White paper: Diversity of Thought and the Search for Best Ideas

Dr. Henning Stein
Global Head of Thought
Leadership, Invesco
Fellow at University of
Cambridge Judge Business
School

Anna Penn
Diversity & Inclusion Manager
North America
Invesco

Lindsay Hudson
Diversity & Inclusion Manager
Europe, Middle East and Africa
Invesco

Contents

1. Executive summary

The concept of "best ideas" is well understood in an investment context, but it is seldom grasped with such clarity in a broader organisational setting. We ask how a process of distillation and refinement might be used in decision-making and problem-solving systems of all kinds and how it might thereby shape the functioning of an entire business.

We propose a basic framework that draws on diversity, inclusion and meritocracy to produce best ideas. This framework rejects common decision-making and problem-solving failings – among them hubris, inertia, groupthink and design by committee – and instead prioritises humility, open-mindedness, multiple perspectives and critical scrutiny.

We do not pretend that our framework is perfect, since one of its key components is an acceptance that perfection is impossible. We do, though, suggest that it should generate ideas that are clearly superior to those derived from conceit or compromise; and we argue that these best ideas should benefit an organisation, its clients and its wider stakeholders.

2. Introduction

The notion of "best ideas" is well known in the investment world. A "best ideas" portfolio is traditionally one that consists of a comparatively small number of holdings that portfolio managers have identified as high-conviction opportunities. The necessary process is one of distillation and refinement: an initial array of hundreds or even thousands of ideas/holdings is whittled down until only the most promising remain.

Since research suggests that such an approach can prove notably effective, several questions merit attention. Why should the "best ideas" concept be limited to investment portfolio selection and could the same ethos be followed universally? Might this degree of distillation and refinement characterise how a company operates in its entirety? Can everything be the product of best ideas?

These questions apply to organisations, sectors and industries of all kinds. Countless business decisions are rooted in principles that fly in the face of reasoned argument and meaningful analysis, with inadequate attention paid to distillation and refinement.

In a previous white paper we discussed the ever-growing importance of "diversity of thought"[1]. We explained how diversity in the workplace has come to be regarded not just as a force for social justice but as a source of competitive advantage; how recognition of the differences between groups or demographics is giving way to recognition of all the things that make each of us unique; and how a determination to ensure that everyone is seen is now reinforced, at least within the most forward-thinking organisations, by a determination to ensure that everyone is heard. We described diversity of thought as a cornerstone of Invesco's corporate culture and highlighted its role in encouraging us to "engage with our colleagues, listen to their opinions and try to understand and take into account all of the contrasting perspectives, motivations and thinking available to us". This, we say, is how best ideas are formulated.

"Why should the "best ideas" concept be limited to investment portfolio selection and could the same ethos be followed universally? Can everything be the product of best ideas?"

In this paper we delve deeper into the relationship between diversity as a whole, diversity of thought in particular and best ideas. We look at the dangers of hubris, groupthink and other familiar failings. We examine the inevitability of mistakes and the value of learning from them. We consider how great thinkers have sought to define and express the search for best ideas and how the most visionary and successful enterprises are benefiting themselves and their stakeholders by reflecting this accumulated wisdom. We also provide an insight into the workings and objectives of Invesco's own "challenge culture". Our aim is to explore the philosophy and science behind a decision-making method that in many ways smacks of common sense but which is nonetheless sadly lacking in myriad organisational settings.

3. A brief introduction to best ideas

3.1. Diversity of thought revisited

Since we argue that they are fundamental to the emergence of best ideas, we first need to review what we mean by diversity in general and diversity of thought specifically. A helpful starting point, as we noted in our earlier paper, is to accept that the broad concept of diversity has become increasingly nuanced over time.

Diversity in the workplace was until recently almost invariably a matter of "visible" differences. While these remain as important as ever, today the issue is also delineated in more multi-dimensional terms. The established agenda of eradicating discrimination on the grounds of gender, race and other obvious distinctions has been expanded to incorporate attributes such as age, mental ability, physical ability, religion and sexual orientation.

In tandem, there has been a growing realisation that diversity demands a more individualised view than can be obtained by focusing on demographics alone. In other words, it should not be merely a case of labels, quotas or ticking boxes. Combining the visible with the invisible – and thereby encompassing a person's background, beliefs, life experiences and other unique traits – allows us to extend diversity to the level of the individual and so relate it to all the things that make each of us who we are.
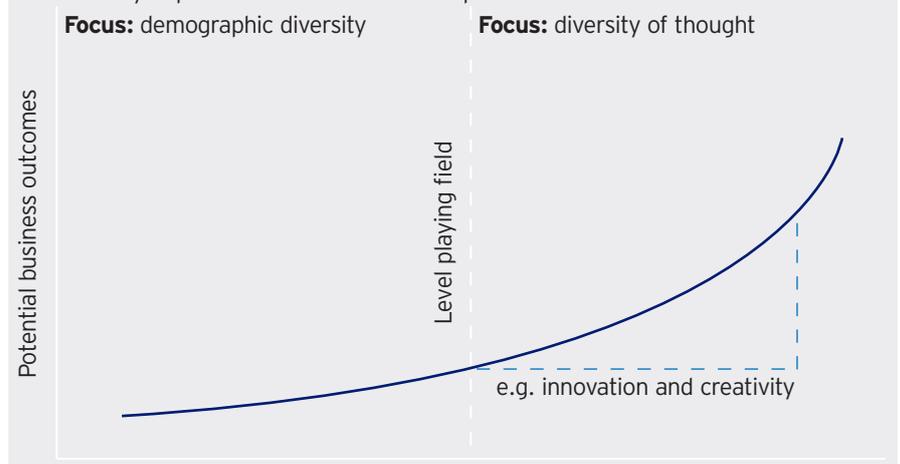
This, in turn, helps to promote diversity of thought. By drawing their talent from a wider pool – that is, by aiming to achieve equality of opportunity in the recruitment, retention and promotion of employees – businesses amass a wealth of varying perspectives. Such an ethos can function to best effect only if closely tied to inclusion and meritocracy, which means that the organization is actively tapping into this wealth of outlooks by making all members of the team feel that they are respected and able to contribute.

We believe that diversity of thought, a phenomenon that has begun to take shape only during the past few years, can offer a compelling source of competitive advantage[2]. We also believe that its capacity to generate best ideas is absolutely central to its appeal.

> **"We believe that diversity of thought, a phenomenon that has begun to take shape only during the past few years, can offer a compelling source of competitive advantage."**

From outputs to outcomes

Diversity in the workplace has long been rightly regarded as a force for social justice. More and more organisations are now realising that reflecting the wider world as fully and as fairly as possible can also deliver competitive benefits.

Focus: demographic diversity   **Focus:** diversity of thought

Potential business outcomes | Level playing field | e.g. innovation and creativity

Source: Deloitte: *Only Skin Deep? Re-Examining the Business Case for Diversity,* 2011

3.2. What do we mean by "best ideas"?

When best ideas are spoken of in the context of investing, by and large, the meaning is well understood. As we observed in introducing this paper, the term is usually used to describe a portfolio containing a modest number of high-conviction stocks that have been chosen from a much bigger range of investment opportunities. There is nothing mysterious about the process, which in many ways mirrors the ideal detailed in the preceding section. Diversity is crucial, because a "best ideas" portfolio can often cast its net across regions, sectors and asset classes; inclusion is crucial, because every holding that makes the cut is fully expected to contribute to overall performance; and meritocracy is crucial, because the portfolio is comprised only of holdings that are felt to offer the greatest potential.

There is seldom such clarity, however, when best ideas are spoken of in an organisational context. Rapidity is frequently prized over rigour when decisions are made or problems are supposedly solved, as a consequence of which what might initially qualify as purposefulness is subsequently revealed as a rush to judgment. Choices are often made on the basis of convenience, seniority, knee-overconfidence, who can shout the loudest and other flimsy foundations.

So how might we begin to define a decision-making or problem-solving framework that instead relies on diversity, inclusion and meritocracy and which, by extension, encapsulates diversity of thought? Many brilliant minds have wrestled with such a puzzle, as we will see throughout this paper, but for now we will concentrate on just two of them.

The first is Linus Pauling, one of only four people to win a Nobel Prize twice – and the only person not to share either honour with anyone else. Pauling first became a Nobel laureate in 1954 after using quantum mechanics to revolutionise the science of chemical reactions; eight years after he was awarded the Nobel Peace Prize for his dedication to pacifism. Later in life he preached that good ideas can come only by starting with many ideas and learning how to discard those that are wrong.

The second brilliant mind we call upon at this stage is maverick physicist Richard Feynman, who won a Nobel Prize in 1965 for his work in the field of quantum electrodynamics. His contribution to our cause is especially useful, because it is easy to visualise. Feynman compared scientific progress to a cascade of sieves with ever-smaller holes: an idea or a theory might pass through numerous tiers of the cascade before eventually getting stuck, at which point it should be rejected – and thus only the very best ideas are able to survive.

"How might we begin to define a decision-making or problem-solving framework that relies on diversity, inclusion and meritocracy?"

A Pauling-Feynman framework for generating best ideas

The starting point for our framework, as suggested by Pauling, is to have many ideas. Most will turn out to be wrong, but it is still important to have them: we need to explore good and bad ideas alike if we are to appreciate which genuinely deserve to endure.

All of these ideas enter Feynman's cascade of sieves. This represents the process of critical scrutiny – our own interpretation of which is explained in more detail in section 6.

The worst ideas should fail to negotiate even the highest tiers, where the holes are larger. Others might make their way towards the bottom, where the holes are smaller. It should be reasonable to assume that those ideas that navigate the very smallest holes are the best of all.
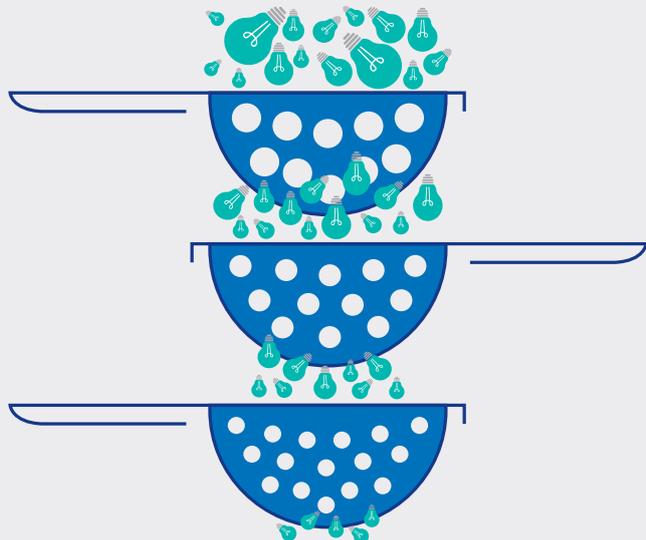
4. Barriers to best ideas

4.1. Hubris and inertia

The basic framework outlined in section 3.2 may appear attractively straightforward, and in many ways it is. Even so, it bears little resemblance to the decision-making and problem-solving processes commonly found in organisations. Let us keep this simple model in mind as we briefly examine some of the barriers to its implementation, starting with the ever-dangerous assumption that any one solution is "right".

Notwithstanding Benjamin Franklin's famous exceptions of death and taxes, philosophers throughout the ages have posited that there are no certainties in life. The Socratic paradox – "All I know is that I know nothing" – may be the most celebrated encapsulation of this belief. Some of the most revered figures in the history of science, including Albert Einstein, have conceded that their work should be treated not as the absolute truth but as a probable step closer to the truth[3]. This mentality is captured in meticulous detail in Karl Popper's concept of falsifiability, which proposes that even countless experiments cannot conclusively prove a theory but only one experiment is needed to conclusively disprove it[4].

What sort of personal qualities are required if we are to accept that our knowledge is far from complete, that our finest inspirations are likely to be superseded and that even our best and most enduring ideas could be debunked at any moment? Two that would seem essential are humility and open-mindedness, and we will discuss these in due course.

Unfortunately, many organisations favour the very opposite. Individuals, teams or entire entities are utterly convinced that they are right and that others' views are of limited or no value. The modesty and caution advocated by the likes of Socrates, Einstein and Popper are of no concern to them. There is no place for alternative perspectives. A course of action is selected after minimal debate – if any at all – and thereafter, even if it begins to look unwise, it is adhered to with a zeal that can border on the irrational.

> **"Hubris and inertia tend to come from the top. The result is usually a plunge from a pedestal – and then it is a case of who or what is crushed in the fall."**

This is the stuff of hubris and inertia, and it tends to come from the top. It can promote "sunflower bias", where employees dutifully align their own views with those of their unduly arrogant leaders[5]. Sometimes such shortcomings may be an undesirable corollary of success. Writing in Harvard Business Review, Steven Berglas, of Harvard Medical School's Department of Psychiatry, suggested that the causes might include "endless laudatory press clippings, leading to supreme overconfidence... or the culmination of a winning streak that causes a person to suffer the transient delusion that he is bullet-proof". There is no Pauling-like multitude of ideas, and such that do emerge rarely penetrate the first sieve in Feynman's cascade. The result is usually a plunge from a pedestal – and then it is a case of who or what is crushed in the fall.

"The finest organisation in American business today"

Fortune's coveted Most Innovative Company in America prize was awarded to the same business in 1996, 1997, 1998, 1999, 2000 and 2001. Just a few months after securing the honour for the last time, amid the biggest corporate scandal in history, the winner went bust, costing its shareholders over 65 billion dollars.

The company was Enron. Its founder, Kenneth Lay, had built the firm and retired before returning to try to save it. As Steven Berglas wrote in Harvard Business Review: "Lay... could not admit defeat, so he let his pride get in the way of reason. Unwilling to make the hard decisions that might have saved a diminished version [of the company], he decided to cook the books – and in so doing his business's goose."

"Our performance has never been stronger," Lay wrote in an email to staff. "Our business model has never been more robust. We have the finest organisation in American business today." His message represented a spectacular display of hubris. Enron entered bankruptcy just weeks later.

4.2. Groupthink and design by committee

As we have seen, alternative perspectives must be all but absent if hubris and inertia are to dominate decision-making and problem-solving processes. A single idea has to prevail, having been subjected to negligible or no critical scrutiny. There can be no disagreement and no dissent: instead there are premature pronouncements, innate biases and narrow foci – which together have come to be known as groupthink.

In the early 1970s, two decades after *Fortune* writer William H. Whyte coined the term, psychologist Irving Janis pioneered research into groupthink. One of his first studies examined the chain of events surrounding 1961's Bay of Pigs fiasco, the US's failed attempt to invade Cuba, which is now routinely cited as a classic example of groupthink in action.

President John F Kennedy was determined to oust Fidel Castro's regime, and his subordinates were under no illusions about the totality of his resolve. With their leader imposing his will on almost every decision, however minor, the US's strategists soon became stuck in an intellectual rut. There was little in the way of open-mindedness and even less in the way of flexibility as circumstances changed. The plan that emerged was one expressly crafted to please the president rather than one carefully conceived to unseat Castro, and the outcome was a policy catastrophe that put the US on a nuclear collision course with the Soviet Union.

The collapse of Swissair, a company whose longtime financial stability once earned it the sobriquet "the flying bank", offers another illustration. Studies have revealed how the board consisted of businesspeople from similar backgrounds and how their shared norms and values not only fostered a culture of conformity but encouraged members to view themselves as "invulnerable"[6] – an illusion that was finally shattered when Swissair, burdened by ill-advised overexpansion, was forced to file for bankruptcy in 2002.

Some organisations feel that groupthink is most deftly avoided by resorting to design by committee. Here everyone has a say, which to some degree chimes with our proposed framework. Yet design by committee very rarely leads to best ideas, because it satisfies only half of Pauling's maxim: there are many ideas, but the bad ones are not thrown away. With compromise replacing meritocracy, the process is akin to violently shaking the cascade of sieves and adopting each and every idea – whether good or bad – that happens to tumble out. Anyone wishing to see the effects of such an approach is advised to search the internet for images of the Pontiac Aztek.

"Design by committee very rarely leads to best ideas, because it satisfies only half of Pauling's maxim: there are many ideas, but the bad ones are not thrown away."

Toeing the line

Although Irving Janis's work in the 1970s is regarded as the first research in the field of groupthink, psychologists have been studying the wider phenomenon of conformity since at least the 1930s. One of the first experiments invited participants to guess the number of beans in a jar: it found that estimates converged significantly after group discussion.

In the early 1950s Solomon Asch, a researcher at Swarthmore College, Pennsylvania, conducted perhaps the most influential study of conformity. Asch asked participants to look at three straight lines and then state which was the nearest in length to a fourth.

Unaware that their fellow subjects had been told to respond incorrectly, a third of participants gave an answer that was clearly wrong. Afterwards, asked why they had ignored the manifest evidence before their eyes, most said that they feared being ridiculed if they diverged from the consensus.

5. Enablers of best ideas

5.1. Humility and open-mindedness

We saw in the previous chapter that the search for best ideas is most often thwarted by a misguided conviction that a given course of action is unquestionably "right". This conceited and potentially damaging outlook is the first thing that must be jettisoned if we are to reap the rewards of decision-making and problem-solving processes that are rooted in diversity, inclusion and meritocracy.

In his best-selling book, Principles, Bridgewater Associates founder Ray Dalio advises readers to spend less time asserting that that they are correct and more time asking how they know that they are correct. This process demands humility and open-mindedness, especially because most people are highly likely to discover – at least from time to time – that they are actually wrong. Everyone, after all, makes mistakes; and it is essential to accept as much, because mistakes are vital to how we progress.

In *Principles,* outlining what he calls an "idea meritocracy"[7], Dalio highlights the need to "replace our attachment to being right with the joy of learning what is true". He also emphasises the value of understanding what it means to "fail well" – that is, to recognise when and how we have erred and to draw on the resultant lessons when confronting comparable challenges in the future. As Babe Ruth once remarked: "Every strike brings me closer to the next home run."

This mindset, as we touched upon in section 4.1, can be found in everything from the Socratic dialogues to the fabric of the philosophy of science; and yet many organisations deem it beneath them. The result, claims Dalio, is that such organisations are populated by "kiss-asses and subversives": employees either perpetuate the status quo through knee-jerk acquiescence or undermine their ability to perform by keeping their grievances hidden and allowing them to fester. Our proposed framework acknowledges that nobody can be certain of anything; it concedes that mistakes are inevitable and that they must be learned from; and, guarding against Dalio's nightmare vision of sycophants and would-be mutineers, it aims to ensure that everyone's genuine voice is heard.

The last of these elements in particular is indicative of fully fledged democracy, but is democracy really what we want? Not quite. After all, in the words of Winston Churchill: "The best argument against democracy is a five-minute conversation with the average voter." A complete democracy of ideas might well protect against hubris and inertia, which means it should also protect against groupthink; but would it protect against design by committee? As we will explain next, we need something slightly more nuanced.

> **"Everyone makes mistakes; and it is essential to accept as much, because mistakes are vital to how we progress."**

Five simple guidelines for identifying best ideas

Ray Dalio's Principles contains many valuable insights on decision-making and problem-solving processes that are built on diversity, inclusion and meritocracy. Below are some of Dalio's key observations.

- Two heads—or many more—really are better than one.
- Agree on the bigger picture rather than squabbling over the minutiae.
- Prioritise the fairness of the process over getting your own way.
- Sense should take precedence over seniority.
- The best ideas must prevail, no matter from whom or where they come.

5.2. Multiple perspectives and critical scrutiny

At this point it may be worth quickly reminding ourselves of how a "best ideas" portfolio can satisfy our ideal of a process that encompasses diversity, inclusion and meritocracy. It is diverse because it often considers investment opportunities from a variety of regions, sectors and asset classes; it is inclusive because all of the chosen opportunities are intended to play a part in enhancing performance; and it is meritocratic because the selected opportunities are believed to be the most promising.

Strictly speaking, this is not how democracy works. Democracy undoubtedly entails diversity and inclusion, but it is by definition some way removed from meritocracy; and best ideas are less likely to prevail in meritocracy's absence. A strictly democratic version of our framework would have just one sieve, through which every idea would pass unhindered: we would need only to establish how many people have put forward the same idea and then either declare a winner, which would grant the will of the majority, or represent every idea proportionally, which would take us into the realms of design by committee.

This is the kind of system that has recently persuaded several prominent political scientists to argue for "epistocracy", an electoral model that would permit only the most knowledgeable citizens to vote[8]. Yet epistocracy is equally ill suited to our needs here, as it is neither diverse nor inclusive in nature. The reason why we strive for meritocracy is that such an approach borrows from democracy and epistocracy alike: it is crucial that everyone's opinion is heard, but it is just as crucial that only the most appropriate and effective opinions ultimately drive our decisions.

So how is this achieved? We first need to appreciate the fundamental importance of diversity of thought and the multiple perspectives that it affords. Diversity of thought lends itself to genuine inclusion and helps us to avoid a rush to judgment. We have to realise that nobody is correct all the time, that anyone can contribute to making decisions and solving problems – even if they contribute by being wrong – and that the dissent of others, not least those whose perspectives are significantly at odds with our own, can greatly strengthen our ideas. This is how all of our individual strengths – and all of our individual weaknesses – come together to benefit an organisation[9].

And how do we decide who is right? It is not a case of "pulling rank", yelling more than anybody else or relying on "gut instinct"[10]. Critical scrutiny is the only way. As we said at the outset in describing the construction of a "best ideas" portfolio, it is a matter of distillation and refinement. Per Pauling's axiom, it is about having as many ideas as possible and then throwing away the bad ones. Per Feynman's cascade, it is about trying to squeeze an array of suggestions and suppositions through ever-smaller holes and seeing which survive the journey. It is not about proving who is cleverest or chalking up personal victories. It is about continuously learning, constantly improving and always making sure that an organisation functions to the very best of its ability.
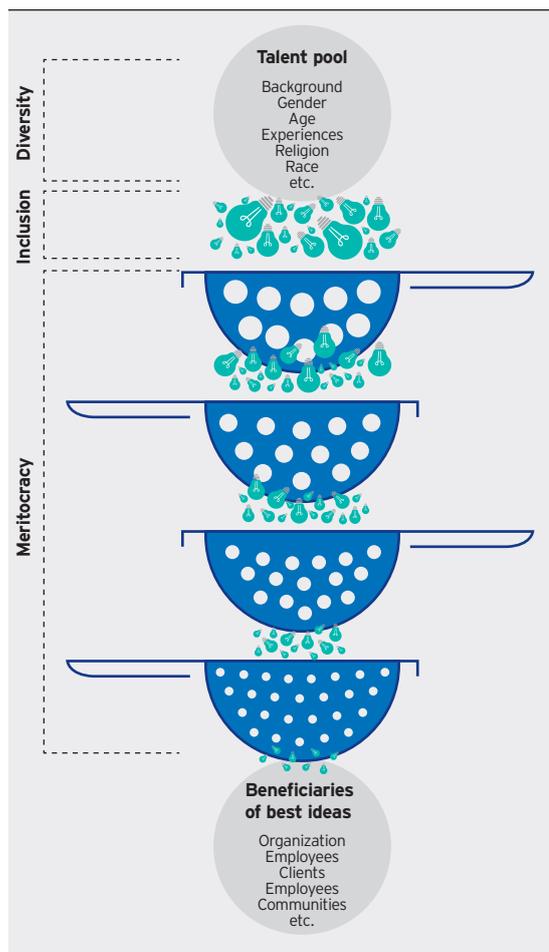
Our Pauling-Feynman framework revisited

Here we embellish our framework for generating best ideas by illustrating how diversity, inclusion and meritocracy influence the process. The starting point is the widest possible talent pool, which leads to diversity of thought.

A culture of inclusion ensures that the value of this diversity is fully realised by actively encouraging inputs that reflect multiple perspectives, which duly translate into multiple ideas. These are then subjected to ever-intensifying critical scrutiny. Even those that are bad contribute, as they help to highlight the genuinely good ideas.

Only the very best ideas survive to emerge from the bottom of the cascade. Thus an organisation as a whole – along with its stakeholders – benefits from a process that draws on many individuals' different backgrounds, beliefs, experiences, outlooks and other unique traits.

"It is crucial that everyone's opinion is heard, but it is just as crucial that only the most appropriate and effective opinions ultimately drive our decisions."

Diversity

Inclusion

Meritocracy

Talent pool
Background
Gender
Age
Experiences
Religion
Race
etc.

Beneficiaries of best ideas
Organization
Employees
Clients
Employees
Communities
etc.

6. Q&A: Diversity of thought and best ideas at Invesco

How do the themes discussed in this paper translate into decision-making and problem-solving processes at Invesco?

Here Richard Underwood, Head of Investment Oversight at Invesco's investment centre in Henley-on-Thames, explains the "challenge culture" practised by our UK investment teams.

What are the fundamental elements of Invesco's "challenge culture"?

The first premise is that we don't have a house view. The second is to have individual accountability instead. And if you give individuals accountability then it's very important to have a diversity of views within teams, because that's what enables people to explore what they have or haven't understood about an investment they may be making.

For example, imagine that two members of one of our equities teams have different views about an oil company. One thinks that the current price of a barrel of oil makes the company a good investment prospect, while the other thinks that there are better opportunities elsewhere. It's critical to foster open debate of the competing rationales for owning and not owning the stock. The individuals involved may draw separate conclusions, but it's absolutely essential that they come together and have a discussion.

The make-up of our multi-asset team offers another good illustration. We have individuals who tend to be risk averse, some who are naturally bullish, big-picture thinkers, technical thinkers, strategic thinkers. Having all of these different people come together and challenge each other's ideas enables the team to get the best out of the sum of its parts. It's about having genuine fluidity in how we exchange views.

How is that fluidity encouraged?

One of the most obvious ways is to have a working environment in which it's easy for people to communicate. Henley is a noisy place, because we're always talking with each other! Open-floor layouts allow everyone to be "out there" and to get together to share and discuss ideas.

In other words, it's not just about assembling around a table and bashing heads on a periodic basis. There are lots of different communication flows. Showing an ongoing interest in what someone else is doing, looking over a colleague's shoulder, actively seeking other people's opinions and perspectives – challenge can include all of these things.

It's also about nurturing the required mindset. It's about appreciating that everybody has a voice, that everybody has the freedom to speak up and that everybody has a certain obligation to dissent – regardless of whether an individual's contribution is based on fact or opinion. We look for people who can hold a level of conviction. The nature of what we do, coupled with the consequences of individual accountability, means that you must have a view – there's no hiding place from that.

And this is something that we try to promote from the start. We encourage people who have been here for a short time to integrate with people who have been here for many years. We want a culture of comfort and participation, so that everybody feels able to pitch in when it comes to an investment debate. It's expected. It should be in the DNA.

What about the threat of unconscious biases, especially with regard to hierarchies? For instance, how do you guard against "sunflower" management, where people might go through the motions but ultimately just align their own views with those of the most senior figures?

As I mentioned earlier, one of the beauties of our approach is that there's no house view. We never tell a portfolio manager "You shouldn't own X" or "You should have at least an index weighting in Y", because we don't want to end up with mediated and mediocre investment decisions. It's our portfolio managers who make the decisions and who are responsible for client outcomes.

So we perfectly accept disagreement, but you live or die by your track record – over a reasonable period of time, of course. Seniority, experience and past performance might buy you a bit more time and a bit more belief, but in the end either you can run money or you can't.

6. Q&A: Diversity of thought and best ideas at Invesco
Continued

What are some of the most important lessons that emerge from a challenge culture?
One is that everyone makes mistakes and that it's vital to understand them and learn from them. This can be especially important for the younger members of our teams, who need to appreciate that nobody gets everything right all the time – including the people who are senior to them. Portfolio managers have to be completely transparent, hold up their hands and say: "I got that wrong – and this is what I've learnt from it."

It's also vital to recognise that it's okay to be wrong for a while. We try to give younger team members confidence in this regard by citing some of the successful high-conviction positions that we've taken in the past – for example, not owning banks going into 2008 or avoiding the TMT bubble when everyone else was jumping out of "old economy" stocks. We need to remember that someone who takes a very high-conviction, non-consensus view might appear to be wrong for quite some time before the rest of the world finally catches up.

It's also essential to learn from being right, too. A lot of firms do a deep dive only when something goes wrong, but we also do it when things go well. We ask ourselves why we made a correct call. Why were we right to be contrarian on tobacco for 30 years when everyone else was paranoid about litigation? Why were we right to look at the direction of healthcare 15 or 20 years ago, when businesses were moving from cure to prevention? Reflecting on what we've done well can help us to position ourselves for the years ahead. It's a continuum for us.

Is it possible to sum up the process of critical scrutiny that underpins Invesco's challenge culture?
"Never hesitate to ask a question" would be a pretty good maxim. And it doesn't matter if the question appears silly. Like the old Chinese proverb says: "He who asks a question is a fool for five minutes. He who doesn't ask a question remains a fool forever."

Also, it's seldom the case that the only person who learns anything is the person who does the asking. A big enemy for any organisation is to have a mindset that basically says: "Well, we've always done it this way." Asking questions guards against inertia and ensures that diversity of thought keeps driving an organisation forward.

Asking questions, communicating, challenging – that's how we maintain conversations that thrive on multiple views. It's how we give a voice to the believers, the non-believers, the half-fulls, the half-empties, the newcomers, the experienced… It's something that's cultural, something that we live and breathe every day, something that's very much alive.

"We want a culture of comfort and participation, so that everybody feels able to pitch in when it comes to an investment debate. It's expected. It should be in the DNA."

7. Conclusion

We referenced earlier Karl Popper's concept of falsifiability and the accompanying goal of edging ever closer to the truth rather than declaring something undeniably "right". These notions were first outlined in 1934's *The Logic of Scientific Discovery*.

In 1998's *The World of Parmenides,* a collection of essays pieced together after Popper's death, much the same themes were revisited. Popper proposed three principles, that seem to fit very well with our own framework for generating best ideas:

1. *The principle of fallibility*
2. *The principle of rational discussion*
3. *The principle of approximation to truth*

These principles apply as much to organisations as to science. Irrespective of the setting, nothing can ever truly be "right": there is always room for doubt and scope for improvement. Echoing Pauling, Feynman and many others, Popper observed that nothing in life should be exempt from a process of criticism and error elimination.

Ultimately, then, as Popper and other great thinkers have long suggested, our best ideas should be those that take us as close as possible to whatever might constitute the truth. It would be presumptuous to imply that they could achieve anything more. They will never be perfect – nothing is – but they should be clearly superior to the alternatives, particularly when these are derived from decision-making and problem-solving approaches that are mired in conceit or compromise.

We would add only that best ideas should be the products of diversity, inclusion and meritocracy – especially with regard to how we think of these issues today – and that they should reflect and shape how an organisation functions as a whole. This, we say, is crucial both to success and to sustainability. As with our previous paper, we do not claim to have mastered the art: we merely stress that it is one that we try to embrace at all times and which we firmly believe is beneficial to our business, our clients and our stakeholders in general.

"Our best ideas will never be perfect – nothing is – but they should be clearly superior to the alternatives, particularly when these are mired in conceit or compromise."

8. References and suggested reading

8.1. References

[1] See *Broad Diversity as a Driver of Meritocracy* (2018).

[2] Powerful evidence of the case for diversity as a source of competitive advantage is presented in McKinsey & Company's *Delivering Through Diversity* (2018), as cited in the aforementioned *Diversity as a Broad Driver of Meritocracy* (2018).

[3] Einstein once predicted that his theory of relativity would "have to yield to another one, for reasons which at present we do not yet surmise".

[4] Ironically, Popper repeatedly refused to acknowledge that his own theory could be falsified. As an obituary in *The Economist* noted following his death in 1994: "The irony is that here Popper could not admit he was wrong."

[5] See, for example, McKinsey & Company's *Distortions and Deceptions in Strategic Decisions* (2006).

[6] A similar culture was found to have pervaded NASA in the run-up to 1986's *Challenger* space-shuttle disaster. NASA was aware of a problem with the O-rings in the shuttle's solid rocket boosters but repeatedly reinterpreted evidence of the issue as within the bounds of tolerable risk. The most vocal critic of the agency was none other than Richard Feynman, who served as a member of the presidential commission tasked with investigating the tragedy and famously exposed the O-rings' fatal flaw during a televised hearing. American sociologist Diane Vaughan later drew on the *Challenger* story to coin the term "the normalisation of deviance", which is today used to describe an organisational situation in which bad habits become standard practice."

[7] We originally referred to this concept in the Q&A chapter of our earlier paper, *Broad Diversity as a Driver of Meritocracy* (2018).

[8] See, for example, *Against Democracy,* written by Georgetown University's Jason Brennan, which was published in the midst of two of the most surprising political outcomes in recent history: the UK's vote for Brexit and the US's vote for Donald Trump.

[9] British philosopher and political economist John Stuart Mill championed a similar approach in *On Liberty,* published in 1859, in which he applied his system of ethical utilitarianism to the state and society. He wrote: "The only way in which a human being can make some approach to knowing the whole of a subject is by hearing what can be said about it by persons of every variety of opinion and studying all modes in which it can be looked at by every character of mind." This was diversity of thought 19th-century-style.

[10] Asked for his "gut thinking", celebrated American scientist Carl Sagan usually noted that he preferred to think with his brain.

8.2. References

Achen, C, and Bartels, L: Democracy for Realists, 2016

Atkinson, C, Millar, D, Schlossberg, A, and Stein, H: *Broad Diversity as a Driver of Meritocracy,* 2018

Bougheas, S, Nieboer, J, and Sefton, M: *Risk-Taking in Social Settings: Group and Peer Effects,* 2016

Brennan, J: *Against Democracy,* 2016

Changeboard: "Using foresight in decision-making", 13 July 2017

Crick, F: *The Impact of Linus Pauling on Molecular Biology,* 1995

Dalio, R: *Principles,* 2017

Deloitte: *Only Skin Deep? Re-Examining the Business Case for Diversity,* 2011

Einstein, A: *The Field Equations of Gravitation,* 1915

Feynman, R: *The Meaning of It All,* 1988

Feynman, R: *What Do You Care What Other People Think?,* 1988

Harvard Business Review: "Rooting out hubris, before a fall", 14 April 2014

Herrmann, A, and Rammal, H: *The Grounding of the 'Flying Bank',* 2010

Janis, I: *Groupthink,* 1971

Janis, I: *Groupthink: Psychological Studies of Policy Decisions and Fiascos,* 1982

Jenness, A: *The Role of Discussion in Changing Opinion Regarding a Matter of Fact,* 1932

McKinsey & Company: *Delivering Through Diversity,* 2018

McKinsey & Company: *Distortions and Deceptions in Strategic Decisions,* 2006

Mill, J S: *On Liberty,* 1959

Popper, K: *Conjectures and Refutations,* 1964

Popper, K: *The Logic of Scientific Discovery,* 1934

Popper, K: *The World of Parmenides,* 1998

Rogers Commission: *Report of the Presidential Commission on the Space Shuttle Challenger Accident,* 1986

Society for Human Resource Management: *The Myth of Meritocracy,* 2018

Vaughan, D: *The Challenger Launch Decision: Risky Technology, Culture and Deviance at NASA,* 2016

Washington Post: "Democracy vs. epistocracy", 3 September 2016

About risk

The value of investments and any income will fluctuate (this may partly be the result of exchange rate fluctuations) and investors may not get back the full amount invested.

Important information

The publication is marketing material and is not intended as a recommendation to invest in any particular asset class, security or strategy. Regulatory requirements that require impartiality of investment/investment strategy recommendations are therefore not applicable nor are any prohibitions to trade before publication. The information provided is for illustrative purposes only, it should not be relied upon as recommendations to buy or sell securities.

By accepting this document, you consent to communicate with us in English, unless you inform us otherwise.

All articles in this publication are written, unless otherwise stated, by Invesco professionals. The opinions expressed are those of the author or Invesco, are based upon current market conditions and are subject to change without notice. This publication does not form part of any prospectus. This publication contains general information only and does not take into account individual objectives, taxation position or financial needs. Nor does this constitute a recommendation of the suitability of any investment strategy for a particular investor. Neither Invesco Ltd. nor any of its member companies guarantee the return of capital, distribution of income or the performance of any fund or strategy. Past performance is not a guide to future returns.

This publication is not an invitation to subscribe for shares in a fund nor is it to be construed as an offer to buy or sell any financial instruments. As with all investments, there are associated inherent risks. This publication is by way of information only. This document has been prepared only for those persons to whom Invesco has provided it. It should not be relied upon by anyone else and you may only reproduce, circulate and use this document (or any part of it) with the consent of Invesco. Asset management services are provided by Invesco in accordance with appropriate local legislation and regulations.

Certain products mentioned are available via other affiliated entities. Not all products are available in all jurisdictions.

Data as at 31 December 2018, unless otherwise stated.

www.invesco.com