", who have well-defined investment processes supported by a systematic, data-driven and analytically-focused investment approach. They use checklists to enforce discipline so they don't overlook important dimensions of the process.

The study found that "airline captains" had a far higher success rate in avoiding investments they regretted and had a higher return on investment compared to "art critics". While the difference cannot be entirely attributed to the use of checklists, they do introduce (or, perhaps, serve as evidence of) a disciplined process. Many investors do not have a well-defined investment process, or have a process but frequently deviate from it.

*"Management assessment methods in venture capital", Geoffrey Smart, 1998

How to do it?

While the concept of checklists is simple, creating a checklist that works well in practice is more art than science.

Nonetheless, we offer some guiding thoughts:

- Different kinds of checklists are required for different kinds of situations. Gawande differentiates between "do-confirm" checklists – through which people confirm that everything that was supposed to be done was done – and "read-do" checklists by which people check off tasks as they carry them out, similar to following a recipe. Justin Fox[12] creates a more comprehensive taxonomy of checklists (exhibit 5)

- Michael Mauboussin in his book "Think Twice" suggests that a good checklist balances two opposing objectives. It needs to be general enough to allow for varying conditions, yet specific enough to guide action

- Good checklists don't spell out every step of the process – they are NOT making the decisions or "flying the airplane" for you. Their primary purpose is to serve as a reminder of the critical steps that are often missed by even highly-skilled decision-makers

- A checklist needs to be succinct – ideally one page. Long checklists may end up being ignored

- Checklists can create their own biases and therefore need to be regularly reviewed and evolve accordingly.

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[12] "What sort of checklist should you be using?", Justin Fox, Harvard Business Review, 2010

Exhibit 5: What kinds of situations call for what kinds of checklists?

Task list	Troubleshooting list	Coordination list	Discipline list	To-do list
▪ A step-by-step guide of standard procedures that need to be followed in the correct order. It is suitable for tasks that involve a lot of details to remember, but not a lot of judgement	▪ What steps are to be followed to correct something that goes wrong?	▪ When facing a new challenge that no one expert can fully understand, procedures are set up to enforce collaboration across teams/ functions	▪ "In a calm, reasoned state of mind, you set down a list of procedures you want to follow to keep you from making bad decisions later, in the heat of the moment."	▪ The most commonly used time-management tool

Implications for investment organisations

Our working group members' experience suggests that checklists are under-used in our industry, other than the simple, personal to-do list that guides our daily work. We believe there is potentially significant value in checklists being used more widely to prevent predictable and avoidable mistakes.

Not all people like the idea of checklists. Experts can have a hard time admitting their own fallibility and struggle to believe something as simple as a checklist can help them make better decisions. There is therefore an argument to institutionalise checklist use as standard operating procedure, requiring organisational buy-in. It would be a futile exercise if merely seen as a box-ticking exercise.

Another observation is that checklists are used more widely in relatively linear and stable areas such as operation-related decision-making and seem to struggle to add much value to investment-related decision-making, in which the environment is better described as being volatile, uncertain, complex and ambiguous (VUCA).

Operational tasks, such as due diligence on an investment manager, managing counter-party risks or some HR decisions, tend to have common features so it's clearly valuable to be systematic. Investment decisions, however, tend to have more one-off elements. There is also a concern that checklists may introduce rigidity to the investment process that dampens creativity and adaptability in judgement, which is crucial to deal with such a VUCA environment.

That is why it is important to understand that different types of checklists should be used in different situations. Discipline lists, in Justin Fox's taxonomy, are a more appropriate type of checklist in a VUCA environment, as opposed to task lists.

In a VUCA environment, the greatest value of a checklist comes from creating and embracing a culture of discipline, to protect us from overconfidence and emotion. Guy Spier, in his book "The Education of a Value Investor", describes the prospect of making money as similar to "the reward circuits in the brain that are stimulated by drugs, making the rational mind ignore supposedly extraneous details that are actually very relevant". Strategically important choices are always loaded with anxiety and exhilaration. That often leads decision-makers to "follow their heart" and let emotions cloud judgement. Checklists can be used to enforce objectivity and encourage a more dispassionate analysis.

In addition, a checklist is not meant to dictate our actions. It is simply there to remind us what not to miss. A well-designed checklist leaves sufficient space for creative and adaptive judgements.

One of working group members describes the rewards of using checklists in hiring. With the help of checklists, he was able to identify the key characteristics (skills or experience) that each role needed, then systematically connected the CVs to those characteristics, identifying questions to ask to explore these more deeply. Another member shared his experience of working with trustee groups in manager selection exercises. Checklists facilitated like-for-like comparisons of all candidates and the chair played a crucial role in encouraging the use of checklists.

We believe that using checklists properly makes you a better decision maker. You don't suddenly become more knowledgeable; you just apply what you already know more consistently. Sounds magical? Maybe. But that is the point of checklists.

Chapter 5
Make meetings matter

Key messages

- Pre-meeting engagement can be secured via papers containing survey questions that participants complete before the meeting and Q&A with participants for clarification (via on-line tool)

- Meeting papers should be drafted for concise coverage of issues with supporting data and references, in prose not bullet points

- Be agile – with small team/small task/networked connections

- Give everyone a real voice

- Split the chair function. Have a separate social leader and content leader

- Stay focused using "parking lots" – ideas outside scope being siphoned into new channel and new time – and try out unconventional practice – eg, standing meeting – to keep up the energy level

Meetings are a recurring feature of the workplace. It is estimated that 15% of a typical organisation's collective time today is spent in meetings[13]. Daniel Kahneman once remarked[14] that if he were to give a single piece of advice to executives wanting to make good decisions, it would be improve the quality of meetings.

Most of us in the investment industry would readily agree: our meetings are not run in the most productive way. Many meetings are underprepared. There are sometimes too many meeting participants. Some meetings are over-long, lacking direction and energy. The practice of chairing can also be improved.

How to better run meetings is one of the most discussed topics in management science and practice. Our contribution to the debate, expressed through the six ideas below, draws on our collective experience of participation and facilitation in meetings within the investment industry.

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[13] "Big mind: how collective intelligence can change our world", Geoff Mulgan, 2018
[14] "Strategic decisions: when can you trust your gut?", McKinsey Quarterly March 2010

Idea #1 – the pre-meeting ask

It is a misconception that meetings are for getting certain things done and therefore no attention needs to be given to them beforehand. This attitude is exacerbated by the fast-paced environment we work in.

Preparation ideas for the meeting leader

Spending time earlier can be the best way to save time later on. So prepare for meetings you are responsible for organising or leading[15], assemble the right people, and create a precise, time-conscious agenda[16]:

- Mark each item "For information", "For discussion" or "For decision". Some meetings are open-ended and exploratory, while others are structured to facilitate decision-making. Whichever is the case needs to be very clear to all participants

- The early part of a meeting tends to be livelier and more creative, so if an item requires mental energy put it high on the list

- Think how long the meeting needs to be. More than two hours, and you're asking a lot

- Make sure minor, but urgent, items aren't allowed to crowd out the issues that have fundamental and long-term impact

- If meetings have a tendency to go on too long, how about starting them one hour before lunch?

- Consider a pre-meeting survey. By supplying input before the meeting, attendees will turn up more engaged and more focused, leading to a more productive use of meeting time.

Exhibit 6: Netflix and the pre-meeting ask

Netflix takes an innovative approach in its board meetings. Pre-meeting communication comes in the form of a short, online memo that includes links to supporting analysis and allows open access to all data and information on the company's internal shared system. In addition, the online memo allows board members to ask questions and provide comments within the document. Executives then respond to these comments and questions within this living document. All this takes place a few days prior to board meetings.

The result? The approach has been found to significantly enhance the board of directors' ability to provide oversight to the operation of the company. The meetings themselves are much more efficient because board members are extensively prepared. They are much shorter – only three to four hours compared to all day (or multiple days at many large corporations) – and focus on questions and discussion instead of presentation.

Source: "How netflix redesigned board meetings", David Larcker and Brian Tayan, Harvard Business Review, 2018

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[15] "Make every meeting matter", Tom Krattenmaker, Harvard Management Update, 2008

[16] "How to run a meeting", Antony Jay, Harvard Business Review, 1976

"Consider a pre-meeting survey. By supplying input before the meeting, attendees will turn up more engaged and more focused, leading to a more productive use of meeting time."

Exhibit 7: no PowerPoint in Amazon meetings

Jeff Bezos bans the use of PowerPoint at Amazon. He says: "Somebody for the meeting has prepared a six-page...narratively structured memo. It has real sentences, and topic sentences, and verbs, and nouns – it's not just bullet points." While the idea might seem radical in the corporate world, it is supported by research that our brains process narratives and storytelling much better than data. Our own research experience in the Thinking Ahead Group strongly supports the value of creating narratives. It helps sharpen our own thinking (we like to say: "we read to learn and we write to think") as much as giving readers a better understanding of the argument.

Source: "Jeff Bezos knows how to run a meeting. Here's how he does It," Justin Bariso, 2018

Idea #2 – ditch the data-dump, use narrative

Most of us all have been sent a 100-page PowerPoint deck prior to a meeting, full of charts and tables. Despite the completeness of data, there is typically a lack of coherent narrative which makes it difficult to discern a clear line of thinking.

While the extra-long deck scores high on the thud factor, in reality it indicates lack of effort. As somebody once said: "If I had more time, I would have written a shorter letter[17]".

So if you would like a group to consider your excellent proposal, write a story.

[17] https://quoteinvestigator.com/2012/04/28/shorter-letter/

Idea #3 – be agile

Research[18] into meeting group size indicates there is an upper limit on how many people can be part of a productive discussion. That conclusion resonates with us.

Why? Because when the group is too large, the quality of conversation starts to decline: there is not enough time for everyone to participate; we become more guarded and less candid; information-sharing distracts from addressing high-priority issues.

There is no magic number but, in our experience, the dynamics of a group change somewhere around the seven to ten participant level.

If you see no way of getting the meeting down to a manageable size, here are some ideas[19]: (1) see whether everyone has to be present for every item (2) consider whether two separate, smaller meetings work better (3) check whether one or two groups can be asked to thrash out some of the topics in advance so that only one of them needs to come to the meeting.

Exhibit 8: agile meetings

Steve Denning explains the concept of agility in modern-day workplace in his book "The Age of Agile". Agile practitioners, says Denning, work in small, autonomous, cross-functional teams working in short cycles on relatively small tasks. This contrasts with the conventional bureaucratic, top-down setup of teams. There is frequent interaction between teams and meetings are to fulfil networked goals. As agile working relies on "the law of the small team", it can help achieve an optimal number of meeting participants.

Idea #4 – give everyone a real voice

One of the key mechanisms[20] to realising the benefit of cognitive diversity is to ensure that all meeting participants are given equal opportunities to provide input. Few meetings are doing well on this front, because not everyone is able to effectively contribute[21].

For example, some are used to making sense of new information on the fly. In other words, they can simultaneously think and talk, so meetings can end up being dominated by them. Others make their best contributions only when they've had time to process new information, choosing their words carefully before sharing their thoughts.

As another example, participation via conference call is notoriously hard – partly due to the absence of information from other participants' body language. It is even harder to achieve equal input if a majority of participants are physically in the same location.

Here are some ideas we like after having experimented with them either within our own organisations or in working group meetings:

- The chair calls on every participant, to impose a mechanistic equal turn-taking, albeit with a varying sequence each time around. A nil response, such as "I don't have anything further to add" – is completely acceptable, while silence is not
- Body language aids understanding – use video conferencing, rather than audio conferencing, wherever possible
- Give particular consideration to those in a relative weak position:

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[18] "The most productive meetings have fewer than 8 people", Paul Axtell, Harvard Business Review, 2018

[19] "How to run a meeting", Antony Jay, Harvard Business Review, 1976

[20] "Evidence for a collective intelligence factor in the performance of human groups" Woolley et al, Science, 2010

[21] "Run meetings that are fair to introverts, women, and remote workers", Renee Cullinan, Harvard Business Review, April 2016

1. Let the minority who join the meeting via telephone speak first

2. Come to the most senior people last

3. Intervene when someone consumes more than their fair share of turn-taking and encourage someone who has been quiet to speak up: "That's an interesting scenario you described. Michael, do you agree with its premise?"

4. Provide a clear agenda with supporting material ahead of the meeting to allow sufficient time for developing a considered reaction

5. Some people may prefer to contribute in writing using the Netflix model mentioned earlier

6. Protect good, but less-polished ideas, from excessive squashing – this can be achieved by asking critics for an alternative suggestion.

To measure and manage diversity, feedback on the effectiveness of meetings can be collected. Areas of assessment can include: clarity of purpose, quality of executions (pre-reading material, diversity) and group alignment over decisions. The feedback process should not be time consuming, and technology such as Slido[22] can produce responses in very little time. The strawman below can serve as the basis for a feedback poll.

Post-meeting poll strawman

What is your assessment of the meeting?			
	(1) Fell short of standard expected	(2) Met standard expected adequately	(3) Met standard expected well
1. Was the meeting's purpose(s) clear?			
2. What was the quality of the pre-reading material?			
3. What was the degree of diversity in the discussions?			
4. How effective were the meeting discussions?			
5. What is your level of support for the conclusions/decisions reached?	Not supportive	Half supportive	Fully supportive
Net meeting effectiveness score Sum of Column (3) minus Column (1) in Percentages			

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[22] https://www.sli.do/

Idea #5 – separate social leader from content leader role

The chairperson plays a key role in the successful running of a meeting. A common practice is for the most senior person in the room to chair the meeting. While this approach carries certain merits, its premise can be challenged: (1) the most senior person might not necessarily have the best skillsets to chair the meeting and (2) adding the chair role to someone that already has the most perceived authority is likely to create a dominating voice in the meeting.

An important, and often overlooked, role of the chair is to lay out ground rules for the meeting. One common frustration we all have with modern-day meetings is the distraction of technology. It is up to the chair to lay down a no-device policy clearly and upfront.

Exhibit 9: Co-chairing

The role of the chair is nicely described in an article by Antony Jay that we highly recommend. The essence is that the chair's role is to interpret and clarify and to move the discussion forward before bringing it to a conclusion that everyone understands and accepts. Control and discipline are not about imposing personal will on the group. Instead, it is about imposing the group's will on any individual who risks diverting or delaying the process of achieving the objectives of the meeting.

The chair therefore undertakes the role of "social leader" of the meeting. If the chair has a strong argument that s/he would like to advocate, best practice is to give up the chair role for that meeting. We have experimented with the separation of social leader and content/project leader in our meetings and found it to be helpful in avoiding the content leader's voice coming to dominate. It does take a little time and practice to get used to, though.

Source: "How to run a meeting", Antony Jay, Harvard Business Review, 1976

Idea #6 – "parking lot" and daring to be unconventional

How many of our meetings end exactly at the hour mark?

The answer: too many. People sometimes feel obligated to fill the entire time allocated for a meeting by deliberately slowing down progress or going off topic and literally wasting time. A more logical approach is to let your agenda decide when a meeting should end, not your watch.

Sheryl Sandberg, COO of Facebook, reportedly[23] uses a spiral-bound notebook to keep lists of discussion points and action items. She crosses them off one by one, and once every item on a page is checked, she rips the page off and moves to the next. If every item is addressed 10 minutes into an hour-long meeting, the meeting is over.

Apart from the habit of finishing meetings at the time they are scheduled to end, there are various other reasons why meetings are longer than they need to be.

Engagement can and should happen before the meeting to lay the groundwork and "get the stupid questions out of the way". Once again, the Netflix online memo engagement model is an effective mechanism to avoid questions that significantly increase the length of the meeting.

[23] "Sheryl Sandberg: The real story", Miguel Helft, October 28, 2013 issue of Fortune

Exhibit 10: The "parking lot"

In our experience, the "parking lot" concept is a useful device for moving a discussion forward. Ideas often surface that side-track a conversation. A discussion should be closed when (1) it is clear that more facts are needed (2) people whose views are needed are not present (3) members need to settle their differences outside the meeting.

In these situations, simply use a whiteboard to write down the pending thoughts and ideas – ie, park the idea - and move on.

Despite efforts at some organisations to make meetings only as long as necessary, meetings can still be a draining experience, both mentally and physically.

A common scenario: we go to our third back-to-back meeting this afternoon alone. People are not as engaged as they need to be. The ideas being thrown out are mediocre, at best. This is a dangerous environment if there is an important decision to make because the wear and tear makes us more vulnerable to cognitive biases[24].

So what can we do about it?

First of all, question whether a meeting needs to be called at all. For example, it is a waste of time for the meeting to disseminate purely factual information that is better circulated electronically. The most direct and effective way to reduce the wear and tear of meetings is to reduce the total number of meetings we collectively attend. Also, ask if a group is doing something that could better be done by others, ie, delegation. This is increasingly the response of time-constrained investment committees at many organisations and is the dynamic behind the increased popularity of investment outsourcing.

Second, the timing of a meeting does make a difference. Key decision-making meetings and meetings that require creative input are better scheduled at times of day when our energy is highest: eg, between 9am and 11am[25]. Afternoon sessions are better reserved for information-sharing purposes.

That's not always possible, of course. There are, fortunately, some good techniques to lift energy levels.

The essence of these is unconventional practice. While not without its own problems, stand-up meetings do present a change to our daily routine[26], injecting some fresh energy into the meeting. If the meeting involves a small number of people, experimental psychology research[27] lends support to walking meetings, which are shown to increase creative thinking. Plenty of anecdotal evidence[28] also suggests people become more relaxed when walking and therefore can talk from their hearts, enabling them to get to the point more quickly.

[24] "Extraneous factors in judicial decisions", Danziger et al, PNAS April 26, 2011

[25] "The best day and time to hold a meeting", Oliver Staley, Quart at work

[26] "Stand-up meetings don't work for everybody", Bob Frisch, Harvard Business Review, 2016

[27] "Give Your Ideas Some Legs: The Positive Effect of Walking on Creative Thinking", Marily Oppezzo and Daniel Schwartz, Journal of Experimental Psychology: Learning, Memory, and Cognition, 2014

[28] "Zuckerberg, Obama channel jobs in search for alone time", Margaret Talev and Carol Hymowitz, Bloomberg, 2014

Final thoughts on meetings

Readers might well point out that issues around meetings aren't unique to the investment industry. Since the key decision makers in all industries are human[29], it is not surprising that we are dealing with similar challenges.

But we would argue that the environment we operate in is more volatile, uncertain, complex and ambiguous than most. There is less clear sight of what could possibly happen, let alone what will happen. That is, there are unknown unknowns as well as known unknowns. And we are often dealing with questions where there is no single, right answer.

So where does that leave us in terms of how to run meetings in our industry?

It might mean that the concept of "off topic" needs to be interpreted differently. Ideas and arguments, no matter how absurd they might initially appear, need to be given space to grow and become refined. We sometimes have to take risks in examining ideas and thoughts that are deemed completely off topic via a conventional lens because no-one can say with certainty what is "on topic"[30].

There is no magic bullet to making meetings a breeze. But we have outlined some sensible incremental and practical approaches that investment organisations can adopt to make meetings less draining and more effective. We hope you find a few of them worth considering.

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[29] Well, before machines take over...

[30] Geoff Mulgan, the author of "Big Mind", has a neat taxonomy of learning. He describes the first loop of learning as being largely reactive - begin with models of how the world works; observe what the world does; adjust our actions and the details of our models in response to the data, within an existing framework. We do this pretty well in our industry. What can be improved is the second loop: there are too many surprises; our current models no longer work; now we need new categories and models to stimulate and organise thought. The second loop is more about exploration, as opposed to exploitation. That means we ought to spend time on "off topic" subjects that are not part of our existing framework. What are normally seen as distractions and tangents become permissible.

Chapter 6

Making better decisions, collectively

Key messages

- Collective decision-making is more of a challenge of integration and inclusion than a simple aggregation of individual judgements

- The ability of a group to make effective decisions depends on a number of factors: diversity of opinions; effective information sharing and processing; independent judgements; and an effective means of combining individual opinions. There are techniques that can be adopted by investment organisations to improve the practice in each of these areas:

  - Build a team of members who possess not only strong subject matter understanding but also the ability to understand and as a result respond properly to other people's mental states

  - Create psychological safe zones to encourage diverse opinions to emerge. This can be facilitated by using techniques such as "pre-mortem", "devil's advocate" and "red team"

  - Encourage narrative-based information sharing before the deliberation process; use online tools to facilitate interaction

  - Structure group conversation and maintain equal turn-taking, assisted by strong chairing, by soliciting feedback and potentially by technology

  - Consider adopting pre-meeting voting and then voting again after the discussion

  - Don't give excessive weight to one judgement. In the meantime recognise that not all opinions are equally reliable

Collective decision-making 101

Collective vs individual decision-making

In recent decades, there has been a noticeable shift from individual decision-making to collective effort in the world of institutional investing. For example, in 2010, more than 70% of all US domestic equity mutual funds were managed by teams of portfolio managers compared to only 30% in 1992[31]. Investment committees are responsible for some of the highest-impact decisions of a fund: asset allocation decisions; investment manager changes; hiring of a Chief Investment officer.

This begs the question: are groups really in a better position than individuals to make decisions?

In some ways, yes. The advantages of collective decision-making are pretty clear. As individuals, we all know something that other people don't know. And although we all make mistakes, these errors can offset each other when pooled. By combining all our information and individual judgements, a decision-making group benefits from the so-called "wisdom of crowds".

Do groups make better decisions than individuals *in practice?*

The answer to this question is less clear-cut. There has been ample debate whether the quality of decisions made by groups is indeed superior to those made by individuals[32]. Groups vary significantly in their effectiveness. Why? Simply put, because the social interaction within a group – the process of deliberation – creates its own problems.

For example, our desire for harmony can suppress disagreement and alternative viewpoints – a phenomenon coined by psychologists as groupthink[33]. Groupthink is detrimental to collective judgement because it breaks down the mechanism by which diverse opinions[34] are combined. Groupthink creates a false confidence: "Look, we all agree. We must be right!"

Often, the collective judgement is, in fact, the judgement of whoever dominates the conversation. Unfortunately, the loudest voices don't always make the best judgements. In this situation, less dominant members of the group are more likely to be observers rather than contributors to the collective effort.

It seems there is a substantial risk that our collective wisdom starts to break down when we start talking to each other. It is therefore not surprising that many researchers[35] are equivocal about the role of social interaction in collective decision-making.

In institutional investing, we make decisions together for a number of reasons

However, to treat each individual's judgement as an independent data point and combining them in a mechanistic way, skipping the process of interaction, is not an idea[36] that is likely to fly in the world of institutional investing.

We make decisions together as an interactive group for a number of reasons. Let's start with the specific context in which institutional investors operate[37]. The interests of various beneficiaries and stakeholders need to be represented.

Collective decision-making creates a shared commitment and a sense of team spirit by involving everyone in the process. Imagine a situation where a team has gone through an inclusive process to make a long-horizon investment commitment. Three years down the line, the leader of the team has left the organisation and the investment experiences a significant downturn in performance. Because of the collective buy-in to the original decision, the team is more likely to stay the course (provided the investment thesis remains intact). It would be a very different situation if the original decision had been made exclusively by the previous leader.

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[31] "To group or not to group? evidence from mutual funds", Saurin Patel and Sergei Sarkissian, Journal of Financial and Quantitative Analysis, 2017

[32] "When do groups performance better than individuals?", Casari et al, Institute for Empirical Research in Economics, University of Zurich, 2012
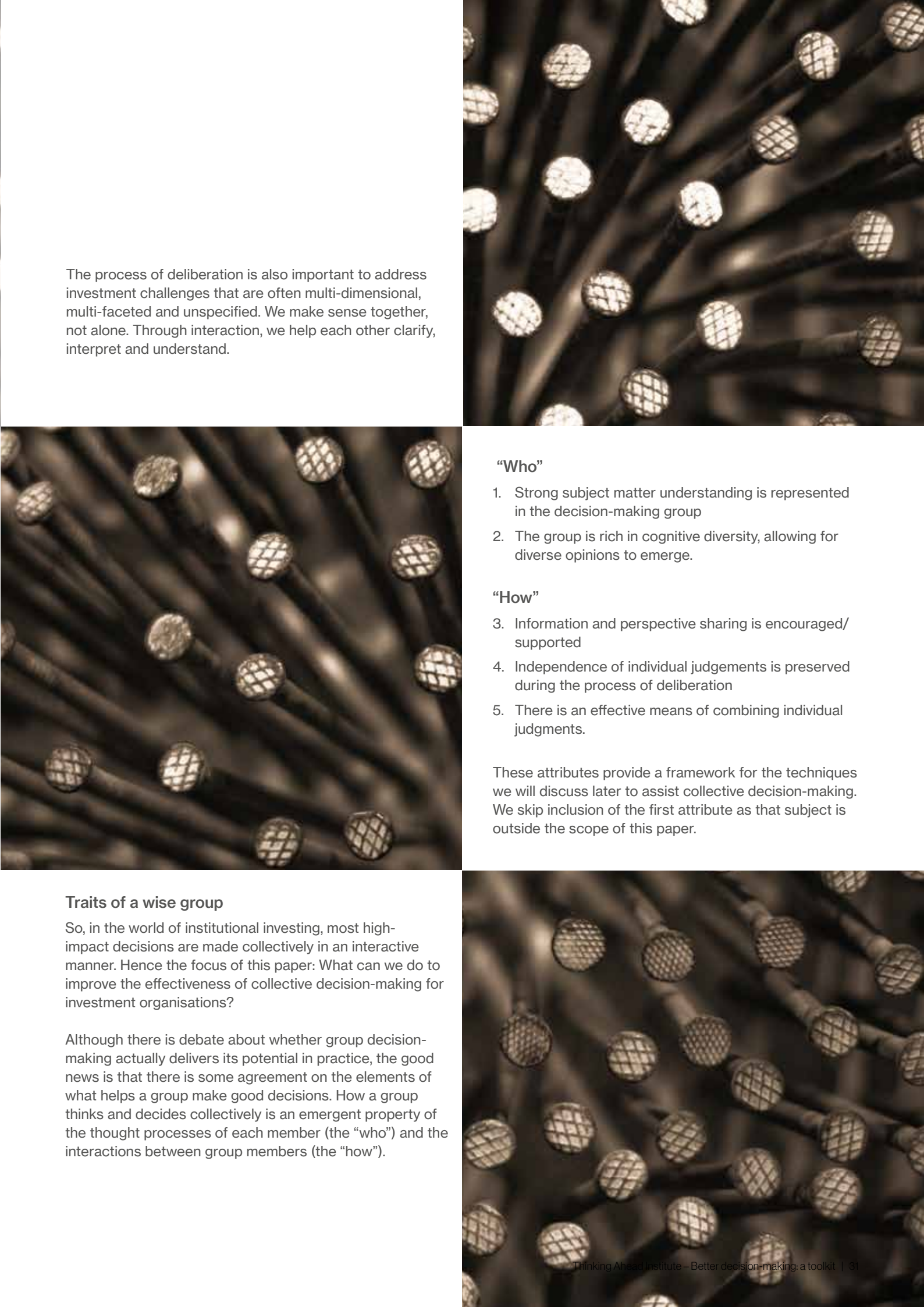
[33] "Victims of groupthink: A psychological study of foreign-policy decisions and fiascoes", Irving Janis, 1972

[34] "Groups of diverse problem solvers can outperform groups of high-ability problem solvers", Lu Hong and Scott Page, PNAS, 2004

[35] "How social influence can undermine the wisdom of crowd effect", Lorenz et al, PNAS, 2011

[36] Cass Sunstein and Reid Hastie in their book "Wiser: Getting Beyond Groupthink to Make Groups Smarter" make a distinction between statistical and deliberating groups. There is no deliberation in statistical groups: members give their inputs individually which are then aggregated. A classic example of this is the estimation of the weight of an ox experiment conducted by Francis Galton. In deliberating groups, individuals provide input during deliberations. Those inputs can affect and be affected by the inputs of other group members.

[37] For more on this, please refer to our earlier paper "How to choose? A primer on decision-making in institutional investing" and also "Making pension boards work: the critical role of leadership", Gordon Clark and Roger Urwin, Rotman International Journal of Pension Management, 2008

The process of deliberation is also important to address investment challenges that are often multi-dimensional, multi-faceted and unspecified. We make sense together, not alone. Through interaction, we help each other clarify, interpret and understand.

"Who"

1. Strong subject matter understanding is represented in the decision-making group

2. The group is rich in cognitive diversity, allowing for diverse opinions to emerge.

"How"

3. Information and perspective sharing is encouraged/ supported

4. Independence of individual judgements is preserved during the process of deliberation

5. There is an effective means of combining individual judgments.

These attributes provide a framework for the techniques we will discuss later to assist collective decision-making. We skip inclusion of the first attribute as that subject is outside the scope of this paper.

Traits of a wise group

So, in the world of institutional investing, most high-impact decisions are made collectively in an interactive manner. Hence the focus of this paper: What can we do to improve the effectiveness of collective decision-making for investment organisations?

Although there is debate about whether group decision-making actually delivers its potential in practice, the good news is that there is some agreement on the elements of what helps a group make good decisions. How a group thinks and decides collectively is an emergent property of the thought processes of each member (the "who") and the interactions between group members (the "how").
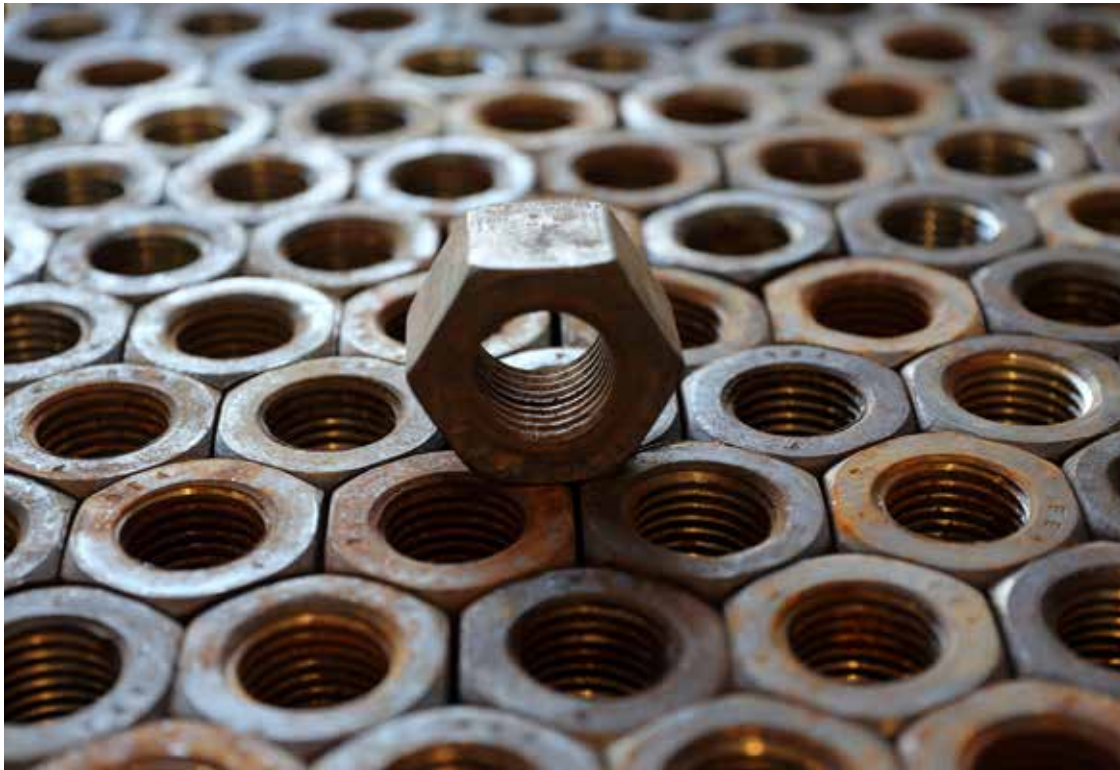
Harness the power of diversity

One of the key supporting pillars for the wisdom of crowds[38] is diversity of opinions. That itself comes from two sources: (1) private information we individually hold and (2) different interpretations/perspectives/judgements of that information.

Members of a cognitively-diverse group are likely to have multiple "models" of the world – how it works, how one thing leads to another, and what matters. They tend to focus on different details when they observe. They are each likely to have their own reasoning technique. Some are good at deductive reasoning while some tend to argue via induction[39]. They capture perceived reality differently, depending on personal experience and what matters to them individually.

All of these contribute to different perceptions of the future, even though they are based on identical information. We see more and more evidence that cognitively-diverse teams do indeed make better decisions and better investments[40].

There are, however, practical obstacles to inclusion and integration.

The impact of cognitive diversity on team performance is not exactly linear[41]. Add a dose of cognitive diversity to a homogenous group and it will benefit from greater cognitive resources and improved information processing. However, as the team becomes increasingly diverse, there is also a risk of dysfunction as social interaction becomes less effective and execution slows down[42].

Therefore, whether you should add more members who are not in your own image to your existing team is context-dependent. It depends on the tasks you handle, your team's cognitive diversity, and the ability of the team to integrate diversity and manage potential dysfunction.

The good news is that there are tangible and more clear-cut ideas that can help teams reap the benefits of cognitive diversity:

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[38] "The wisdom of crowds", James Surowiecki, 2014

[39] Deductive reasoning answers the question of "what is absolutely true?" It moves from the general rule/axioms to the specific application, by applying logic and mathematics. Inductive reasoning answers the question of "what is (probably) true in the data?" It moves from specific observations of the past to a general theory that can predict the future.

[40] "The other diversity dividend", Paul Gompers and Silpa Kovvali, Harvard Business Review, 2018

[41] "A cognitive take on diversity", Tim Hodgson, Thinking Ahead Institute, 2017

[42] "What differences make a difference? The promise and reality of diverse teams in organizations, Elizabeth Mannix and Margaret Neale, American Psychological Society, 2005

Idea #1 – build a team of emotionally-intelligent members; make social perceptiveness an important element of recruitment and talent development

The term emotional intelligence (or emotional quotient – EQ) is familiar to many of us. It is defined as the ability to understand emotions and use emotions to enhance thinking[43]. Within emotional intelligence, there is a subset of skills related to the ability to accurately understand the mental states of other people: social perceptiveness, also known in the academic world as the "theory of mind" (ToM). This ability has a special role in the context of collective decision-making.

Ground-breaking research[44] by Anita Woolley and others has explored the concept of collective intelligence – the ability of teams to perform a wide variety of cognitive tasks. Surprisingly, they found little connection between the average (or maximum) individual intelligence of group members and the collective intelligence of the group. Rather, the dominant factor in collective intelligence appears to be social perceptiveness[45].

How do we go about finding people who excel at understanding other people's mental states?

While social perceptiveness is perceived as a tacit concept that is hard to measure, researchers have actually come up with many simple tests for it. One of them, developed by Professor Simon Baron-Cohen at the University of Cambridge, is called the "Reading the Mind in the Eyes" test (RME). The test of the website (https://socialintelligence.labinthewild.org/) shows pictures of just the eyes of 37 people. You are asked to guess what emotion these eyes show, and the whole test takes about 10 minutes.

This might seem rather basic, but it is the test researchers used to measure social perceptiveness in collective intelligence experiments. Could this inspire innovative HR practice when it comes to recruiting?

Of course, it would be better if we could train our existing team members to be more socially perceptive. Increased awareness of its important role in collective intelligence could, at least, make us pay more attention to others' mental states. While psychologists admit that improving one's emotional intelligence is hard, it is certainly not impossible[46]. Long-term improvements require a great deal of dedication and guidance, including good coaching programmes and accurate feedback.

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[43] "The intelligence of emotional intelligence", John Mayer and Peter Salovey, Intelligence, 1970

[44] "Evidence for a collective intelligence factor in the performance of human groups", Woolley et al, Science, 2010

[45] They also found a correlation between collective intelligence and the distribution of speaking turns and the proportion of women in the group, although these factors did not remain statistically significant after controlling for social perceptiveness.

[46] "Can you really improve your emotional intelligence?", Tomas Chamorro-Premuzic, Harvard Business Review, 2013

Idea #2 – create a psychological safe zone that allows the cognitive diversity in your group to shine

As the leader of a team, it might surprise you how much you underestimate the degree of cognitive diversity within your existing members[47]. This is particularly the case if there is a strong homogenous culture that discourages openness. People are cautious about sticking their necks out. They are worried that their different ways of thinking and their disagreement with the consensus might be perceived as bad behaviour.

The key is therefore to break those barriers to openness and create a sense of psychological safety.

The pre-mortem, as discussed early, is a good way to create a safe environment for team members to talk openly, including about failures.

If there is too much rigidity attached to a consensus mind set within the group, "devil's advocate" is an effective offsetting mechanism. While the conventional interpretation of the devil's advocate role is taking an opposing view for the sake of argument, it is more effective if someone who genuinely holds an opposing view is assigned the role. In doing so, the value of cognitive diversity is embraced by deliberately empowering the voice of an opposing view.

The creation of a "red team"[48] is a similar technique. Instead of assigning an individual to challenge the dominating viewpoint, you form a team to seriously consider an alternative perspective.

To play the role of "devil's advocate" well takes some learning and considerable practice. The skillsets[49] include the ability to ask incisive questions, think of comparable scenarios that refute the original claim, identify hidden assumptions or point out a flaw that is overlooked in the argument.

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[47] "Teams solve problems faster when they're more cognitively diverse", Alison Reynolds and David Lewis, Harvard Business Review, 2017
[48] "Methods to improve decisions", Michael Mauboussin and Dan Callahan, Credit Suisse, 2014
[49] "How to play "devil's advocate", International Reading Association, 2014

The pre-mortem, as discussed early, is a good way to create a safe environment for team members to talk openly, including about failures.

Share and process information effectively

In an ideal situation, all privately-held (materially) relevant information is made available to the entire group. The group then transforms this information advantage into an edge in decision-making. While in theory it's obviously beneficial to share all relevant information, in practice there are a number of motivational and cognitive barriers to this. In particular, groups tend to discuss preferentially the information that is familiar to all compared with information which only a few know[50].

There are many reasons for individuals to withhold information. They might be fearful of creating confrontation. They might not be given enough time or even an opportunity to share their information. The entire group might be subject to groupthink, so there is little incentive to share dis-confirmatory information.

Many of the ideas from chapter 5 are techniques to facilitate a better information flow before and during decision-making meetings. We emphasis and expand on two of them below.

Idea #3 – use narratives to share information before the deliberation process

Once a deliberation process starts, information sharing becomes an interactive process: the information you share will influence and be influenced by the information shared by others. Sometimes these influences are unhelpful.

So why not share our privately-held information *before* we talk to each other? As described in the previous chapter, Jeff Bezos insists on a narratively-structured memo before each decision-making meeting, to properly share information and lay out an argument.

Netflix has taken this approach to another level with its narrative-based, online memos. Pre-meeting engagement creates a viable mechanism for relevant information to surface while protecting members of the decision-making group from the motivational and cognitive barriers discussed earlier.

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[50] "Diagnosing groups: the pooling, management, and impact of shared and unshared case information in team-based medical decision making", Larson et al, Journal of Personality and Social Psychology, 1998

Idea #4 – structure group conversation and maintain equal turn-taking

Teams[51] that work hard on structuring group conversation are more likely to effectively integrate their information. In a structured conversation, the group identifies key questions and how their information must be integrated to answer those questions. In other words, a process is created to help the group understand what information needs to be put together in order to make the decision. This makes it more likely that all the relevant information will indeed be shared.

The chair of the meeting/discussion has a crucial role in ensuring everyone is given a real voice. This is largely covered in chapter 5. There are a few other ideas[52] that are simple to implement:

- A pre-meeting nudge: speak to members of the group before the meeting to encourage them to speak up
- The more senior people are, the more likely they are to share information. So to encourage junior members to share, their expertise needs to be specifically acknowledged to the group – "John is our private debt specialist. Let's hear what he has to say".

Can technology help achieve more equal turn-taking?

Researchers from the MIT Media Lab experimented[53] with an electronic display that continually monitors how much each person in the group participates in a conversation. They found a positive impact on both effectiveness and quality of decision-making. The experiment is based on a simple assumption: by making uneven turn-taking apparent to the group, real-time monitoring encourages under-participators to speak more and those who tend to dominate the discussion – the over-participators – to speak less.

Their findings lent support to one part of the hypothesis: over-participators indeed responded to the display by restricting their comments but, for various reasons, under-participators did not increase their participation levels. Interestingly, the display discouraged the sharing of non-critical information, while having no impact on the sharing of relevant and important information.

We are not expecting many investment organisations to adopt this sort of technique anytime soon. Even if the technology could be easily accessed, this radical form of openness would have an impact on team culture, for better or worse. It is nonetheless an interesting development if technology progresses to allow us to be systematic (and non-obtrusive) in measuring turn-taking.

Using social pressure[54] to nudge people to "do the right thing", in this case maintaining a norm of equal participation in group discussion, can also be delivered in an old-fashioned way. The chair of the meeting certainly has a key role to play. Arguably soliciting anonymised post-discussion feedback – provided it is an accurate reflection of what has happened – that is then shared with the participants is another way of applying gentle pressure to over-participators.

For readers who are interested in the technological aspects of this, let's do a bit of future gazing: advances in sensor technology and networked applications mean that it is now straightforward to capture many aspects of group interaction, such as verbal comments via automated speech recognition.

[51] "Bringing in the experts: how team composition and collaborative planning jointly shape analytic effectiveness", Woolley et al, Small Group Research, 2008

[52] "From cooperative to motivated information sharing in groups: moving beyond the hidden profile paradigm", Wittenbaum et al, Communication Monographs, 2004 and "Why Groups Fail to Share Information Effectively", Jeremy Dean, PSYBLOG

[53] "Influencing group participation with a shared display", DiMicco et al, MIT Media Lab, 2004

[54] "The emergence of norms in competitive decision-making groups", Kenneth Bettenhausen and J. Keith Murnighan, Administrative Science Quarterly, 1985

The work of the Affective Computing group at MIT is examining how digital technologies can help us better communicate emotions. Can that be used to help amplify the subtle social cues that allow a group to enjoy a higher level of emotional intelligence? This could potentially improve our collective intelligence.

Geoff Mulgan, in his book "Big Mind", offers his vision of the future: we may use computer facilitators much more to regulate time, ensure everyone has a chance to speak, suggest or manage strategies to overcome impasses, monitor emotions through scanning faces and help avert unhealthy conflicts. However, he also warns that this idea of technologically-enhanced social interaction raises as many questions as it answers, such as whether full transparency improves the quality of decisions or merely creates conformity.

Preserve the independence of individual judgement

While the sharing of information should be encouraged, it is critical to maintain the independence of individual judgement. What do we mean by independent judgement?

We certainly support learning and the updating of beliefs in response to a piece of new information. This is the point of encouraging information sharing: collectively, as a group, we have an information advantage over any one individual.

But there are right and wrong reasons for updating beliefs. "I have increased my conviction in this investment having heard new information from Jane," is one thing. "My boss said she really liked this stock. I feel more positive about it now," is something else. Unless independence is protected, there is a risk of correlated errors that are detrimental to collective judgement.

Idea #5 – vote-discuss-vote

In a democracy, voting is the most important method by which society makes collective decisions.

For various reasons, however, voting is not widely adopted in our industry. Often the chair of the meeting, likely also the leader of the team, uses the discussion as part of the consultative process and then decides on their own. Sometimes the chair provides their own interpretation of the collective view and concludes the discussion without a vote – "this is what I heard the consensus is, so let's go for X".

Occasionally voting is done informally. The chair may ask for a show of hands. While this method allows for reaching a decision instantaneously, it can create social pressure (eg, to avoid disagreement with the leader). We believe that voting is best done confidentially. Modern technology (in the Institute, we have been experimenting with Slido) can help in this regard.

Furthermore, we believe in some situations (eg, for strategically-important decisions) it is appropriate to have two rounds of voting: one before the deliberation process and one afterwards. Voting before a meeting is an effective way to collect individual judgements, before the influence of social interaction during the meeting.

It can also be helpful for each member to draft a concise note of the supporting argument for their opinion. "I support this proposal based on these three main reasons. I also have two small reservations which are not material enough to change my vote."

The pre-meeting vote provides an anchor, capturing independent judgement. The supporting narratives provide a systematic framework for the updating of beliefs. "Having heard what others in the group had to say, are my three reasons still valid? Are these reservations now material enough to change my vote?"

This technique is based on the principles of the Delphi method[55], originally developed in the US military as a means of forecasting future scenarios in the Cold War era. The working group noted that the Delphi method in its complete original form – multiple rounds, anonymised votes, no face-to-face interactions – is too clunky for the institutional investing context. However, its purpose of supporting independent judgement and group learning makes it worth considering, even if in an abbreviated format.

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[55] "The Delphi method – a step-by-step guide", Susanne Iqbal and Laura Pipon-Young, the Psychologist, 2009

Combining individual opinions: the final step

Let's assume we have allowed diverse opinions to surface. Everyone has been encouraged to share all the information that is relevant to the decision at hand. We have heard what everyone has to say on the subject and used that to update our own beliefs. We have resisted groupthink, authority, our own egos and confirmation bias.

Each step has been executed perfectly. Now it is time for the group to make a decision.

This final step of making the decision as a group has, in our view, been insufficiently thought through. Teams could spend a long time collecting all the necessary information to improve collective understanding related to the decision. However, when it comes to crunch time, they often fall back on one of the following:

Consensus building. It is very common in investment committees to aim for consensus on most or all decisions. Reaching a consensus creates stronger buy-in to a decision. But in practice, true consensus can be too high a bar to clear. Often, consensus is achieved through the suppression of opposing views, which is detrimental to collective judgement.

Dictatorship. In some situations, all the fact-finding activities, discussions and even the voting merely serve as inputs to help the group leader make a final decision. This is not true collective decision-making; it is individual decision-making supported by a group and is the most common practice in many corporate environments.

Democracy. This practice is more common in society than in corporations.

None of the approaches above, however, ticks all the boxes as an ideal means of combining individual judgements:

Consensus building creates a false sense of harmony, leaving little incentive to challenge the consensus, a perfect environment for groupthink. The *dictatorship* model places excessive weight – 100% – on one individual's judgement.

And while *democracy* promotes the principle of political equality, it is not necessarily the best mechanism for effective decision-making. Research on equality bias[56] suggests that in both Eastern and Western cultures, people tend to weight others' opinions equally regardless of differences in their reliability. Equality bias impairs collective decision-making because, to make the best decisions, each opinion ought to be scaled according to its reliability.

Idea #6 – a weighted average of individual opinions

So to the issue of reliability. In theory it is simple: we should weight individual judgements according to their respective reliability. The bad news is that this presents the obvious challenge of how to measure and assign reliability weightings.

Perhaps we could just let the leader decide. The leader is, in theory, the person who knows most about the strengths and weaknesses of all the members in the group. The obvious issue is that, as with the dictatorship model, the leader's judgement is given too much weight, albeit this time indirectly through their judgement about the reliability of other people.

Ideally, the reliability weighting of each opinion would be either (1) measured by a proxy that is free of judgement or (2) assigned by a collective decision. There are a number of possible approaches to this. None of them provides a definitive answer, but each provides food for thought for those interested in pursuing this idea further.

[56] "Equality bias impairs collective decision-making across cultures", Mahmoodi et al, PNAS, 2015

Conviction-weighted polls

Despite the tendency we all have to be overconfident about our opinions, there is a surprising finding in psychological research[57] that the level of confidence of individuals in groups can be a valid predictor of accuracy in decision-making tasks.

Compared to a simple "yes or no" vote, conviction-based voting (eg, I am 60% supportive of the decision to invest £50m in company X) has two advantages:

(1) It specifies the confidence level with regards to the decision

(2) It creates a framework for us to fine-tune our beliefs in the case of a new piece of information.

For example, through group discussion you might upgrade your conviction from 60% to 80%. That information would be lost if the group is asked a simple "yes or no" question. Being able to reduce complex hunches to numeric probabilities is one of the key skills that superior decision-makers master, according to Philip Tetlock and Dan Gardner's analysis of so-called superforecasters, a group of individuals that have demonstrated statistically significant superior prediction ability.[58]

Discuss in small groups and take an average

In short, it is best if members of a group interact to share information and perspectives without losing the independence of individual judgement. Is it possible to get the best of both worlds in practice? Maybe, if you have a large enough group, according to Mariano Sigman and Dan Ariely[59]. A large group is divided into a number of smaller groups and there are discussions within each smaller group. There are no interactions across groups. Each group seeks to converge to a single decision. Finally, an average is calculated based on each sub group's opinion.

This approach seems to balance the two goals in the same time, by forming small groups to explore the value of information sharing and deliberation, while maintaining diversity of opinion.

Bridgewater's believability-weighted approach

Bridgewater Associates, a US-based hedge fund, is a pioneer in adopting the principle of overweighting the opinions of more reliable decision-makers.

Its belief[60] is that the most reliable opinions are expressed by people who have repeatedly and successfully been right in the past and have demonstrated that they can logically explain the cause-and-effect relationships behind their assertions. The believability score of each individual is tracked and measured systematically, supported by an underlying algorithm, with inputs from other members of the organisation.

57 "Tapping into the wisdom of the crowd – with confidence", Ralph Hertwig, Science, 2012

58 "Super-forecasting: the art and science of predication", Philip Tetlock and Dan Gardner, 2016

59 https://www.ted.com/talks/mariano_sigman_and_dan_ariely_how_can_groups_make_good_decisions

60 "Principles", Ray Dalio, 2017

Final thoughts

How a group thinks and decides is an emergent property of individual thought processes, communication patterns, dependencies, relationships and other aspects of interactions among group members. Good decision-making emerges when the whole is greater than the sum of the parts. As with other complex systems, improving the system hinges on how the individual components interact with each other.

In group decision making, there is a lot more to integration and inclusion than simple aggregation. Built upon decades of academic research and hundreds of years of industry experience, we hope this working group paper provides you a few thoughts to help you make better decisions, *collectively.*

Limitations of reliance

Limitations of reliance – Thinking Ahead Group 2.0

This document has been written by members of the Thinking Ahead Group 2.0. Their role is to identify and develop new investment thinking and opportunities not naturally covered under mainstream research. They seek to encourage new ways of seeing the investment environment in ways that add value to our clients.

The contents of individual documents are therefore more likely to be the opinions of the respective authors rather than representing the formal view of the firm.

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About the Thinking Ahead Institute

The Thinking Ahead Institute seeks collaboration and change in the investment industry for the benefit of savers.

It was established by Tim Hodgson and Roger Urwin, who have dedicated large parts of their careers to advocating and implementing positive investment industry change. Hodgson and Urwin co-founded the Thinking Ahead Group, an independent research team in Willis Towers Watson in 2002 to challenge the status quo in investment and identify solutions to tomorrow's problems.

What does the Thinking Ahead Institute stand for?

- Belief in the value and power of thought leadership to create positive investment industry change

- Finding and connecting people from all corners of the investment industry and harnessing their ideas

- Using those ideas for the benefit of the end investor.

The membership comprises asset owners and asset managers and we are open to including membership of service providers from other parts of the industry. The Thinking Ahead Institute provides four main areas for collaboration and idea generation:

- Belief in the value and power of thought leadership to create positive investment industry change

- Working groups, drawn from the membership, and focused on priorities areas of the research agenda

- Global roundtable meetings

- One-to-one meetings with senior members of the Institute.

About the Thinking Ahead Institute

The Thinking Ahead Institute seeks to bring together the world's major investment organisations to be at the forefront of improving the industry for the benefit of the end saver. Arising out of Willis Towers Watson's Thinking Ahead Group, formed in 2002 by Tim Hodgson and Roger Urwin, the Institute was established in January 2015 as a global not-for-profit group comprising asset owners, investment managers and service providers. Currently it has over 40 members with combined responsibility for over US$12 trillion.

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