INTRODUCTION

FORESIGHT TOOLS
Foresight allows us to explore long-term outcomes by engaging early so we can respond to challenges and opportunities as they emerge.

'Foresight tools' refers to the methods and models used to guide and implement foresight thinking. These tools are designed to explore what is possible and invite discussion, clarify strategy and make the unseen 'seen'. Consequently, they help us become more observant, agile and antifragile in relation to the world around us. They help unlock the future.

FORESIGHT CONCEPTS
Many standard concepts that underlie common analytical tools also apply to foresight. For example, collecting and verifying data; sorting and categorising data; preparing and exploring timelines; ranking trends and drivers; and testing assumptions. Once these concepts are developed, value comes when results are assessed critically and independently.

FORESIGHT METHODS AND MODELS
There are many different types of methods and models. This selection has been colour coded to illustrate whether they are primarily scanning tools, mapping tools or scenario tools.

Scanning tools aim to identify what has changed, is changing, or might change.

Mapping tools aim to show relationships and connections.

Scenario tools aim to create a glimpse into a future world. They may take the form of a story, a video or an artefact from the future.

Although the Institute categorises foresight methods and models into the three groups above, other practitioners may group the same tools differently.

These tools offer great flexibility. There is a clear linear relationship between the three groups, but in reality, practitioners tend to move back and forth between scanning, mapping and scenario development.
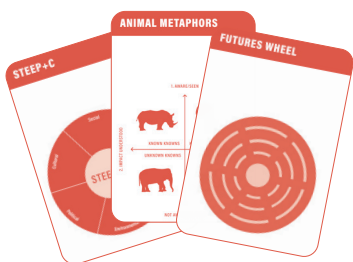
All three types of tools can be explored lightly (taking hours) or in depth (developing over weeks or months). These tools can be used by individuals, small local groups or large groups of participants from around the world.

Some practitioners focus on one particular group of foresight methods and models (i.e. scanning or mapping or scenario development), and others will practise all three. Practitioners tend to have favourites.
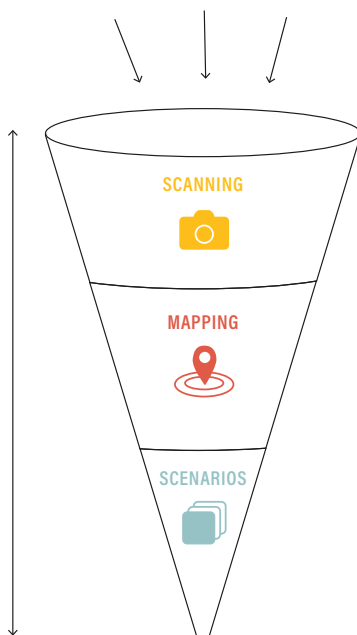
The extent of due diligence and expertise required to use these tools will depend on the importance of the decisions being made. For instance, arguably, defence scenarios require higher levels of due diligence than vegan food scenarios. The purpose of each scenario, the extent to which a decision can be reversed, and the related costs, risks and benefits, are also important considerations.

FORESIGHT TOOL CARDS
The foresight tools cards are designed for practitioners to select a combination of cards to create an exercise in order to explore a particular issue or problem.
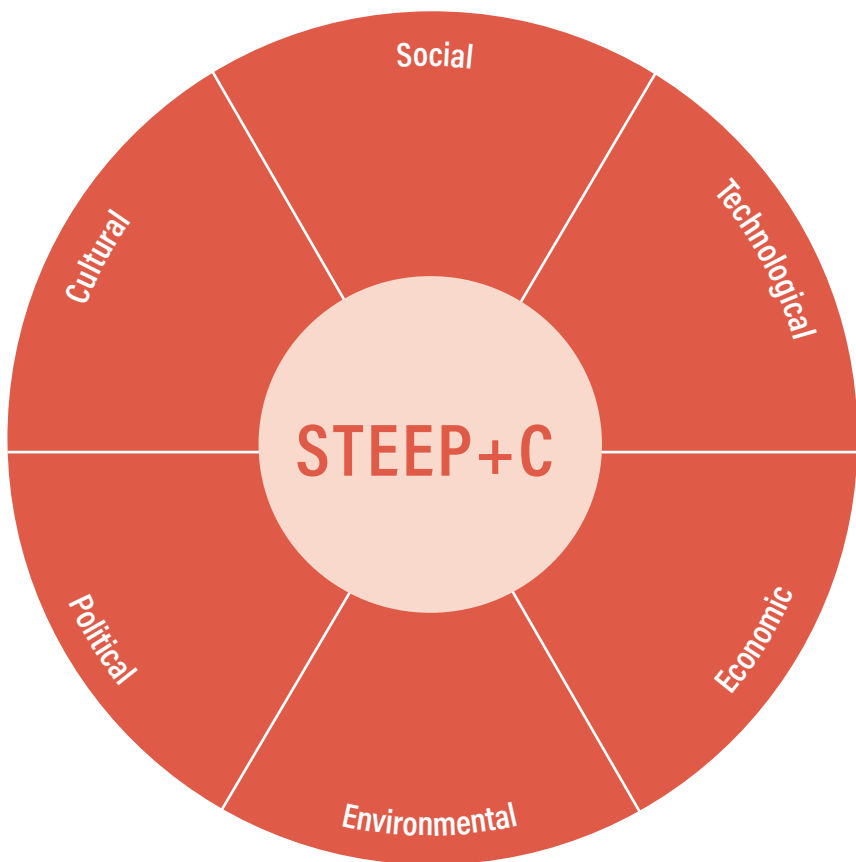

SIMPLIFIED FORESIGHT PROCESS

SCANNING

MAPPING

SCENARIOS

MCGUINNESS INSTITUTE
TE HONONGA WAKA

STEEP+C

STEEP+C

Social

Technological

Economic

Environmental

Political

Cultural

STEEP+C

DESCRIPTION

STEEP+C is a tool used to assess the external factors that impact an organisation's or country's future.

PURPOSE

It helps categorise trends or issues into elements and therefore enables participants to share and engage more deeply in an issue. As a consequence, it helps prevent bias and makes users actively seek out other viewpoints.

HISTORY

The acronym STEEP refers to the first five categories listed on the right; however, we prefer Peter Bishop's version from his paper *Understanding paradox through strategic foresight* (2011), which adds Cultural as a sixth element.

WHY IT IS USEFUL

STEEP+C is one way that data trends or drivers can be grouped together for further analysis.

HOW TO USE

Categorise data, trends and/or drivers into useful groups for ongoing analysis and discussion.

MORE DETAIL

SOCIAL/PEOPLE
Social changes such as demographic change, or changes in people's behaviour and lifestyle.

TECHNOLOGICAL
Technological advance and integration such as innovations and product development trends.

ECONOMICAL
Economic environments such as overall economic growth, interest, income, market and competitor.

ECOLOGICAL
Ecological impacts of products and/or services, both physically and biologically.
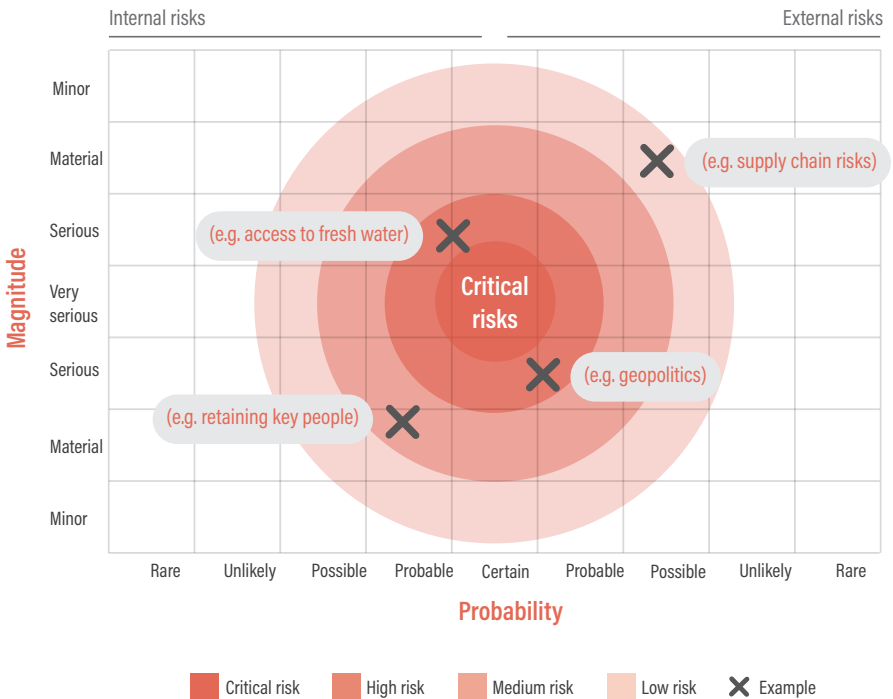
POLITICAL/GOVERNANCE
Political changes involving laws, regulations and policies such as development goals, incentives or policy burdens.

CULTURAL
Cultural contexts including language, beliefs, values and norms that allow us to live and work with others in the world.

MAPPING CRITICAL RISKS

Internal risks   External risks

Magnitude

- Minor
- Material — (e.g. supply chain risks)
- Serious — (e.g. access to fresh water)
- Very serious — **Critical risks**
- Serious — (e.g. geopolitics)
- Material — (e.g. retaining key people)
- Minor

Rare | Unlikely | Possible | Probable | Certain | Probable | Possible | Unlikely | Rare

Probability

■ Critical risk   ■ High risk   ■ Medium risk   ■ Low risk   ✖ Example

MAPPING CRITICAL RISKS

DESCRIPTION

Not all risks are created equal. This tool, *Mapping Critical Risks,* illustrates how risk can 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+ years)
- velocity (the speed at which risks could impact, e.g. very rapid, rapid or slow).

PURPOSE

Mapping Critical Risks creates a way to have a conversation about the types of risk an organisation or country faces, and how those risks might be prevented/addressed.

HISTORY

Risk management is thought to have evolved from the lessons of World War II.

WHY IT IS USEFUL

It enables decisions to be made or delayed based on quality information and a shared understanding of the issues.

HOW TO USE

Identify a list of risks the organisation or country faces. See, for example, New Zealand's National Risk Register.

Analyse each by probability and magnitude.

Then map. See example overleaf.

Lastly, discuss ways to move risks away from the centre.

MORE DETAIL

Managing risk is a key aspect of foresight. For example, anticipatory governance is a foresight tool that aims to increase foresight and decrease risk through the development of efficient methods to address events when they first emerge or prevent them altogether.

ANIMAL METAPHORS

1. IS THE TOPIC ACKNOWLEDGED?

YES

2. IS THE IMPACT UNDERSTOOD?

KNOWN KNOWNS

KNOWN UNKNOWNS

YES ← | → **NO**

UNKNOWN KNOWNS

UNKNOWN UNKNOWNS

NO
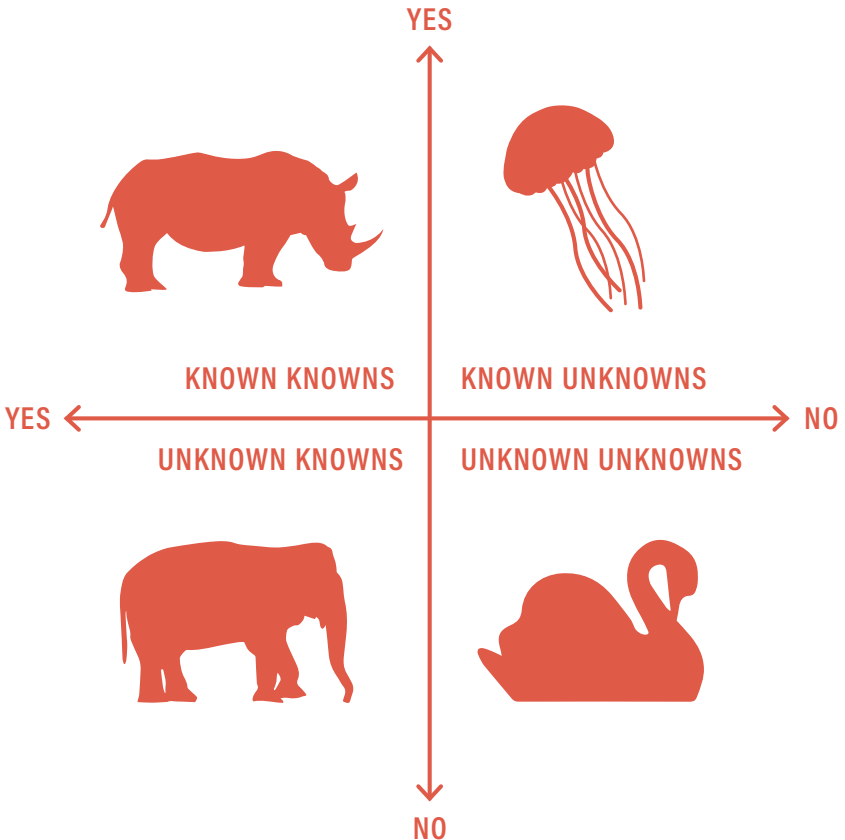
ANIMAL METAPHORS

DESCRIPTION

Futurists often use animal metaphors to describe the nature of an event/issue.

PURPOSE

The aim is to make us think about the difference between what we are aware of and what we understand.

HISTORY

The matrix of knowns and unknowns was popularised by US politician Donald Rumsfeld in 2002 and, subsequently, has been connected with animal metaphors.

WHY IT IS USEFUL

It enables practitioners to discuss issues and events quickly and playfully.

HOW TO USE

Categorise each risk.

MORE DETAIL

GRAY RHINO (KNOWN KNOWNS)
Things we acknowledge and understand but do not act on. Futurist Michele Wucker popularised the term in her book *The Gray Rhino: How to Recognize and Act on the*

Obvious Dangers We Ignore (2016) – while we disregard the warnings, the event continues to stampede towards us like a rhino.

BLACK JELLYFISH (KNOWN UNKNOWNS)
Things we acknowledge but which prove to be more complex and uncertain. The jellyfish illustrates that an event may start rather innocently, but over time prove to have not only a long tail, but one with a sting. It is inspired by jellyfish blooms.

BLACK ELEPHANT (UNKNOWN KNOWNS)
Things we do not acknowledge but do understand the impacts of. Poet Ivan Krylov may have coined the term in his fable 'The Inquisitive Man' (1814). 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 its tendency to charge, not just stand quietly waiting to be noticed. A similar metaphor is the lion in the grass, when risk is hiding in plain sight.
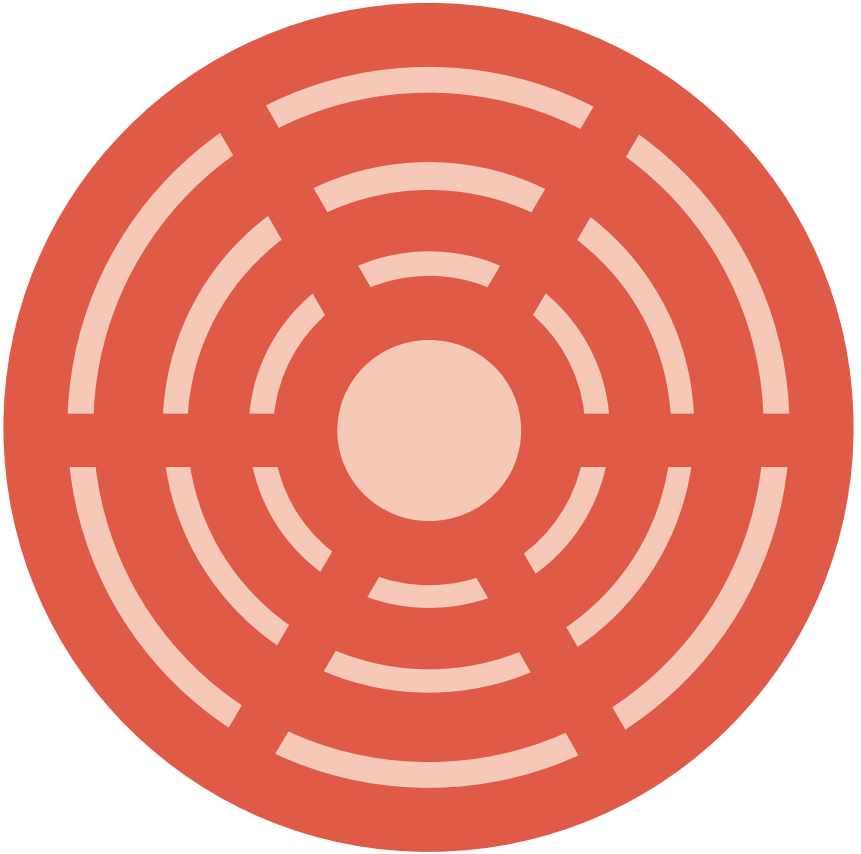
BLACK SWAN (UNKNOWN UNKNOWNS)
Things we neither acknowledge, nor understand. Futurist Nassim Nicholas Taleb popularised the term in his book *The Black Swan: The Impact of the Highly Improbable* (2007). The term came about because all swans were thought to be white, until black swans were discovered.

FUTURES WHEEL

FUTURES WHEEL

DESCRIPTION

The *Futures Wheel* is a quick and easy tool that can be applied to a wide range of issues.

PURPOSE

The aim is to identify possible causal ripple effects over time.

HISTORY

The *Futures Wheel* was invented by Jerome C. Glenn in 1971.

WHY IT IS USEFUL

It can help futurists develop an understanding of causality by mapping how a change in one area can create a ripple effect. It is extremely useful at identifying previously hidden unintended consequences of decisions.

HOW TO USE

Choose a problem, decision, event or trend and place at the centre of the wheel.

Then, ask what-if questions, moving outwards from the centre to at least third-layer impacts.

MORE DETAIL

The history of the *Futures Wheel* is explained in Jerome C. Glenn's paper 'Futures Wheel' (2021). The paper states:

'The Futures Wheel is most commonly used to:

- think through possible impacts of current trends or potential future events
- organize thoughts about future events or trends
- create forecasts within alternative scenarios
- show complex interrelationships
- display other futures research
- develop multi-concepts of the initial concept of the trend or event
- introduce futures thinking in a group context
- engage workshop participants into thinking together about the future
- nurture a futures-conscious perspective
- aid in group brainstorming
- help prevent being blindsided by surprises.'

FUTURES TRIANGLE

Pull of the Future

PLAUSIBLE FUTURE

Push of the Present
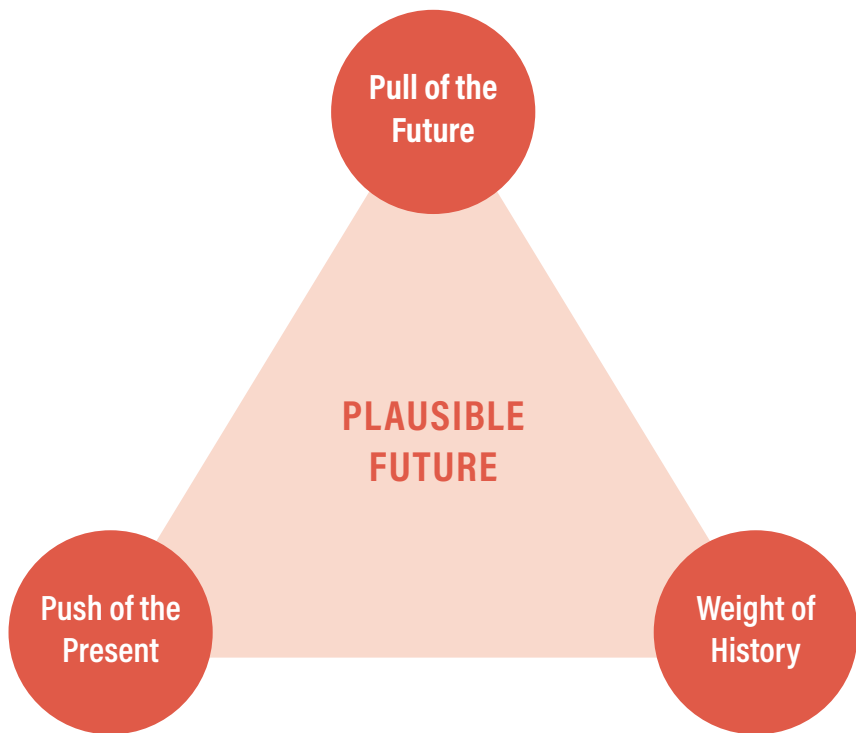
Weight of History

FUTURES TRIANGLE

DESCRIPTION

The *Futures Triangle* maps today's views of the future through three dimensions:

- *Pull of the future* refers to a visual representation of our desired future.
- *Weight of history* refers to the barriers and obstacles that currently exist.
- *Push of the present* refers to trends and drivers that are shaping the future (e.g. demographic shifts).

PURPOSE

By analysing the interaction of these three forces, the *Futures Triangle* shifts the conversation from possible futures to plausible futures.

HISTORY

The *Futures Triangle* is a tool developed by Sohail Inayatullah in his paper *Six pillars: Futures thinking for transforming* (2011).

WHY IT IS USEFUL

The *Futures Triangle* helps to kickstart the process of thinking beyond the now. While it is a simple tool, it can support deep discussions about possible futures.

Version 2: 4 December 2024

HOW TO USE

The tension and interaction between each of the three dimensions sets the context.

MORE DETAIL

Inayatullah identified six futures questions:

1. 'What do you think the future will be like? What is your prediction? More and more progress and wealth? … Why?
2. Which future are you afraid of? Random acts of violence? Do you think you can transform this future to a desired future? Why or why not?
3. What are the hidden assumptions of your predicted future? Are there some taken-for-granted assumptions (about gender, or nature or technology …)?
4. What are some alternatives to your predicted or feared future? If you change some of your assumptions, what alternatives emerge?
5. What is your preferred future? Which future do you wish to become reality for yourself or your organization?
6. And finally, how might you get there? What steps can you take to move in toward your preferred future? As it says in ancient Buddhist texts, much of the solution to the challenge of life is simply in being pointed in the right direction.'

PACE LAYERS

Fashion/art

Commerce

Infrastructure

Governance

Culture

Nature

PACE LAYERS

DESCRIPTION

The *Pace Layers* tool is made up of six layers of pace and size. Each layer is different and operates somewhat independently, but each layer influences and responds to the layers closest to it in a way that makes the whole system resilient. The layers are ordered by pace of change with the top layer being the fastest and the bottom the slowest.

PURPOSE

All civilizations suffer shocks; only the ones that absorb the shocks survive. The *Pace Layers* tool shows the importance of having components in a system that have different change-rates and different scales of size, and the relationship between these. Instead of crumbling under stress, these systems yield as if they were soft. Some parts respond quickly to the shock, allowing slower parts to ignore the shock and maintain their steady duties of system continuity.

HISTORY

Pace Layers is a tool developed by Stewart Brand in his book *The Clock of Long Now* (1999).

24 February 2024

WHY IT IS USEFUL

Relationships between layers are key to the health of the system. When rates of change are confused, the whole system can destabilise. In comparison, conflicts caused by layers moving at different speeds actually keep things balanced and resilient. This is known as 'constructive turbulence'.

HOW TO USE

Analyse the past, present and future with the *Pace Layers* tool in order to map the depth of change necessary to postively impact the slower layers of the system.

The value of a collaborative mapping exercise lies in sharing rationale and having a deeper conversation about why a trend or phenomenon could be plotted in a certain way, surfacing held assumptions about both the intensity and the nature of its impact in the world.

MORE DETAIL

In an adaptable and robust society, each layer must operate at its own pace (and respect the pace of the other layers), safely sustained by the slower layers below and kept invigorated by the livelier layers above.
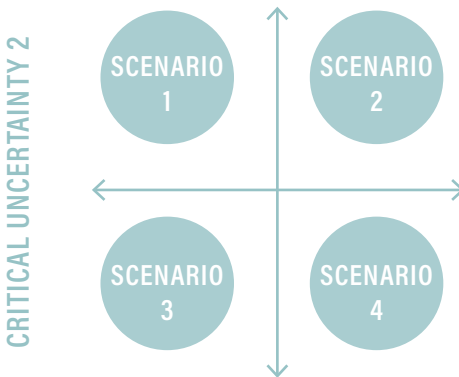
SCENARIOS BY THE NUMBERS

CRITICAL UNCERTAINTY 1

SCENARIO 1 ←—————→ SCENARIO 2

CRITICAL UNCERTAINTY 1

←— SCENARIO 1 — SCENARIO 2 — SCENARIO 3+ —→

CRITICAL UNCERTAINTY 1

CRITICAL UNCERTAINTY 2

SCENARIO 1   SCENARIO 2

SCENARIO 3   SCENARIO 4

SCENARIOS BY THE NUMBERS

DESCRIPTION

Scenarios explore complexity though the creation of unique narratives and images that illustrate one or more specific future worlds. Importantly, they are not predictions.

PURPOSE

Scenarios aim to stretch minds, confront assumptions and enable people to think differently about the future.

Unlike sensitivity analysis, scenario analysis is a foresight tool. Whereas sensitivity analysis measures how a change in one variable affects the outcome of another variable, scenario analysis considers the impacts of a number of variables at the same time (e.g. AI, aging population and geopolitical unrest). Sometimes one (or two) variables are selected to be the critical (or primary) uncertainty variable/s.

HISTORY

Scenarios have been in use for over 50 years. Early examples include Rand Corporation scenarios and Shell Scenarios. See *40 years of Shell Scenarios* (2013).

WHY IT IS USEFUL

Scenarios provide insights into how current and emerging drivers might evolve and create alternative trajectories, and suggest ways organisations or countries might forward engage with difficult issues.

It is extremely useful to identify a list of signals that might indicate movement towards (or away from) a possible future world.

HOW TO USE

Scenarios explore situations where there is more than one change happening at the same time. Futurists are interested in how combinations of events and their order/ sequence might shape the future.
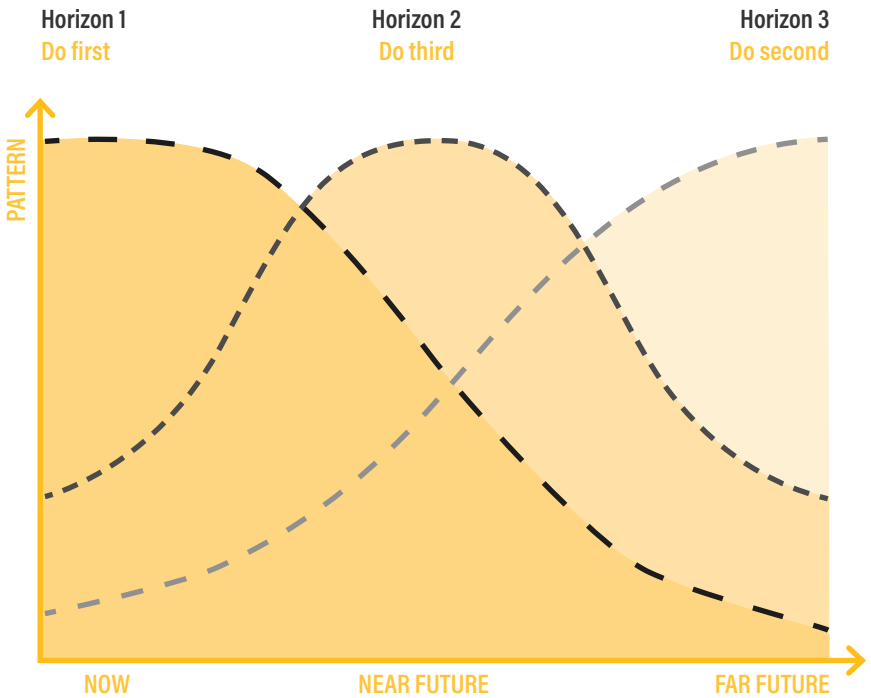
MORE DETAIL

Scenarios require a great deal of expertise beyond what can be described here.

What is very important is the need to be transparent about what type of critical uncertainty/ies and variables are being applied. It is also important to be aware of the potential for bias and hidden assumptions in the process, which might contaminate the final results.

THREE HORIZONS

Horizon 1
Do first

Horizon 2
Do third

Horizon 3
Do second

PATTERN

NOW   NEAR FUTURE   FAR FUTURE

THREE HORIZONS

DESCRIPTION

FIRST HORIZON
Current context and conditions; the focus is maintaining stability, and the mindset is that of the manager.

THIRD HORIZON
Transformative emerging changes, ideas about possible futures, and visions of preferred futures; the focus is on transformation and disruption, and the mindset is that of the visionary.

SECOND HORIZON
Actions taken in the present to resist change, to adapt to change, or to build on change; the focus is on creating and managing change, and the mindset is that of the entrepreneur.

PURPOSE

Three Horizons describes three patterns of activity and their interactions over time. It maps a shift from the established patterns of the first horizon to the emergence of new patterns in the third, via the transition activity of the second.

HISTORY

Three Horizons was developed by Bill Sharpe of International Futures Forum as part of work for the UK Foresight Program's Intelligent Infrastructures Project.

WHY IT IS USEFUL

This tool draws attention to the three horizons as existing always in the present moment, and shows that there is evidence about the future in how people are behaving now.

HOW TO USE

Use sticky notes to populate the framework with ideas from a group brainstorm, then discuss and move around as needed.
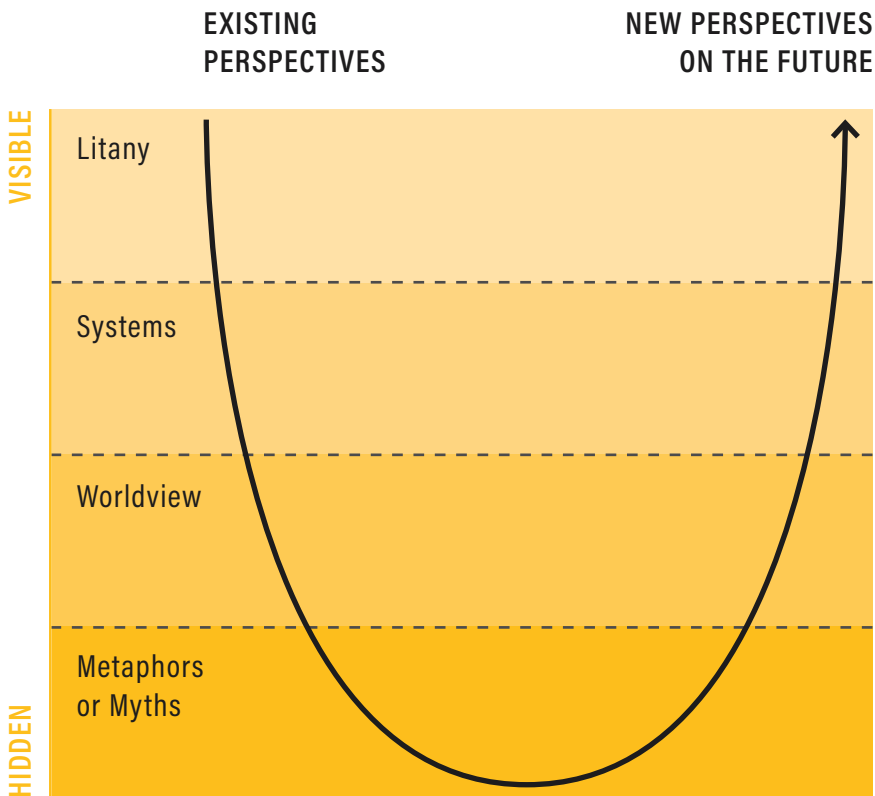
MORE DETAIL

The horizons are typically introduced and thought about in this order: H1 – H3 – H2. Without a third horizon it is impossible to make the distinction in H2 between 'sustaining innovation' and 'transformative innovation'. Three central practices that the framework encourages:

- see things as patterns
- put ourselves in the picture
- convene the future

CAUSAL LAYERED ANALYSIS

EXISTING
PERSPECTIVES

NEW PERSPECTIVES
ON THE FUTURE

VISIBLE

Litany

Systems

Worldview

Metaphors
or Myths

HIDDEN

CAUSAL LAYERED ANALYSIS

DESCRIPTION

Causal Layered Analysis is a tool used to analyse and explore the deeper layers of meaning and causality underlying a particular issue or topic.

PURPOSE

It explores four layers of analysis: the surface understanding of an issue (litany), the causes creating and sustaining the situation (systems), the different perspectives shaping it (worldview) and the underlying stories that might feed it (metaphors or myths).

HISTORY

Causal Layered Analysis is a tool developed by Sohail Inayatullah in his paper *Causal layered analysis: Poststructuralism as method* (1998).

WHY IT IS USEFUL

Analysing cultural, social and political dimensions unveils hidden assumptions and facilitates the development of alternative future scenarios. It enables examination of the issue from various angles.

HOW TO USE

Fill in the tool from top to bottom by answering questions related to each layer.

1. **LITANY**
   The official and generally accepted description of the topic or issue.
   Ask: What is currently happening?

2. **SYSTEMS**
   Social, economic and political structures, actors and policies underlying and maintaining an issue.
   Ask: Why is this happening?

3. **WORLDVIEW**
   Deeper cultural assumptions and perspectives that enable structures and justify behaviors.
   *Ask: What is true?*

4. **METAPHOR OR MYTH**
   The social narratives and imagery, acting at the level of collective consciousness, usually expressed through art, stories and symbols.
   Ask: What are the collective symbols?

MORE DETAIL

The challenge is to conduct research that moves up and down these layers of analysis. This tool is well known for the insights that can be gained from moving from metaphors to litany.

ARTEFACTS FROM THE FUTURE
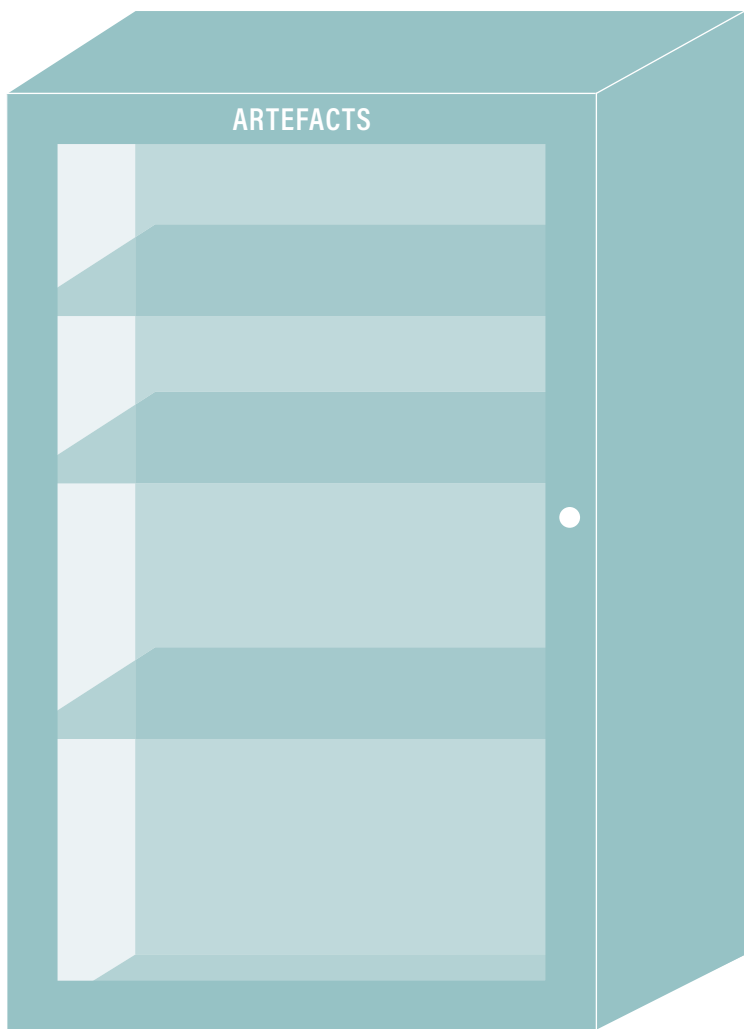
ARTEFACTS

ARTEFACTS FROM THE FUTURE

DESCRIPTION

Artefacts create short-cuts in our minds. When you handle, or even see an image of an artefact, it makes the world that the artefact is from – whether it's separated from us in time and/or space – seem more tangible and real.

PURPOSE

Futurists often use short-cuts to communicate, quickly and clearly, the characteristics of a possible future world without explaining the underlying evidence, assumptions, limitations, processes and expertise that went into creating that world. Scenario-naming a the classic example. However, artefacts add another dimension to a scenario.

HISTORY

Not known.

WHY IT IS USEFUL

Artefacts are often created or displayed to illustrate future worlds. They can take many physical and digital forms – food, household products, transport, music, entertainment series or official souvenirs (e.g. a souvenir of the celebrations in 2040). These familiar objects help increase our capacity to imagine and ideally make decisions about the future.

HOW TO USE

Create and share artefacts to communicate how the future might look and feel at a specific time. This enables participants to gain a tactile experience from the perspective of those living in the future. For example, artefacts from the year 2040 may enable a broad discussion on what is important today in order to lay the groundwork for success in the year 2040.

MORE DETAIL

Learn more about the role of artefacts as a foresight tool at the Institute for the Future (IFTF).