



M MCGUINNESS INSTITUTE
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**I THINK,
THEREFORE
I AM**

01: THREE SIGHTS

02: CONE OF PLAUSIBILITY

**03: FORECASTING
& BACKCASTING**

04: HORIZON

05: PATTERN

06: NOISE

07: DATA, INFO & KNOWLEDGE

08: MEGATRENDS & TRENDS

**09: SCANNING
& WEAK SIGNALS**

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**14: ASSUMPTIONS
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16: UNCERTAIN RISKS

17: FAT TAIL RISKS

18: PRECAUTIONARY PRINCIPLE

19: EXECUTION

**20: FUTURISTS
VS STRATEGISTS**

FORESIGHT TOOLS

A child born today will be alive in the year 2100. Thinking long term is thinking about the type of life they might live. It requires us to think carefully about the decisions we make today.

Foresight can help shed some light on a range of possible futures. It is an exciting and positive tool for helping us navigate the future.

LOOKING INTO THE LONG-TERM

There are three types of sight: hindsight, insight and foresight (see page 5). If you find yourself thinking about the past, you are using hindsight.

Hindsight will improve the quality of your foresight by illustrating potential trends or events (e.g. megatrends, types of disasters or technological advances), or responses to events

(e.g. understanding how humans or communities might behave under certain circumstances). If you find yourself thinking about where we are right now, you are using insight.

Insight will help set a context, define a problem, provide a starting point (for example to explore scenarios, see page 29), or provide an end point (what is known as backcasting, see page 9).

If you find yourself thinking about long-term possibilities, you are using foresight.

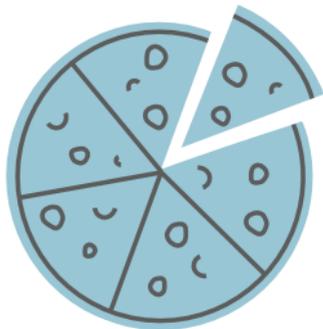
PLAYFULNESS

Foresight is fun and explorative. You know you are using foresight when you are curious and ask what if, rather than how, when or where.

Asking what if questions is a reminder that in foresight there are no right or wrong answers, and no right or wrong questions.

Using the analogy of a pizza, if you find yourself focusing on *how* to cut an existing pizza into portions, you are not using foresight. In

contrast, if you find yourself focusing on ways to improve the quality or quantity of the *next* pizza, you are thinking more like a futurist. Being curious, creative and experimental are essential; but it also helps to have access to tried and tested tools, as well as the opportunity to put those tools to work.



COLLABORATION

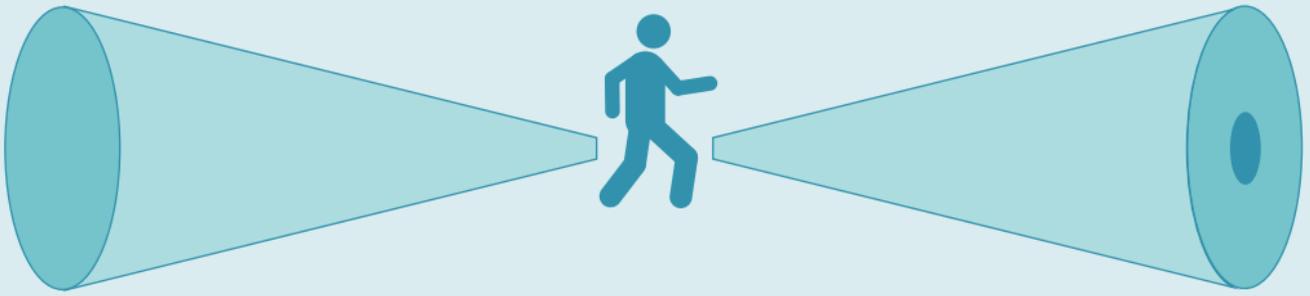
Foresight is not a solo activity. Successful foresight requires curiosity and openness to diversity of thought, experiences, and skills.

If you find you are not getting on well with someone whilst undertaking foresight, look to see if either or both of you have fallen into the dark hole where you are focused solely on a preferred future.

Observing and listening are great characteristics to focus on while honing your foresight skills.

FORESIGHT TOOLS

Foresight tools help us brainstorm ideas about the future so we are better prepared for the opportunities and challenges that may arise. It provides the ability to forward engage, interacting early before issues become difficult to manage. This booklet outlines 20 foresight tools to throw into the mix, while you walk forward into the future. Enjoy!



Hindsight

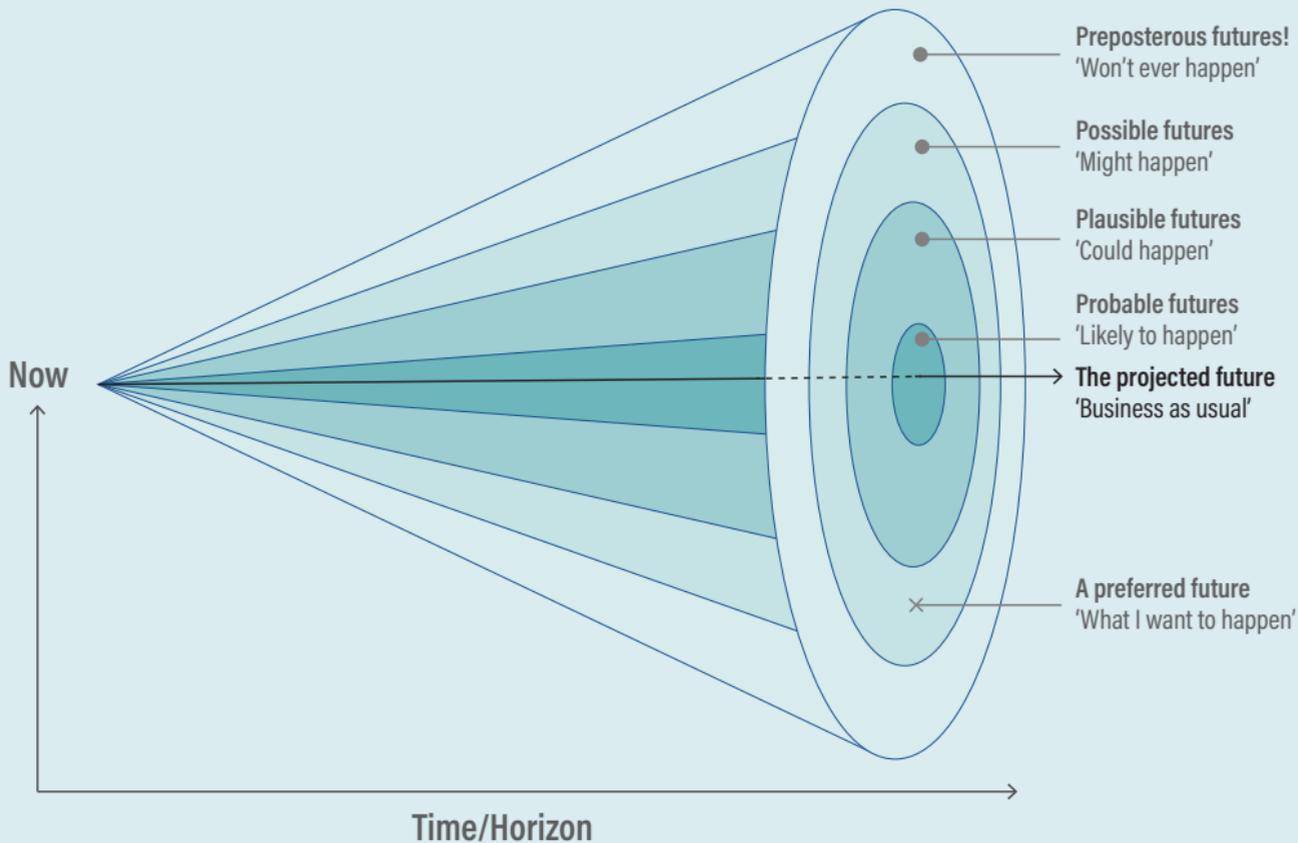
Insight

Foresight

01: THREE SIGHTS

HINDSIGHT, INSIGHT & FORESIGHT

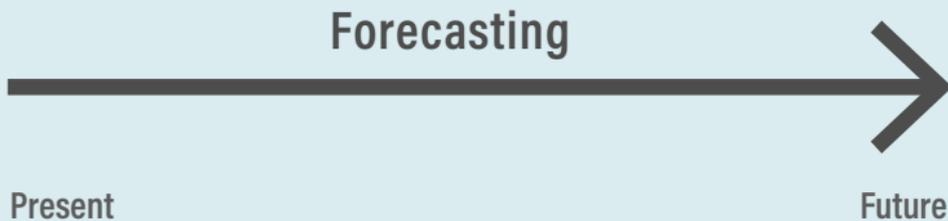
- Foresight is an intelligence-building exercise that embraces uncertainty; it accepts that data, information and knowledge (see page 17) are not always complete or accurate. It brings together different perspectives to illustrate challenges and options that may exist in the medium and long term. We undertake foresight to improve the quality of decisions made today in order to optimise the outcomes over the long term.
- The Cone of Plausibility does not always include a backward cone, but we have added this to reflect the role history plays in foresight. How we perceive our future is similar to how we perceive our past; it is in the eye of the beholder — different people have different perspectives.
- Futurists use hindsight and insight to develop foresight. Mark Twain once said that 'History never repeats itself, but it does often rhyme.'
- Strategists focus on how to get to a preferred future (i.e. backcasting from a preferred future).



02: CONE OF PLAUSIBILITY

WHAT FUTURE/FUTURES?

- Foresight often refers to the three Ps (probable, plausible and possible).
- Foresight is not about prediction (as in the projected future) or about what you want to happen (as in a preferred future).
- Futurists focus on a range of futures.
- Strategists focus on a preferred future.



03: FORECASTING & BACKCASTING

WHERE TO START?

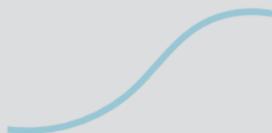
- Forecasting seeks to focus the foresight team on existing knowledge and trends in order to learn more about what might happen over the long term. This can be described as walking forwards into the future.
- Backcasting seeks to focus the foresight team on a preferred future, usually at a specific time in the future (e.g. the year 2058). The aim is to identify the actions required to achieve the preferred future. This can be described as walking backwards into the present.



04: HORIZON

WHAT TIMEFRAME?

- Short-termism is the death of foresight. Short-term horizons, such as five to ten years, deliver insights that meet short-term needs and wants. However, catastrophes are often decades in the making. Decision-making that is designed to meet present-day needs can lead to disasters over the long term.
- Be sure to set a horizon that suits your purpose or the problem you are trying to solve.
- Consider not only the length of the horizon, but also the scope. For example, do you want to focus on an industry, a country or humankind? Are you interested in the impacts on flora or fauna?
- Systems thinking demands a long-term view.



S-curve



Linear



Exponential



Step



Spiral



Pendulum



Ripple



Cyclical

05: PATTERN

IDENTIFY THE SHAPE AND PACE

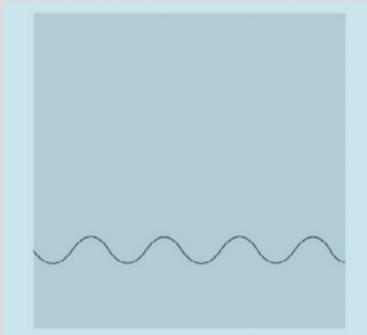
- Patterns exist and often change over time. Look for the new – the emerging trend, the new idea, a change in pace, a wild card. Look for changes in pace and be wary of the exponential.
- Futurists tend to ask lots of questions on the long-term future (e.g. what might happen).
- Strategists tend to focus on the present (e.g. how can we move the dial).

Pitch



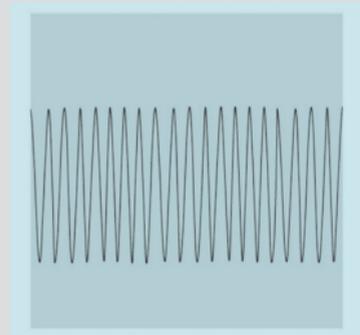
Time

Intermittent noise
(e.g. pandemic crisis)



Time

Low-frequency noise
(e.g. biodiversity crisis)

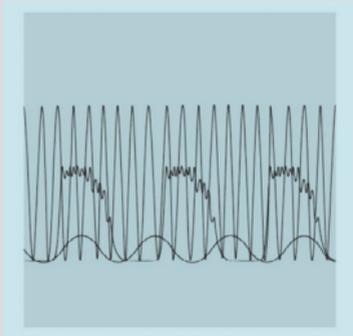


Time

Continuous noise
(e.g. climate crisis)

06: NOISE

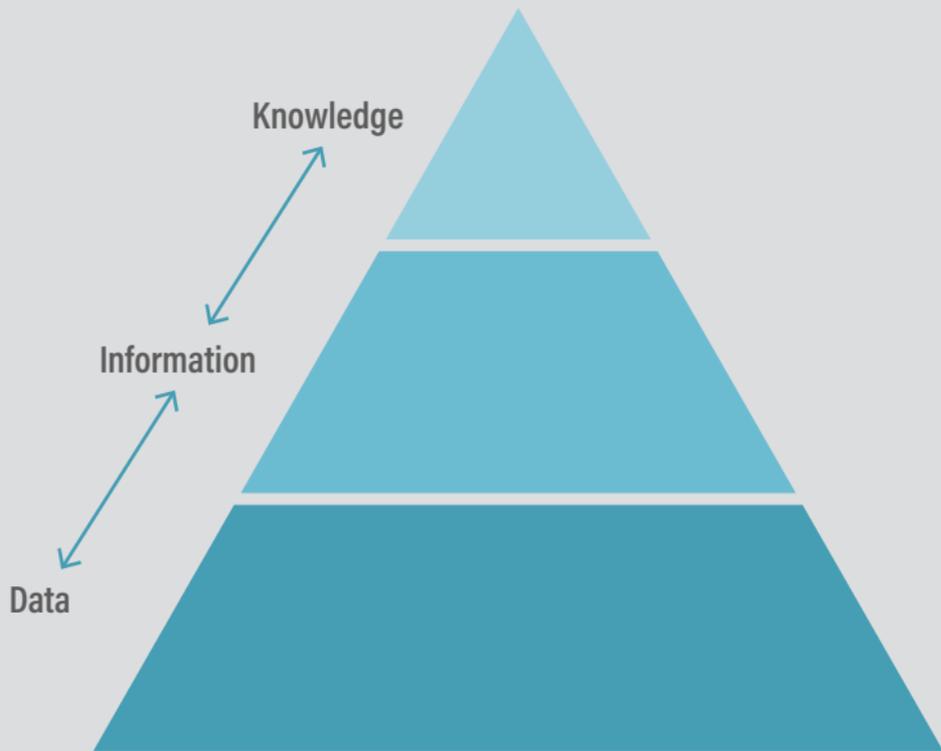
IDENTIFY VOLUME AND PITCH



Time

A noisy world
(e.g. three crises)

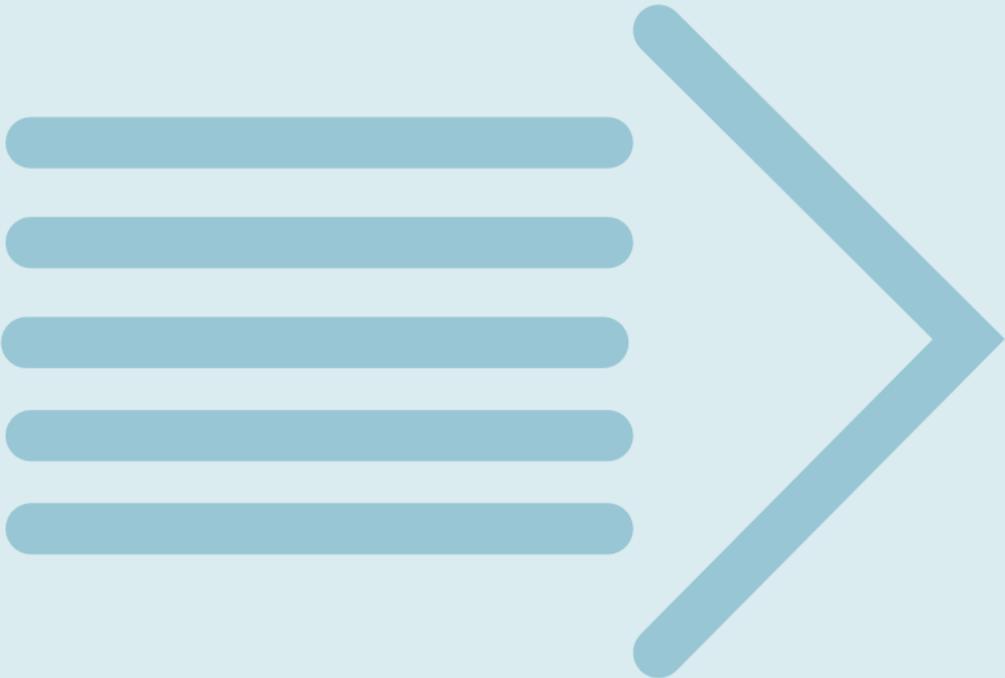
- We live in a very noisy world.
- Volume is a measure of loudness — how loud or quiet something sounds. It is related to the strength of the vibrations.
- Pitch is a measure of frequency — how high or low something sounds. It is related to the speed of the vibrations.
- Strategists tend to focus on the noise.
- Futurists also look beyond the noise (i.e. what is bubbling under the surface).



07: DATA, INFO & KNOWLEDGE

KNOW THE DIFFERENCE

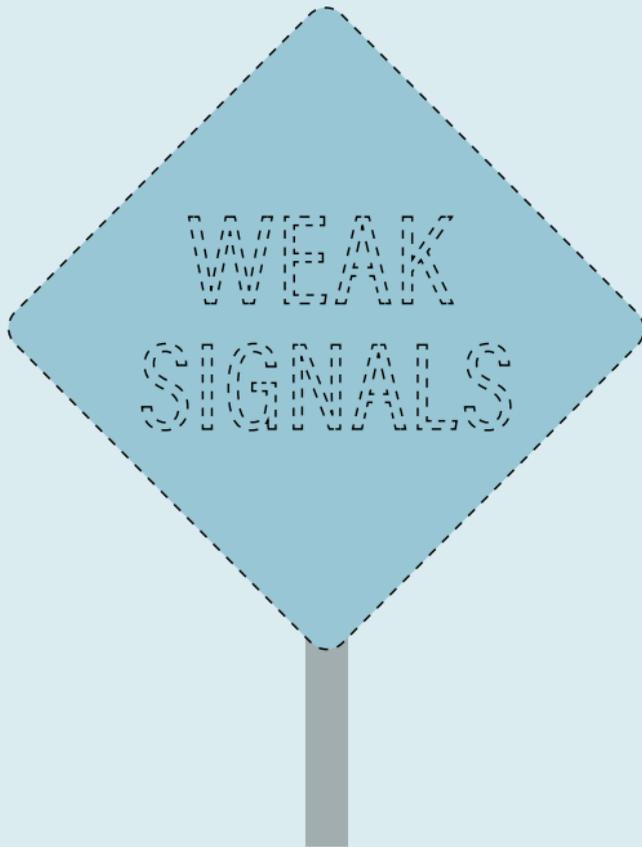
- Data en masse creates information; information that is considered creates knowledge.
- Not all data is created equal (what is your level of confidence – very low, low, high or very high).
- Futurists also consider data they have low confidence in (they seek the unknown).
- Strategists focus on what they know (they build on the known) and ignore poor quality data.



08: MEGATRENDS & TRENDS

WHAT IS DRIVING CHANGE?

- A trend is a direction of travel that is highly likely to bring about significant change over time. Trends have a pattern (see page 13), for example they may be exponential or stable, linear or stepped, specific or broad, increasing or decreasing.
- A megatrend is a significant trend of scale.
- Trend analysis tends to focus on predicting a trend – whether it is increasing, decreasing or staying the same.
- In contrast, scenario analysis is not about prediction, but about exploring different futures (see also pages 7 and 27).
- Trend analysis can help inform scenarios, but scenarios do not help inform trends.
- Futurists often describe the evolution of a change in terms of maturity. For example, AI is in its early stages of development and can be compared to a six-month-old whereas birth control is in its later stages and can be compared to a 70-year-old.



09: SCANNING & WEAK SIGNALS

WHAT IS GOING ON?

- General scanning aims to study the broad trends that shape our world, to categorise information, to understand interactions between events and to paint a picture of the general direction of travel.
- Specific scanning aims to identify specific anomalies, unintended consequences, novel technologies, new behaviours, changes in actors, or unusual events that indicate an emerging trend, called weak signals. The focus is often on a country or industry.
- Good scanners read, watch and listen. They value their independence and work hard to minimise bias. They tend to use structured methods to sort and categorise data and to separate the useful information from the noise.
- Seek out what is not noisy; that is often where the risk or opportunity exists (see page 15).



10: WILD CARDS

WHAT UNANTICIPATED EVENTS MIGHT OCCUR?

- Wild cards are described as low probability, high magnitude events. When an event has a high probability of occurring (e.g. an earthquake on the Alpine Fault) it is not considered a wild card.
- Weak signals, trends and megatrends generally tend not to evolve from wild cards, but our response to a wild card can accelerate a trend (e.g. the pandemic has accelerated the trend to work from home).
- Wild cards tend to be binary in nature; they are often irreversible, remain relatively difficult to predict and tend to have a negative impact.
- The problem with wild cards (rare events) is that the odds are simply not computable. In futurist Nassim Nicholas Taleb's book *Antifragile: Things That Gain from Disorder*, he proposes new rules for dealing with high levels of uncertainty and complexity – to reduce fragility and harness antifragility. He considers something is antifragile if it 'has more upside than downside from random events'. He proposes that being antifragile is the antidote to black swan events (see page 32). For example, being exposed to influenza every year is better than being exposed to influenza once every 20 years, due to regular exposure building your immunity.



**Problems of
simplicity**

Two variables



**Problems of
organised complexity**

Many inter-related variables



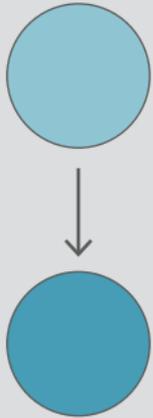
**Problems of
disorganised complexity**

Numerous random variables

11: TYPES OF PROBLEMS

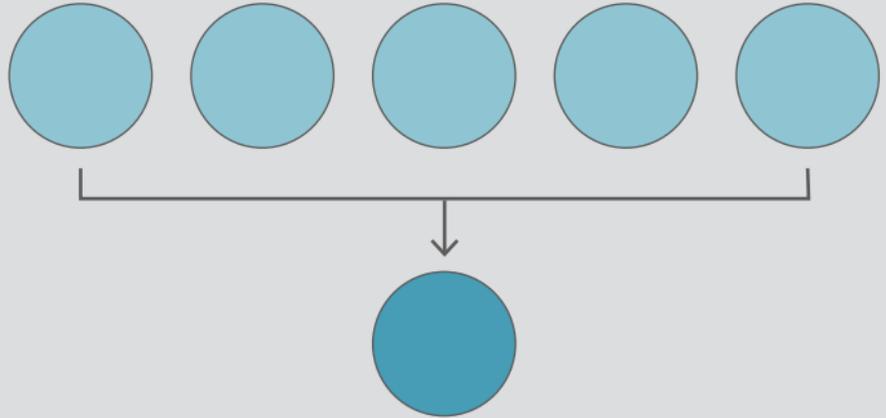
PROBLEMS OF COMPLEXITY

- In 1958 Dr Warren Weaver, the past director of the Division of Natural Sciences of The Rockefeller Foundation, wrote his reflections on a quarter-century in the natural sciences. Weaver described the seventeenth, eighteenth and nineteenth centuries as the period in which physical science learned how to analyse two-variable problems. These are problems where 'the behaviour of the first quantity can be described with a useful degree of accuracy by taking into account only its dependence upon the second quantity, and by neglecting the minor influence of other factors'.
- After 1900, there was a move to assess problems that consisted of a large number of variables, leading mathematicians to devise probability theory and what Weaver called problems of 'disorganised complexity'.
- Weaver goes on to describe a great middle region that had remained relatively untouched by science and yet was critical for the future of humankind. He referred to this group of problems as those of organised complexity. He states: 'They are all problems which involve dealing simultaneously with a sizeable number of factors which are interrelated into an organic whole.'
- Arguably in 2023, almost 70 years later, humans have yet to learn how to solve problems of organised complexity.



Sensitivity analysis

One variable considered
at a time



Scenario analysis

Many variables
considered at a time

12: TYPES OF ANALYSIS

DEALING WITH COMPLEXITY

- Unlike scenario analysis, sensitivity analysis is not a foresight tool. Sensitivity analysis only measures how a change in one variable affects the outcome of another variable. In contrast, scenario analysis looks at many variables.
- Futurists use scenario analysis to explore situations where there is more than one change happening at the same time. They are interested in how combinations of events might shape the future.
- Strategists engage futurists to test their strategy/ies (e.g. against low probability, high magnitude events) – not just how events might play out but how the order of variables might result in a different outcome.

	The world does manage its strengths, weaknesses, opportunities and threats	The world does not manage its strengths, weaknesses, opportunities and threats
New Zealand does manage its strengths, weaknesses, opportunities and threats	<p>New Zealand ✓</p> <p>World ✓</p> <p>Scenario 1: Power to the People </p>	<p>New Zealand ✓</p> <p>World ✗</p> <p>Scenario 2: An Island Paradise </p>
New Zealand does not manage its strengths, weaknesses, opportunities and threats	<p>New Zealand ✗</p> <p>World ✓</p> <p>Scenario 3: Missed the Global Bus </p>	<p>New Zealand ✗</p> <p>World ✗</p> <p>Scenario 4: All Over Rover </p>

13: SCENARIO ANALYSIS

FOUR QUADRANT MODEL

- The four quadrant model is the go-to model. However, many other models exist, such as the three scenario analysis model (i.e. worst-case, best-case and probable-case scenarios).
- Using the analogy of going for a hike, scenario analysis is like climbing up a few mountains to look down into a range of valleys to see what the territory ahead might look like.
- Do not get dragged into the detail; scenarios should be fast and furious. It is important to remind yourself that they are not predictions but a way to draw a map of the range of futures ahead.
- Scenarios are often given a short name to reflect the narrative so that the future world is easy to discuss (see for example the names for the scenarios on the left).
- Make the most of a scenario by trying to write a list of lessons learned or signals to indicate a move towards a particular scenario.

Frame the
problem or
opportunity

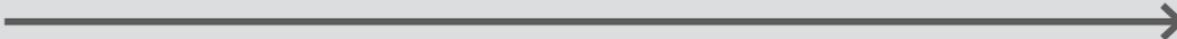
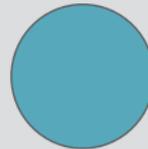
Scanning

Applying foresight
(e.g. timelines,
system mapping,
megatrends and
scenarios)

Vision

Strategic options

Strategy
(then planning)



Assumptions and biases tend to increase as you move along the continuum

14: ASSUMPTIONS & BIASES

RISKS EXIST ALONG THE CONTINUUM

- Futurists tend to start at the problem or opportunity and finish at visioning.
- Strategists tend to start at visioning and finish at planning.
- Implementers tend to start at planning and finish at execution.
- Assumptions are necessary in foresight but should always be seen and tested. In contrast, there is no place for biases in foresight as they are well hidden and will contaminate the findings.
- Some futurists stop at the scanning stage (see page 21) to reduce biases. They focus on finding patterns/weak signals/wild cards to share with/sell to those further along the continuum.



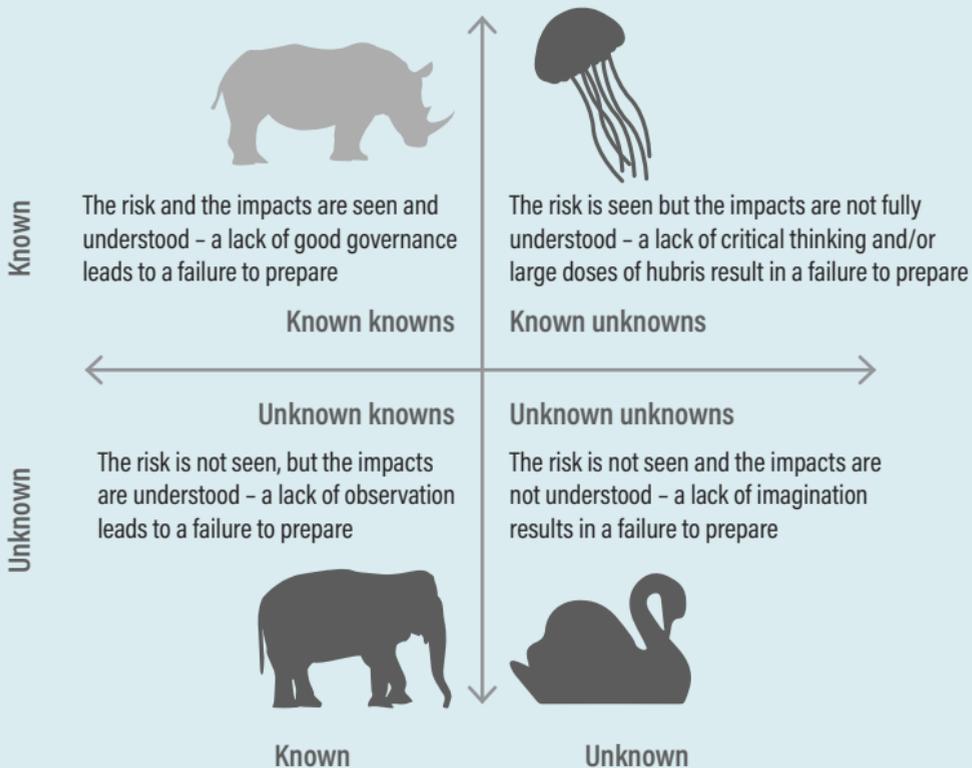
- Critical risk
- High risk
- Medium risk
- Low risk
- ✕ Example

15: MAPPING RISKS

NOT ALL RISKS ARE CREATED EQUAL

- Risk should be analysed by probability/likelihood (often as a percentage), magnitude/impact (e.g. very serious, serious, material or minor), time (e.g. 0–5 years, 5–10 years, 10–20 years, 20 plus years) and sometimes by velocity (the speed at which risks could impact, e.g. very rapid, rapid or low).
- Futurists and strategists both seek to understand risk, but futurists tend to take a macro perspective and strategists a micro perspective.
- Anticipatory governance is a system of governing that aims to decrease risk and develop efficient methods to address events when they first emerge or prevent them altogether.

Q1: What is the level of awareness of the risk?



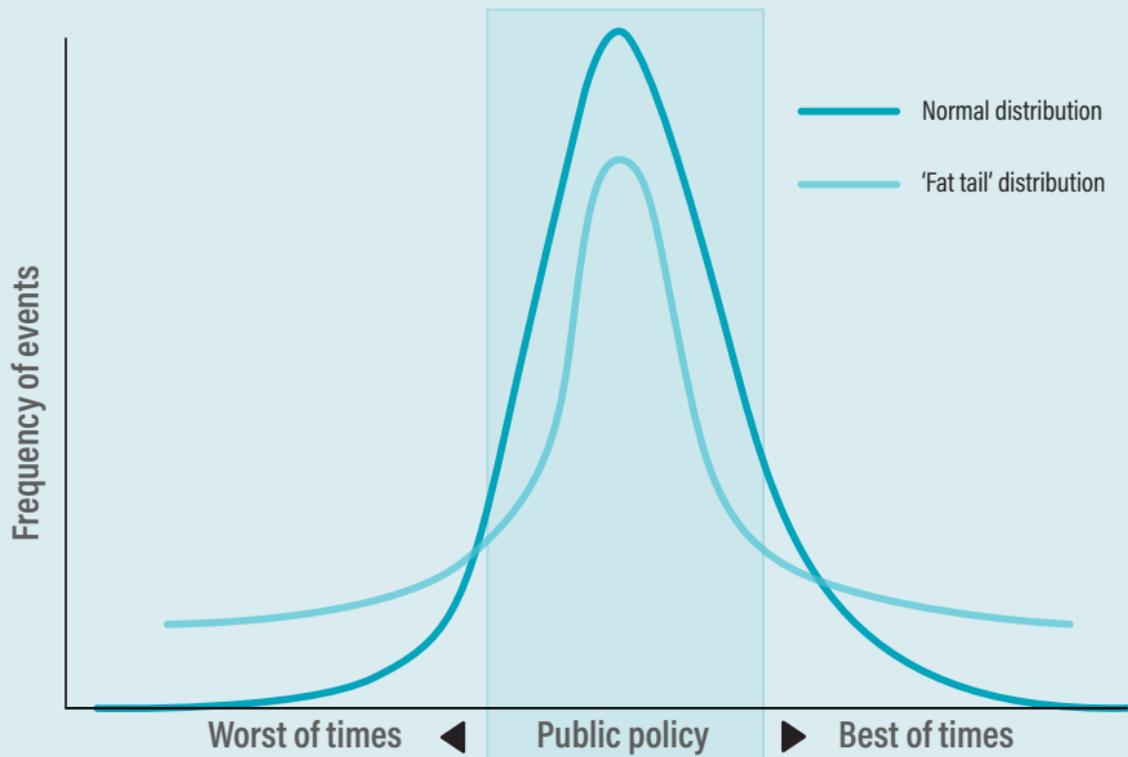
Q2: To what extent is the magnitude of the risk understood?

16: UNCERTAIN RISKS

PROBABILITY, MAGNITUDE AND TIMELINESS

Futurists often use animal metaphors to describe what they consider is known (or unknown) about an event. Metaphors vary, but we prefer the following descriptions:

- **Gray rhino** (the known knowns): futurist Michele Wucker popularised the term in her 2016 book *The Gray Rhino: How to Recognize and Act on the Obvious Dangers We Ignore* – while we disregard the warnings, the event continues to stampede towards us like a rhino.
- **Black jellyfish** (the unknown knowns): things you thought you knew but that in reality prove to be more complex and uncertain. The jellyfish illustrates that an event may start rather innocently, but over time proves to not only have a long tail, but a tail with a nasty sting.
- **Black elephant** (the known unknowns): poet Ivan Krylov may have coined the term in his 1814 fable 'The Inquisitive Man'. The fable tells the story of a man who goes to a museum and notices all sorts of small things, but fails to notice the elephant in the room. Michele Wucker distinguished her gray rhino from 'the elephant in the room' by the former charging, not just standing quietly waiting to be noticed. A similar metaphor is the lion in the grass, when risk is hiding in plain sight.
- **Black swan** (the unknown unknowns): futurist Nassim Nicholas Taleb popularised the term in his book *The Black Swan: The Impact of the Highly Improbable*.



17: FAT TAIL RISKS

IDENTIFY THE NEW NORMAL

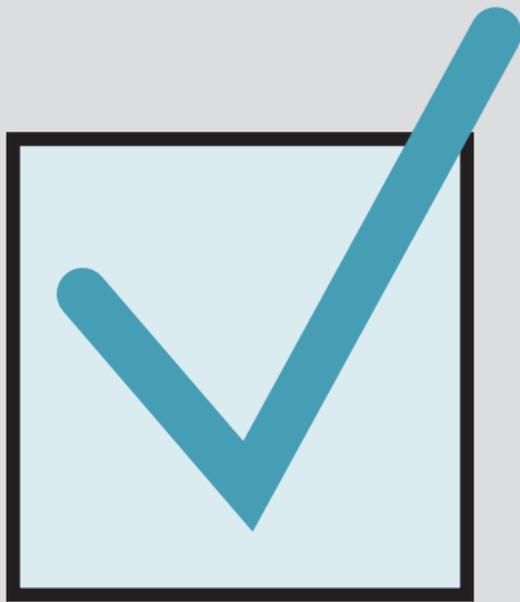
- Public policy tools and skills are built to cater for 'the normal'; however, the fatter the tail gets, the more unexpected events and issues arise, meaning government officials and business people need to become more observant, responsive and creative.
- Government and business tend to focus on 'the normal', but we need to regularly redefine normal (what is often called the 'new normal').
- Futurists are not easily held accountable – success cannot be easily measured.
- Strategists are often held accountable – success can be measured.



18: PRECAUTIONARY PRINCIPLE

KNOWING WHEN TO PANIC

- The first principle of risk management is to consider the worst-case scenario.
- This applies particularly when there is a high degree of uncertainty coupled with an interrelated complex system (such as the rapid global spread of COVID-19). It in effect requires the brake to be put on an innovation until government policy can apply risk management by understanding the risks, and where necessary putting in place restrictions such as a code of conduct, a moratorium and/or a legal liability framework. The precautionary approach aims to protect human and environmental health.
- A recent example is AI. The pace of growth is exponential (largely due to a global race for market share) (see page 13) but the risks and benefits remain unknown unknowns (see black swan events on page 35). The noise is low-frequency in that the government, the banking industry and the judiciary are slow to respond (see page 15). Given researchers and industry leaders have warned that AI could pose an existential risk to humanity, the precautionary principle should apply.
- We need to learn to 'panic early and constructively'. For example, we should have panicked early over nuclear war in the 1940s, biodiversity in the 1970s, antibiotic resistance in the 1980s, climate change in the 1990s, pandemics in the 2000s and AI in the 2010s.



19: EXECUTION

RECOGNISE THE POWER OF A CHECKLIST

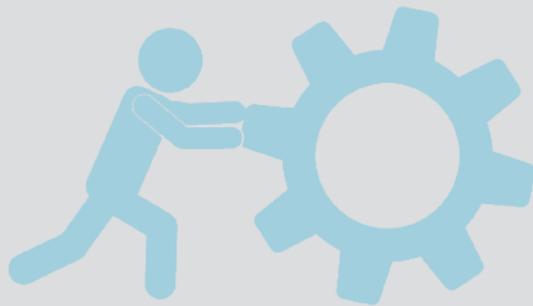
- Study routine failures. Look for patterns of recurrent mistakes and devise potential solutions.
- Seek out missed subtleties, overlooked knowledge and outright errors. Know your blind spots and those of your team.
- Prepare a draft checklist: review, critique, stress test and review again.
- Change is difficult to maintain over the long term. There are many factors working against you, seeking to revert the system back to 'normal'. Beware of past habits, self-interest and institutional memory.
- Make the most of institutions, instruments and information – what we call the three 'I's. They are particularly useful when analysing a current system or backcasting from a preferred future.
- Execution requires clear and concise communication and in particular, clarity over what success looks like. Briefings, frequent reviews, and independent assessments are essential. If your plans are not well executed, all your earlier foresight and strategy work is wasted.
- New Zealand is an island – in a stressed world we are small and insignificant. Government and businesses need to assess supply-chain risk, as something that initially appears irrelevant may become critical.

**Thinking like a futurist looks
and feels like:**



Play

**Acting like a strategist looks
and feels like:**



Hard work

20: FUTURISTS VS STRATEGISTS

THE WORLD NEEDS BOTH

- As a rule, it is good to separate the task of foresight from the task of strategy. However, that is not always practical. In which case, take the time to think like a futurist before acting like a strategist.
- Aim for one-third foresight, one-third strategy and one-third execution.
- It is also useful to separate strategy from implementation and execution. This enables the strategy team and the execution team to engage early and where appropriate fail fast (e.g. pausing the project and revisiting the strategy).
- Strategy without foresight will lead to poor decision-making, especially in times of uncertainty.
- Always respect those that are good at strategy and execution, it is hard work!

ABOUT

The McGuinness Institute is a non-partisan think tank working towards a sustainable future for New Zealand. The Institute aims to provide an independent voice and is active in fostering conversations about the long-term impact of current and future decisions.

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COVER

Inside the front cover we have quoted philosopher René Descartes in his *Discourse on Method* (1637). On the right we have playfully reversed his quote. The Latin *cogito, ergo sum* translates into English as 'I think, therefore I am' and is the first principle of Descartes' philosophy.



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I AM,
THEREFORE
I THINK

FOR
SIGHT
FOR
SIGHT