COPENHAGEN INSTITUTE FOR FUTURES STUDIES

# CIFS Toolkit *for* Applied Strategic Foresight

# Contents

# Introduction

Welcome to the Copenhagen Institute for Futures Studies' Foresight toolkit. This collection of tools and approaches has been carefully curated and refined based on our own extensive experience in the field of foresight, combined with insights drawn from other thinkers and practitioners.

While the toolkit will help you apply strategic foresight to your work, it will not teach you how to predict the future, or provide you with definitive answers. It can help you explore and analyse emerging change and possible futures as a powerful and valuable addition to your strategic thinking, but it cannot tell you when to act, or exactly what to do.

The toolkit is also not a beginner's step-by-step guide to each of the tools nor a theoretical overview. Rather, the toolkit offers practical insights, honed through many years of CIFS' applied foresight work. It gives an overall description of each tool/approach, along with key considerations that can help in successfully delivering the technique. The tools are adaptable, and can hence be customised to meet the needs of most futures projects.

Keep in mind, there is no one right way to do foresight and every futures project is different. Some are large in scale, involving extensive scenario planning, detailed research, and stakeholder workshops to identify and advise on future strategic challenges. Others are more informal and small-scale, perhaps requiring only a single workshop with an internal strategy team to explore what drives change in the future.

**"This collection of tools and approaches has been carefully curated and refined based on our own extensive experience in the field of foresight"**

# Vocabulary of the Future

Strategic foresight practitioners reference a variety of terms to describe the work that they do. We have collected a brief, non-exhaustive glossary of some of the most common terms used in the field of foresight.

**Strategic foresight:** A discipline that involves systematically anticipating and preparing for future challenges and opportunities in ways that expand conventional strategic thinking in the face of change. It typically deals with the medium to long-term future (beyond the current strategic planning horizon) with the overarching goal of enhancing awareness of change and considering alternative futures in ways that generate valuable insights for better strategic anticipation.

The aim of foresight is never to predict the future. Rather, in a time where forecasts, projections and linear decision-making methods are not enough, strategic foresight aims to achieve a high-quality view of how the future might show up in the form of new assumptions, behaviours, and realities. In this sense, the outset for practicing foresight should always be to challenge the tendency to favour the 'business as usual' future and to adequately explore viable alternatives.

Foresight is applied in many different contexts, but when applied in organisational contexts, it involves a unique set of considerations. In this case, foresight efforts should always be aligned with the specific organisational context and strategic objectives. Without foresight, strategy risks becoming blind to contextual change and a recipe for failure when change occurs. Conversely, without connection to strategic purpose, foresight easily becomes conjecture and disconnected from organisational reality.

**Forecasting:** The process of projecting future developments or conditions based on the extrapolation and analysis of past and present data and observations. It involves identifying trends, patterns, and relationships within the data to make informed projections. Forecasting typically assumes that an observed relationship will continue into the future and is often used for short-term futures. Forecasting is useful for addressing foreseeable challenges and opportunities.

**Megatrends:** Long-term and large-scale transformative forces that profoundly shape both the present and the future. For the most part, megatrends stay their course even in turbulent times. They shape the future landscape of societies, economies, industries, and cultures over extended periods. While they are global in scope, their impact varies locally. They are the closest we get to 'relative certainty' when talking about the future and give us points of orientation for the longer term.

In more operational terms, megatrends are aggregate trends, in the sense that they consist of many trends that point in the same general direction (while not being wholly parallel) and are amplified by drivers of change.

**Trends:** Observable and/or measurable directional shifts in a situation or in the way people behave. It can vary in strength, direction (increasing, decreasing, or stable), and impact.

Numerical trends are indicators or variables that can be measured and sup-

ported by data, while non-numerical trends are perceived developments that may only partially be supported by data, often understood through examples or observations.

Trends shaping the future are interconnected and interdependent, with different time horizons, scopes, and levels of impact. They often blend into each other, making them difficult to separate. There is no guarantee that a trend observed in the past will continue in the future, and often, countertrends emerge in response or opposition to the dominant trend.

**Drivers of change / Driving forces:** The forces causing change by shaping and amplifying trends, increasing or decreasing their potential impact. Drivers of change are dynamic and interconnected. They include aspects like shifts in attitudes and awareness, as well as economic and technological forces with influence pertaining to how something spreads and grows. In essence, drivers of change are fundamental forces that exert a force on something else, and consequently a trend can also act as a driver as it exerts influence in other areas. In practice, it is often impossible – and often not important – to distinguish between the two.

**Weak signals:** Subtle and often early indicators of emerging trends or disruptions that are not yet widely recognised or understood. Weak signals have the potential to significantly impact the future, but may also completely fade away before manifesting into a trend or a driving force.

These signals typically originate from the fringes of society, technology, economy, culture, or from other parts of the world, and may initially appear insignificant or disconnected from mainstream developments. In this sense, weak signals can be thought of as 'pockets of the future' already embedded in the present.

**Uncertainty / Uncertainties:** Uncertainty is a feature of complex systems and is fundamentally inherent when working with the future. Recognising inherent uncertainty highlights the potential for novelty, emergence, and discontinuity. Uncertainty can arise from having limited knowledge about the future, or from being faced with alternative ways that future developments can plausibly play out (i.e. we are genuinely uncertain about the future direction, strength, and/or outcomes of the future development).

Uncertainty is at the heart of all foresight work and a fundamental aspect of strategic foresight involves identifying and engaging with critical uncertainties. These are defined as high-impact factors with uncertain outcomes, related to the future organisational environment.

Uncertainty is different from risk. Risk refers to situations where the probabilities of different outcomes are known or can be estimated with some degree of confidence. Uncertainty involves situations where the probabilities of different outcomes are unknown, unknowable, or cannot be reliably estimated. Uncertainty reflects a lack of information or predictability about future events or developments and implies a higher level of ambiguity and complexity.

**Wild cards:** Events or developments with low (perceived) probability, but with high impact when they occur. Such events have the potential to significantly alter the future landscape in unpredictable ways by disrupting existing trends and projections, making them critical considerations for strategic foresight. Although wild cards cannot fully be anticipated or planned for, wild card analysis helps organisations to better adapt to surprises arising in turbulent organisational environments by identifying these events and assessing their potential implications.

**Scenarios:** Plausible and coherent narratives describing alternative futures, based on key trends and uncertainties, and expanded through storytelling to create compelling, coherent and convincing images of how the future may unfold. Scenarios can have a richness that quantitative methods can't capture, which also helps to stimulate creativity and encourage a break from mainly focusing on short-term issues. Scenarios are not predictions of the future.

They are not meant to be 'right' or 'wrong', 'good' or 'bad'. Rather, their function is to challenge current assumptions and provoke us to think about the future in new ways, including outcomes 'beyond the numbers' that might otherwise be overlooked.

The discipline of scenario planning offers a structured approach to describing a set of plausible future conditions that are different from the present. This allows organisations to consider alternative future outcomes representing novel perspectives and contexts – as well as discontinuities – that may be difficult to grasp in the present. Essentially, this can help organisations widen their strategic perspective and devise strategies or policies that are more resilient across different futures, and to articulate preferred visions of the future. Scenario planning always adopts an 'outside-in' approach, focusing on potential changes in an organisation's external environment. This, in turn, influences the organisation's strategic environment and consequently strategic decisions.

**Worldview:** How people see the world, with an emphasis on the unconscious assumptions and biases they do not call into question. Worldviews are shaped by the culture, experiences, norms, and mindsets we carry with us, and influence our habitual ways of thinking and perceiving our situations and reality. Engaging in, revealing our own, and holding space for other people's worldviews is an important part of foresight in that it helps people become mindful of the 'frame' they are using to make sense of the world and of the future, including what is left out of this 'frame'.

**Reperception:** The process of shifting perspective to think of the world and of the future in a new way, recognising that the future can be different from the past or from what one currently expects. One of the main goals of futurists and foresight practitioners is to facilitate reperception, for example, by utilising scenarios or other foresight tools. Reperception is a key element in developing systems and strategies that can respond to emergent futures in the face of uncertainty.

# What Tools to Use When?

Foresight tools are primarily designed to aid us in challenging assumptions and unawareness about what could be true in the future. It involves a deliberate effort to counteract biases in decision-making that make us believe the future will merely reflect what we are able to see in the past and present. As uncertainty grows and predetermined outcomes become less certain, relying solely on forecasts and trend analysis (and sometimes hype cycles) can provide a false sense of understanding.

Hence, we always need to remember that we generally use foresight tools and techniques to guide and advance our (collective) thinking around how the future might turn out in terms of new assumptions, behaviours, realities etc. We are not, as such, looking to arrive at answers/outcomes that we can underline as 'correct'.

Given the extensive number of tools available, how does one pick the right one to use? There is no single right or wrong answer, but here are some criteria that may help with selection:

**Objective:** Be absolutely clear about what you want your futures work to deliver. Different tools serve different purposes. Some tools are useful for creating a shared sense of the future or understanding what drives change in the present. Some are aimed at opening minds to novelty and different perspectives, while others are more action-oriented and aimed at developing or testing strategy.

Also consider the time and resources available. Some tools provide insights quickly and with little effort, while others are more demanding and require substantial effort. Some tools work very well in workshop settings, while others are geared towards organisations that are more mature in their foresight journey and have a need to embed continuous foresight activities and behaviours into organisational processes.

**Mix & match:** Combining foresight tools and methods is often necessary to provide us with the depth and insights we are seeking. Different stages of a foresight process require different tools, and some of these tools work better in unison than others. Some tools may yield an output that naturally flows as input into the next phase of a foresight process.

**Intended users:** Know the recipients of your work as well as the people involved in the process. Some are more open to divergent futures thinking, while others can be more constrained in their thinking and views at the initial stage. Knowing both your 'intended users' and the people involved in the process or project allows you to, for example, start with 'lighter' tools that are easier to grasp, and then progress onto more challenging ones.

**Striking the balance:** This is connected to the point of knowing your intended users. At a high level, part of your role as a foresight practitioner is finding the edge of your users' comfort zone and helping push them just past that. This implies that what is considered provocative for one group may not be for another, and vice versa.

Experience suggests that when people engage with foresight work they consider too extreme or implausible, they tend to become even more confident in their original view of the future. This can contribute to their distrust in foresight, as they might think that foresight is too up in the air. Conversely, if the foresight work is not challenging enough, it is easily disregarded as pointless, which again can contribute to distrust in foresight. For foresight work to be used efficiently, your users must be convinced of the soundness, relevance, and value of the process, regardless of its objective. Only then is there a chance that the foresight work will influence decisions and actions.

# Scoping a Foresight Project

Scoping a foresight project properly is key to ensuring impactful outcomes, and a lot of consideration must go into scoping a foresight project well. Foresight takes on many different forms, and your approach may look very different depending on the purpose of your foresight intervention and where the request and mandate comes from.

Scoping involves more than just deciding on 'foresight properties' like the focal issue, scope boundaries (making sure that the scope does not become too broad or too narrow), or time horizon. It is equally important to understand why you are undertaking the foresight project, within what system or context the project exists, and which decisions you are hoping to influence. This is critical in avoiding a mismatch between what the people/team who asked for the project want vs. what they need. It is also a crucial part of managing expectations of what can feasibly be accomplished with the foresight intervention. Oftentimes, foresight interventions are expected to achieve things they cannot or should not do, setting them up to underwhelm – or outright fail. Being realistic about these answers is key, especially when the project sponsor may not have the experience needed to properly set expectations.

Part of the scoping process is also to make sure that you are engaging the right people as a critical factor for the success of any project. This helps ensure that there is a mandate and buy-in from the right people and decision makers, and hence, that you have their permission to challenge the status quo. Who you speak to and who you choose to bring with you on the journey will affect the insights and impact of your project.

### The Scoping Circle

School of International Futures and California 100 have developed a powerful yet simple approach to scoping a foresight project which they call the Scoping Circle (see figure 1). It is a set of six steps that can be used to get a clear understanding of your question, purpose, context and approach.

You start with the question that you have the clearest answer to and work your way around the circle as many times as is useful. Using it iteratively helps you refine your thinking, and you should always consider including different perspectives in the scoping exercise, such as the people/team who asked for the project, project beneficiaries, and other relevant individuals or groups. This helps to ensure that the project stakeholders agree on the scope and boundaries of the project.

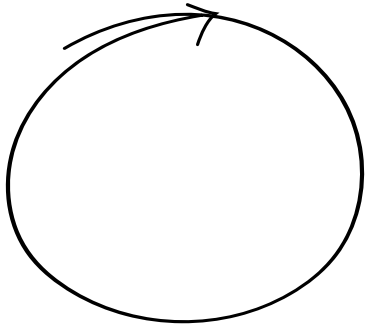
**Source:** California 100 & School of International Futures (2023), "Beyond Strategic Planning: A Foresight Toolkit for Decision Makers.

# *Figure 1:* THE SCOPING CIRCLE

**DEFINE THE FOCAL QUESTION**
What question do you want the project to answer? What is the core issue of interest? Where will you draw the project boundaries? What is the challenge that needs a response?

**UNDERSTAND THE CONTEXT**
What system does this project exist in? What is the project seeking to achieve? What needs to be considered to ensure impact?

**MANAGE STAKEHOLDERS FACING CHANGE**
Who is the project for? What needs will it satisfy? Which decision should the foresight work influence? Who might be upset or resistant to change? How are they included?



**DESIGN THE APPROACH**
What approach/tools best support the purpose and needs of the project? What could go wrong? What should be avoided? What does the foresight work help you do?

**MAKE THE CASE**
How will evidence come together to make the case for change? What is important to see for different audiences/users? How can you make the most of the foresight work produced?

**DESIGN THE SENSING**
What kind of future insights will work in this context? Where will you look for future insights and signals of change? Who will you talk to? Who will you collaborate with?

**Source:** California 100 & School of International Futures (2023), "Beyond Strategic Planning: A Foresight Toolkit for Decision Makers".

# AWARENESS OF CHANGE

Researching and exploring the future

**Horizon & Environmental Scanning**
**Driver Mapping**
**Futures Triangle**
**Delphi Method**

# Horizon & Environmental Scanning

Most foresight work begins with scanning the environment for evident driving forces and emerging patterns of change. There are different scanning practices that are often referred to interchangeably.

**Horizon scanning** focuses on the structured gathering of early signals and emerging developments (as well as discontinuities) that may have significant impact when they develop, but that are not yet widely recognised or understood. These emerging developments typically originate from the margins of current thinking, the fringes of society, technology, economy, or culture. They may initially appear insignificant or disconnected from mainstream developments and trends, and they can be hardly perceptible, unstructured, unplanned, and unintended. One of the main objectives of horizon scanning is to broaden the perspective beyond what is currently on one's radar. Hence, incomplete information and uncertainty about a signal's future development trajectory is inherent to this exercise. Certain signals and emerging developments may develop into strong drivers in the future, and they may come with a new set of strategic issues (not yet understood) – others may not.

**Environmental scanning** focuses more specifically on identifying influential driving forces and trends that exist in the external environment and that have the potential to change the future. This helps us understand what is already visible and what is (somewhat) evidently driving change, by analysing data on trends or information that already exist.

One of the underlying principles of foresight work is that change happens 'outside-in', which in turn influence the envisioned strategic setting. Overall, an organisation's external environment can be considered in two 'layers' (see figure 2). The *contextual environment* describes factors at the macro level that shape longer term developments, and that an organisation has little or no influence over. The *operating environment* includes industry-related developments that are closer to the organisation, including developments in adjacent industries. The contextual environment affects the operating environment, and many of the drivers that will shape development in the longer term will emerge from outside an organisation's operating environment.

"One of the main objectives of horizon scanning is to broaden the perspective beyond what is currently on one's radar"

**Source:** European Environment Agency (2023), "Horizon Scanning – Tips and Trick: A Practical Guide"; UN Global Pulse (2022), "Horizon Scan User Manual".

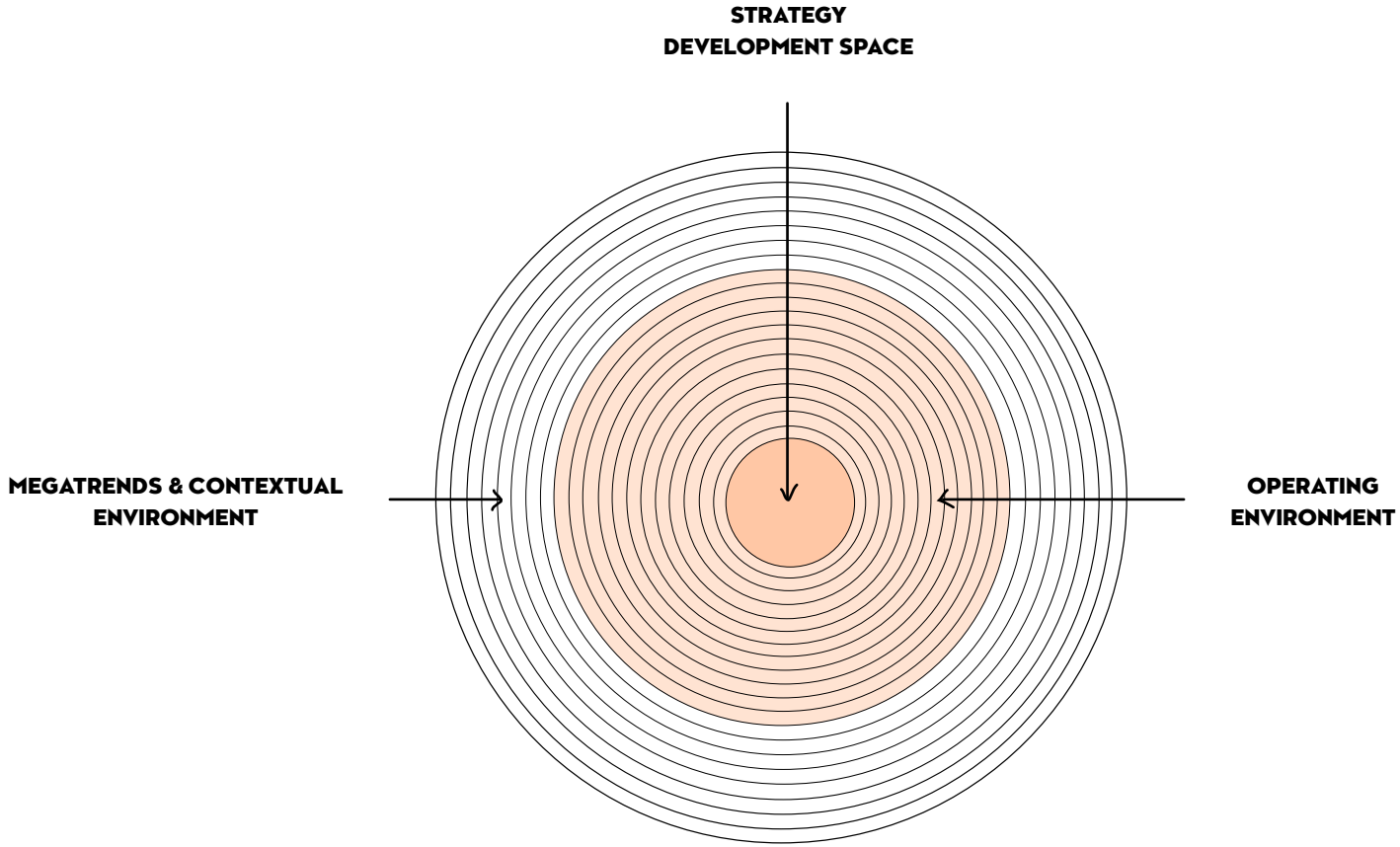
## Use Scanning to

- Broaden your perspective beyond what is currently on your radar and detect potentially impactful 'weak signals' that might otherwise be overlooked, allowing for early recognition of emerging opportunities and threats.
- Monitor developments as part of early warning systems or risk management, helping organisations respond proactively to changes.
- Look beyond the most obvious trends and drivers and explore future outcomes beyond the existing context.

## Key things to consider

- In our information-saturated world, there are almost unlimited sources of signals, insights, sentiments, and ideas available, so it is key to be intentional about the specific scanning exercise. Decide on a clear purpose and understand your scanning needs. Different modes of scanning require different tactics and potentially software tools. Scanning processes can vary from small-scale project-specific setups that are more 'handheld' and maybe even manual, to extensive and continuous organisational level setups that are powered by complex digital platforms.
- The future 'intelligence' you are scanning for can be both qualitative and episodical as well as quantitative and supported by data. In scanning setups with the purpose of continuous monitoring, leading indicators or data sources that provide an early warning of changing conditions are identified. However, this is not required in many cases.
- You need a clear taxonomy, and clearly defined elements that are used for processing each of the scans, which also helps you make sense of your findings later (see figure 3). Scanning output can take many forms, from one-pagers with overall considerations and key indicators to extensive horizon scanning reports. Often, depending on purpose, endorsing simplicity in your scanning exercise provides the most useful outputs.
- Encourage divergent thinking and look to include signals that might feel uncertain or weird in the beginning. Throughout the process, the less relevant signals can be filtered out. Scanning is not the same as searching, as you are not on a mission to look for what you know or want, but rather to look for novelty. Think outside the box and investigate a broad range of sources.
- Conduct touchpoints or sessions to review, discuss, and refine scanning outcome. This allows the team to explore interactions between a wide range of trends and signals and to assess their impact.

# *Figure 2:* THE EXTERNAL ENVIRONMENT



# *Figure 3:* USEFUL ELEMENTS IN A SCAN

| ELEMENT | DESCRIPTION |
|---|---|
| **Title of scan** | Give your scan a title that captures the essence of the signal |
| **Description** | The scan in a nutshell: What is the signal about? What do you see?<br>Why is it important and for who? How and where is the signal emerging? |
| **Awareness** | Is the observation already on the radar of the organisation?<br>Does this change something you already know? Is this something new to you? |
| **Strength/Imminence** | Assess how strong the signal is (e.g. use a 1-5 scale) |
| **Impact** | Assess the potential impact the development could have (e.g. use a 1-5 scale) |
| **Implications** | Speculate on the possible implications of the signal |
| **Opposing** | Consider opposing development that potentially refute the impact |
| **Horizons** | Consider implication pathways and the way a signal might develop in the near and far future |
| **References** | Name the source and the publication or interview details |

# Driver Mapping

**"Driver mapping is essentially about making sense of gathered insights, such as from a scanning exercise, and identifying leading drivers based on their nature or typology"**

Driver mapping helps to identify the most influential drivers of change in a system or in relation to a specific domain or focal topic. A driver of change is an underlying force that generates or shapes a trend or development (see definition on page 6). Drivers include things like shifts in attitudes and behaviour, as well as economic and technological forces with influence pertaining to how something spreads and grows.

Driver mapping is essentially about making sense of gathered insights, such as from a scanning exercise, and identifying leading drivers based on their nature or typology. There are different ways to do this. One of the most common techniques is the PESTEL framework (or other acronym variants) where drivers are mapped across six different macro dimensions (see figure 4). Alternatively, the Verge framework, developed by Richard Lum and Michele Bowman, takes an ethnographic view on the effects of change by points of impact on people (see figure 5).

**Source:** UK Government Office for Science (2024), "The Futures Toolkit"; Lum, R. (2014), "Verge: a General Practice Framework for Futures Work".

## Use Driver Mapping to

- Organise and understand key drivers of change and provide a more detailed picture of future developments facing an organisation.
- Produce a set of critical or important drivers as key input into further futures work and for the creation of futures scenarios.
- Contextualise activities such as situation analysis, strategy reviews, new initiatives, or resource mobilisation.

## Key things to consider

- Driver mapping does not have to follow a predefined framework like PESTEL or Verge. Sometimes it may be desirable to cluster drivers by your own alternative themes that emerge from your brainstorm or research that are more suitable for your specific purpose.
- A driver should be 'neutral' and allow for different outcomes. In that sense, a driver should not be framed as in a positive or negative form. For example: 'job loss from automation' is not neutral, but 'impact of automation on jobs' is a suitable driver.
- Look for possibilities to eliminate duplicates and merge drivers that are too similar. Ensure that the drivers are not too numerous or too few. Too many drivers risk longer analysis and treating less influential drivers as influential. Conversely, too few drivers may limit the important dimensions of the analysis and can lead to a simplistic analysis with the omission of critical drivers.
- At this stage, it can sometimes be desirable to identify the most important drivers by mapping them according to their impact on the domain/topic of interest and the uncertainty of the future direction or outcome of the driver. This helps prioritise the most important drivers. This approach is described in more detail as part of the 'Uncertainties Assessment' tool.

# *Figure 4:* PESTEL FRAMEWORK

| | |
|---|---|
| **Political** | Political factors, such as interventions in societies and economies, (geo)political tensions, development goals, etc. |
| **Economic** | Economic factors, such as overall economic growth, markets, inflation, etc. |
| **Social** | Social factors, such as demographic change, change of people's behavior, values and lifestyles, etc. |
| **Technological** | Technological advancements and its influence on society, businesses, new innovations, etc. |
| **Environmental** | Environmental/Ecological aspects, such as the effects of climate change, loss of biodiversity, new energy sources, etc. |
| **Legal** | Legal/Regulatory factors, such as data protection, discremination laws, global regulatory issues, etc. |

# *Figure 5:* VERGE FRAMEWORK

| | |
|---|---|
| **Define** | Concepts, ideas and paradigms we use to define ourselves and the world around us (worldviews, social values, attitudes, etc.) |
| **Relate** | Structures, relationships and ways of interaction which organise people and organisations (social structures, governance structures, business models, etc.) |
| **Connect** | Technologies and practices used to connect people, places, and things (digital technologies, media, music, language, etc.) |
| **Create** | Processes and technologies through which we innovate, design and produce (manufacturing, engineering, life sciences, rule-making, etc.) |
| **Consume** | Ways in which we acquire and consume the goods and services we create (modes of exchange, consumer preferences, marketing, etc.) |
| **Destroy** | Ways in which we destroy value and the reasons for doing so (waste, attempts to undermine rules and norms, repression, harmful reproduction of old systems, etc.) |

**Source:** Lum, R. (2014), "Verge: a General Practice Framework for Futures Work".

# Futures Triangle

The Futures Triangle, developed by Sohail Inayatullah, serves as an intuitive tool to guide our thinking and help us map the dynamics at play when change occurs across the three dimensions that shape future outcomes: The *push of the present,* the *pull from the future,* and the *weight of history*. The tension and interaction between these three forces highlights that the way future change occurs depends on the outcome of the 'friction field' created between different forces. This helps us recognise that change is often not straightforward, and always multifaceted, as it is shaped by interacting forces. The three dimensions in the Futures Triangle can be described this way:

**Push of the present** represents what is currently and evidently influencing future change in the external environment: *Which trends and driving forces are creating change and carving out the trajectories ahead?*

**Pull from the future** represents the novel developments and images of the future that may show up in the form of new assumptions and realities: *Which matters at the margin of current thinking do not seem to fit into existing patterns? What visions and images are pulling us towards particular futures?*

**Weight of history** represents the constraints and legacies of the past that shape the current situation and influence future possibilities – both in negative and positive terms: *What are the deeply rooted structures that resist change? What are the dominant narratives that hinder progress? What are the sources of stability and values that are desirable to preserve and sustain?*

**"The Futures Triangle helps us recognise that change is often not straightforward, and always multifaceted, as it is shaped by interacting forces"**

**Source:** Inayatullah, S. (2008), "Six Pillars: Futures Thinking for Transformation".

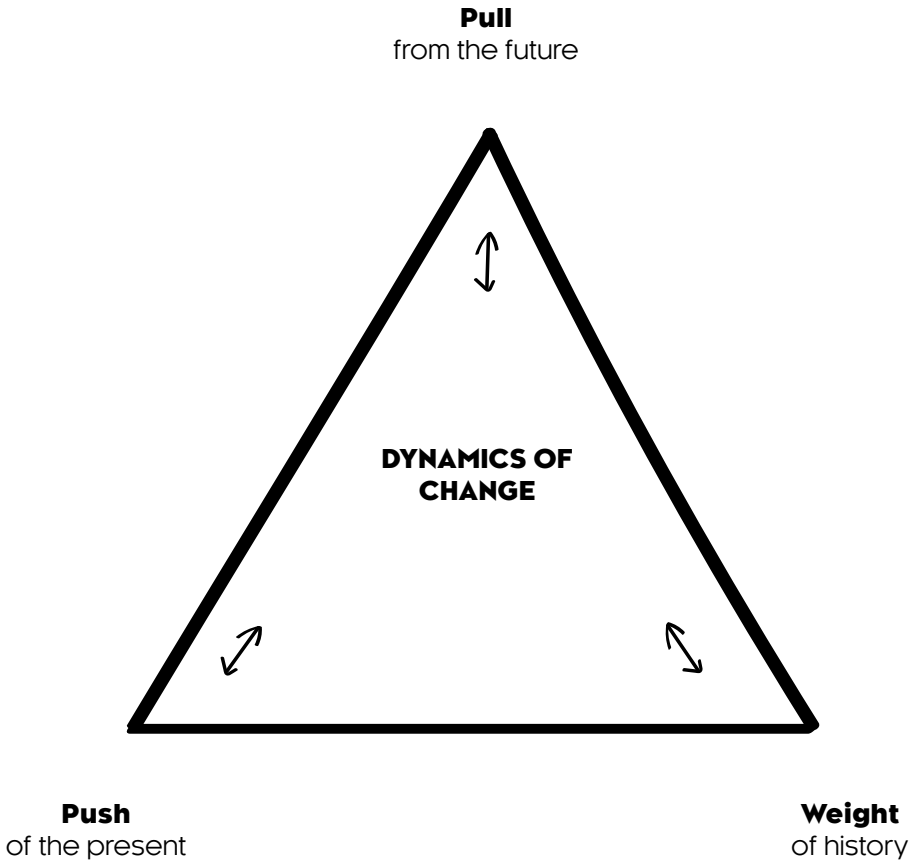
## Use Futures Triangle to

- Understand dynamics of change as a reflection of the tension and interaction of different forces and visualise the complexity inherent in how change occurs.
- Inquire into how history has shaped our current system and continues to influence future possibilities in relation to our sense of who we are, how we behave or act, and other factors.
- Facilitate a process of thinking beyond the now and to explore novel developments and signals of change that are not always obvious in the present.

## Key things to consider

- The Futures Triangle is a simple tool that can be deployed anywhere, with minimal resources required. It is particularly useful in a collaborative setting where people can bring diverse perspectives to the table and build on each other's thinking.
- Be mindful that this is an explorative tool to help guide thinking and reveal how different dynamics work together to impact how future may unfold.
- The primary focus of the exercise should not be to categorise and place things correctly along the three dimensions. It is the process of exploring the different dimensions of change that is most important.
- After you have explored the three corners of the triangle, have a discussion about the tensions and interactions that you encounter between the three forces. This should give you a deeper understanding of the complex dynamics of change that emerge within the triangle. Consider looking for paradoxes and friction points as well as factors that enable each other. It is a healthy sign if your triangle reveals paradoxes and aspects that are counterintuitive and point in 'opposite' directions.
- Exploring dynamics of change by using the Futures Triangle is relatively straightforward. It relies on insight, but also on intuition and divergent thinking, especially when it comes to the pull from the future. This can feel counterintuitive to those who are more practiced in evidence based strategic thinking.

# *Figure 6:* THE FUTURES TRIANGLE




**Source:** Inayatullah, S. (2008), "Six Pillars: Futures Thinking for Transformation".

# Delphi Method

A Delphi study is a collaborative foresight method designed to elicit consensus building among a panel of experts on a series of future hypotheses and propositions. The method is based on the principle that the collective foresight from a carefully selected group of experts – the Delphi panellists – provide superior insights and orientation around potential future developments compared to individual judgements and forecasts. This is especially true when dealing with complex areas with a high degree of uncertainty and incomplete knowledge.

While Delphi study applications are diverse, at its core, the Delphi method is a controlled debate carried out over two or more iterative learning rounds. The first Delphi round establishes the group's initial views. In the second and subsequent rounds, feedback from the previous round, including current overall panel consensus measures and anonymised answers, is provided to all participants. This allows them to learn from the views of others and further develop their own opinions and reasoning based on their co-participants' input. A Delphi panel will usually move towards some level of consensus over several rounds. But even when this does not occur, the reasons for disparate positions and any high level of uncertainty becomes clear. The anonymity of a Delphi study is a key characteristic. Participants can know who else is involved, but not what they have said. This helps avoid groupthink and ensures that the process is not influenced by biased group dynamics stemming from the seniority or prominence of certain members.

A less resource intensive variant is the real-time Delphi method, which does not require multiple rounds. Instead, it leverages a digital platform to facilitate continuous, asynchronous interaction in the panel. This approach allows participants to monitor the panel's overall opinion and shifting consensus, and view comments and arguments made by other participants in real-time.

**"A Delphi study is a collaborative foresight method designed to elicit consensus building among a panel of experts on a series of future hypotheses and propositions"**

**Source:** Gordon, T.J. (2009), "The Delphi Method". Part of Futures Research Methodology V3.0 by The Millennium Project.

## Use the Delphi Method to

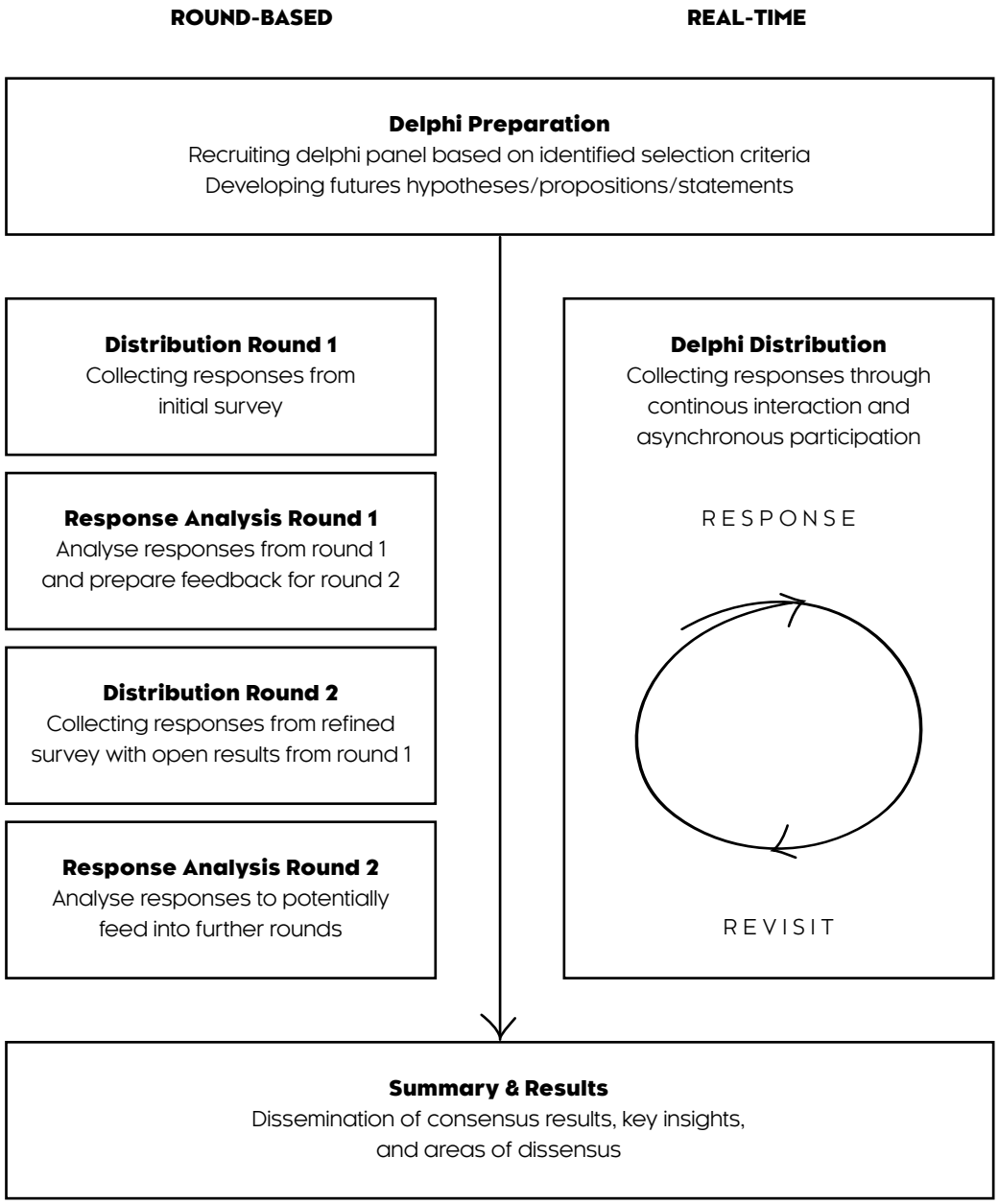
- Leverage the collective intelligence from a diverse group of experts.
- Provide overall orientation on complex future issues surrounded by a high degree of uncertainty.
- Support informed decision-making by providing evidence-based insights and a deeper understanding of key future issues.

## Key things to consider

- Delphi studies are difficult to do well, and a poorly designed Delphi can provoke antagonism and leave you with poor quality insights. Therefore, a great deal of attention must be given to the choice of panellists. The experts involved need to be selected based on their knowledge and experience so that they can contribute with valuable insights, while also representing diversity of perspectives. It is crucial to bring in different areas of expertise related to the same focal issue to enrich the discussion and enhance the quality of the findings.
- The future hypotheses/propositions and their answer scales included in the Delphi must be meticulously prepared and tested to avoid ambiguity. The results and the ability to facilitate consensus in the panel depend on the clear interpretation of these hypotheses. If the hypotheses are ambiguous, consensus may not be reached, and the results may not be very useful as participants will respond based on their own interpretations.
- Delphi studies always tackle issues formulated in hypotheses/propositions/statements about which uncertain and incomplete knowledge exists, and unlike traditional questionnaires, they do not rely on direct questions. The panellists should be prompted with the importance of providing elaborate argumentation for their choices and assessments, for the other panellists to consider in subsequent rounds.
- Normally, the number of participants in a Delphi is relatively small. Consequently, a Delphi study does not (and is not intended to) produce statistically significant results across a representative sample. It represents the synthesis of opinion of the group of panellists – no more, no less.
- The Delphi method is relatively complex to execute. It is a time-consuming and resource intensive process and may therefore not be appropriate for projects with a short timeline or limited resources.

# *Figure 7:*

## DELPHI METHOD OVERVIEW




**Source:** CIFS based on: Gordon, T.J. (2009), "The Delphi Method".

# DYNAMICS OF CHANGE

Understanding uncertainty and dynamics of change

**Uncertainties Assessment**
**Enablers & Blockers**
**Futures Wheel**
**Pace Layers**
**Cross-Impact Analysis**

# Uncertainties Assessment

A fundamental aspect of strategic foresight is identifying and engaging with critical uncertainties for the purpose of longer-term strategic planning. Critical uncertainties are high-impact drivers with uncertain outcomes that can significantly influence the future. To identify these uncertainties, the Impact/Uncertainty matrix (see figure 8) can be used to assess drivers based on their impact and degree of uncertainty in relation to the focal issue. Identifying critical uncertainties often serves as the starting point for defining axes of uncertainty, which are then used in scenario building to explore different possible futures.

Uncertainties are different from trends in that they involve a lack of predictability regarding the future direction, strength, and/or outcomes of a particular driver. Uncertainty, in this context, refers to the unpredictability of how things might manifest in the future. Hence, we should be able to identify two 'extreme' but plausible directions of development or outcomes – polarities – by describing alternative ways that a driver might bring change. Uncertainties are then deemed critical when they are also assessed to have high strategic impact.

The different quadrants in the Impact/Uncertainty matrix can be described this way:

**High-impact/low-uncertainty drivers (top left quadrant):** These are the high-impact drivers with relative certainty. In the context of strategic planning, these are factors that should be monitored closely and preferably acted on in current strategic planning.

**High-impact/high-uncertainty drivers (top right quadrant):** These are the critical uncertainties which are potential shapers of different futures for which longer-term planning should seek to anticipate and prepare.

**Low-impact drivers (bottom quadrants):** These are secondary drivers that, for the time being, can be disregarded for the purpose of strategic foresight. However, they should still be monitored as they may develop into higher impact drivers over time.

"A fundamental aspect of strategic foresight is identifying and engaging with critical uncertainties for the purpose of longer-term strategic planning"

**Source:** Schwartz, P. (1991), "The Art of the Long View. Planning for the Future in an Uncertain World"; UK Government Office for Science (2024), "The Futures Toolkit".

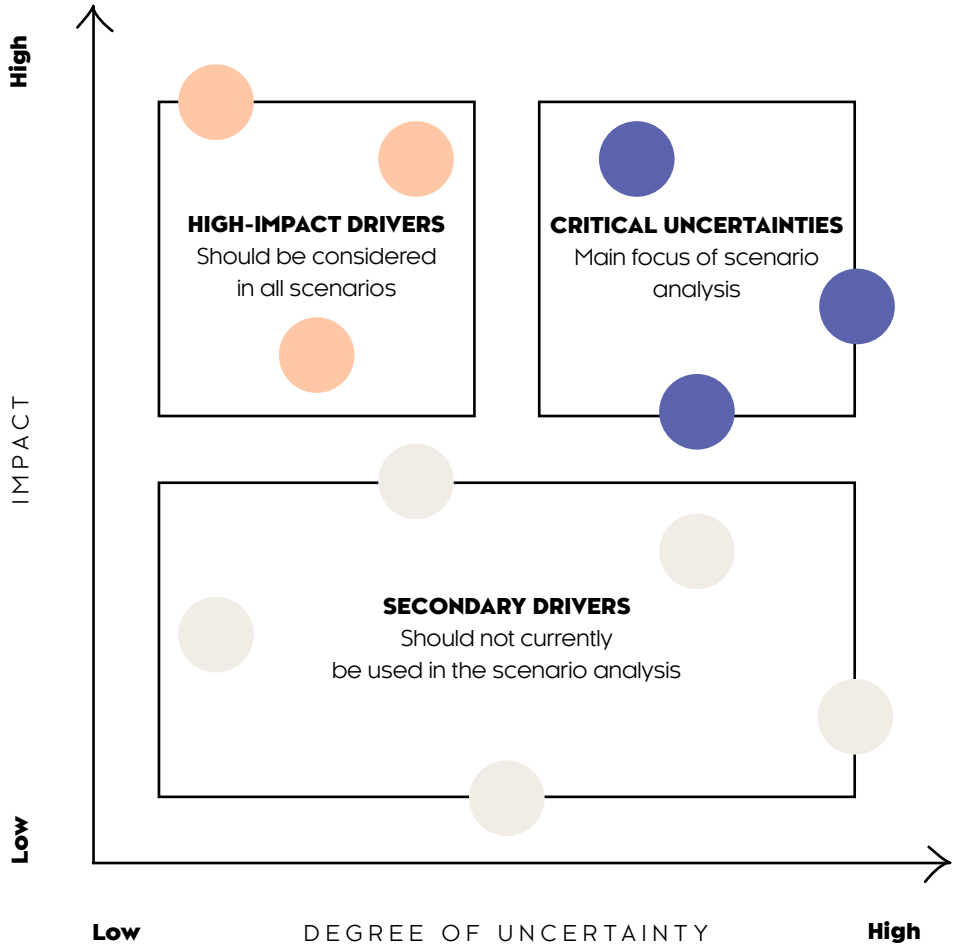
## Use Uncertainties Assessment to

- Evaluate which drivers are surrounded by more or less certainty and identify strategically important critical uncertainties.
- Help question the assumptions we have about the direction of the future and to guide decision-making under uncertainty.
- As a required prerequisite for the development of a scenario matrix for scenario building.

## Key things to consider

- A driver is assessed to have **high impact** (on the 'impact'-axis) when it possesses the ability to fundamentally alter the business environment or the focal issue. This axis is often used in relative terms to help prioritise the drivers with the most significant potential to drive fundamental change.
- Be especially aware of how the 'degree of uncertainty' is defined in this context. A driver is assessed to have a **low degree of uncertainty** when you find reasonable certainty around its future direction of development. On the other hand, a driver is assessed to have a **high degree of uncertainty** when you are very uncertain about the future direction in which it will bring change. In other words, a driver is deemed uncertain when we are faced with alternative ways as to how it might bring change in the future.
- Be aware of how our biases affect the assessment of uncertainties. You should always refrain from claiming that something is not uncertain (low degree of uncertainty) just because one of the outcomes is less desirable for you or your organisation.
- It is not easy to identify genuine critical uncertainties. Hence, for the critical uncertainties (top right quadrant) you always need to have a discussion to crystalise what exactly it is you are uncertain about in relation to the specific driver. There is likely more than one uncertain factor related to a critical uncertainty. This depends on the level of granularity of which an uncertainty is described. Also, check for the possibility to group any related critical uncertainties, to make sure that you don't have different versions of the same uncertainty.
- The Impact/Uncertainty matrix can be utilised in two different ways. Sometimes you have a consolidated list of drivers that you want to map according to their impact and uncertainty to identify the critical uncertainties before you describe alternative ways that a driver might bring change (i.e. define polarities). At other times you may want to use the matrix as a prioritisation mechanism of already defined uncertainties with polarities.

# *Figure 8:* IMPACT/UNCERTAINTY MATRIX




**Source:** CIFS based on: Schwartz, P. (1991), "The Art of the Long View. Planning for the Future in an Uncertain World".

# Enablers & Blockers

**"The way future change occurs depends on the outcome of the power struggle between enabling and limiting forces"**

The way future change occurs depends on the outcome of the power struggle between enabling and limiting forces. Forecasting methods typically derive trends from past data and extrapolate these trends forward without much consideration of the forces that nurture the trend and may eventually alter it. By utilising the Enablers & Blockers framework, we can get a better understanding of the dynamics of change of a given trend development (see figure 9). This understanding is gained by identifying underlying dynamics in favouring forces (enablers) that create, sustain and catalyse a trend, and limiting forces (blockers) that stand in the way of a trend and slow it down, possibly even diverting it.

In essence, this provides a framework for analysing factors that will influence and define how a specific development plays out. Understanding a trend or development as a reflection of underlying enabling and blocking forces reveal why trend trajectories are capable of sudden surprises and reversals. When thinking about future change, we always have to keep in mind that while a lot of things might change significantly, many things might also stay the same.

**Source:** Gordon, A. (2010), "A DEFT Approach to Trend-based Foresight".

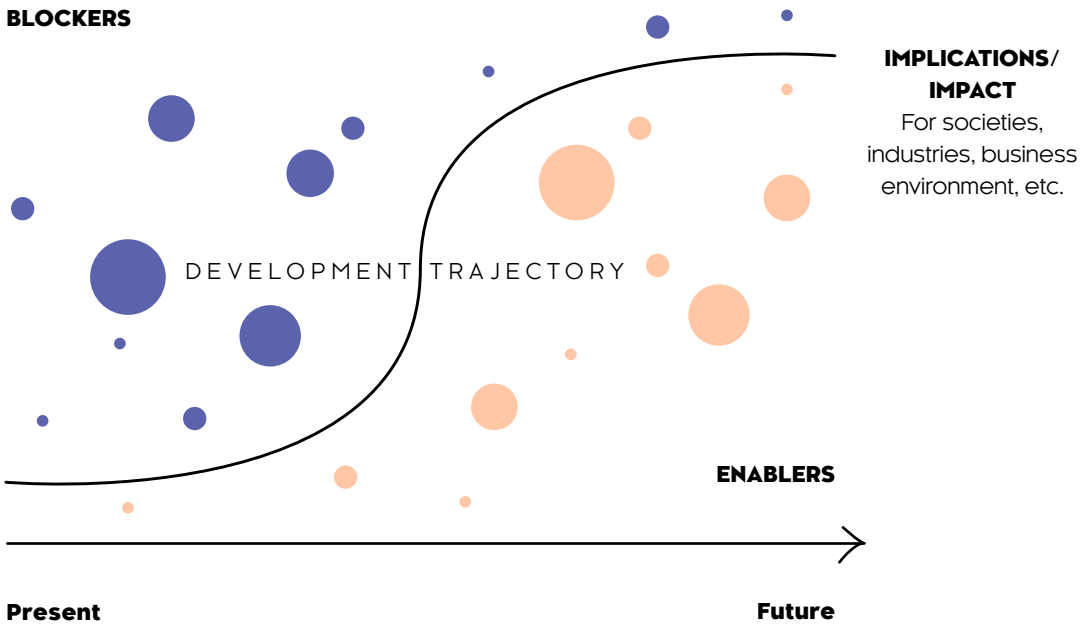
## Use Enablers & Blockers to

- Understand a trend as a reflection of underlying enabling and blocking forces.
- Acknowledge the complexity inherent in how change occurs.
- Better anticipate potential inflection points of trend development trajectories.

## Key things to consider

- Start by assessing how a given trend is currently impacting your area of interest (industry, sector etc.). This is followed by a brainstorming of factors that promote or catalyse the trend (enablers) and the factors that stop, limit, or divert the trend (blockers).
- Try to construct your own trend development trajectory that reflects the power struggle between the identified enablers and blockers. Where/when enablers are strong and blockers are weak, we can expect the pace of change to be rapid. Where blockers are strong, we should expect them to deflect or slow the trend. Finally, discuss the future impact and implications that derives from the development.
- Be aware that sociocultural factors are often a key source of trend blocking. If the trend or development challenge prevailing social, cultural, or ethical norms, it is likely that change will only proceed slowly, if at all.
- Equally important to identifying enablers and blockers is to identify potential trend breaks (a moment that can signal the end of an existing trend and the start of a new one) and inflections points (a moment where the rate of change shifts significantly, often marking a transition in the growth or decline phase of a trend). This can have wide-ranging implications for current strategic plans and priorities. Very often it is about timing.

# *Figure 9:* ENABLERS & BLOCKERS CANVAS




**Source:** CIFS based on: Gordon, A. (2010), "A DEFT Approach to Trend-based Foresight".

# Futures Wheel

**"It provides an intuitive framework for analysing first-, second-, and higher-order impacts of change"**

The Futures Wheel, developed by Jerome Glenn, is a tool used to explore and map out the potential direct and indirect ripple consequences of a significant change, development, or future scenario. It provides an intuitive framework for analysing the first-, second-, and higher-order impacts of change, offering a visual representation of complex interconnections and dynamics. This makes it easier to understand how a change might influence various aspects of society, business, and other domains. Additionally, the Futures Wheel helps reveal potentially counterintuitive consequences, offering deeper insights into how change can unfold, and unexpected impacts can emerge.

To construct a Futures Wheel, you begin by placing the central change at the centre of the wheel. From there, you systematically work outward through the consequence cascade, creating a web of interconnected outcomes (see figure 10). This systematic approach helps you consider a wide range of possible impacts, including unexpected or non-obvious effects.

**Source:** Glenn, J.C. (2009), "The Futures Wheel". Part of Futures Research Methodology V3.0 by The Millennium Project; California 100 & School of International Futures (2023), "Beyond Strategic Planning: A Foresight Toolkit for Decision Makers.

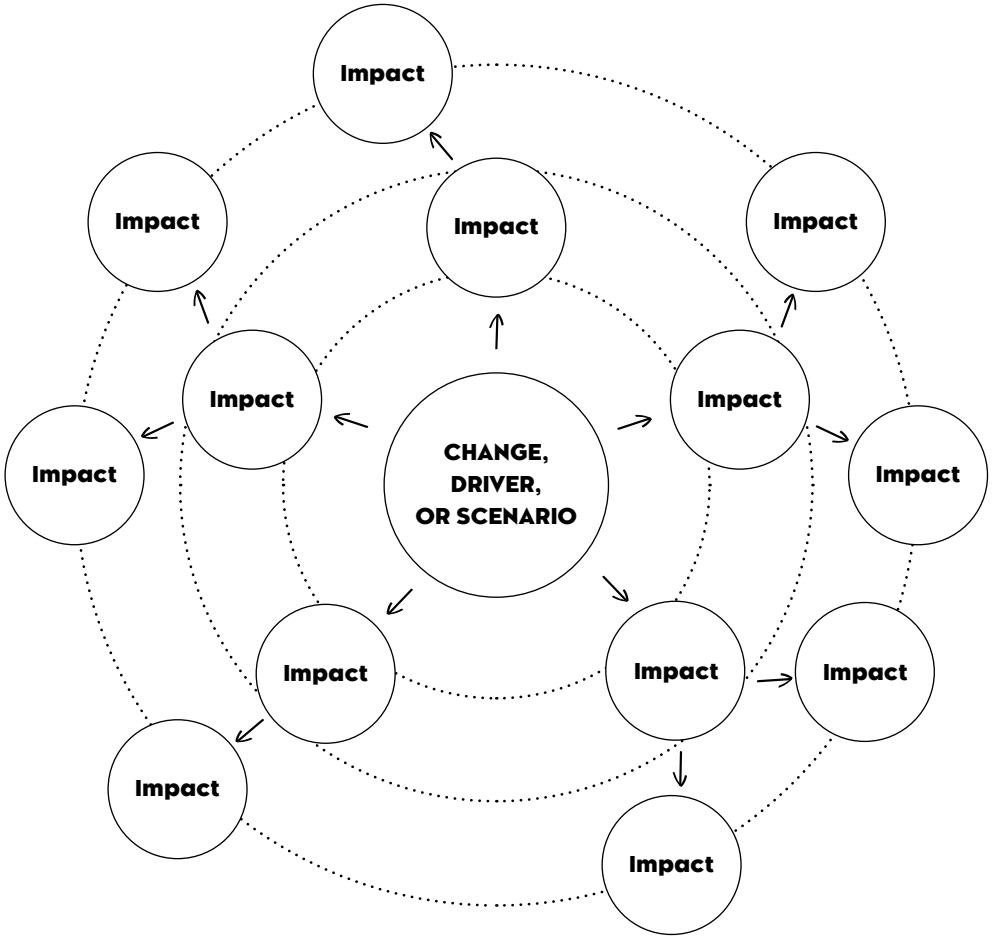
## Use the Futures Wheel to

- Identify impacts and consequences of important future changes, developments, scenarios, or strategies (some possibly unintended).
- Think through first-, second-, and higher-order impacts and map connections, causalities, and even counterintuitive outcomes.
- As an engaging participatory process to map and visualise the cascades of impacts that a significant change might generate.

## Key things to consider

- Focus on listing all the most immediate impacts first, before thinking about what cascades of second- and higher-order impacts may be. A good prompt is: *"if this is true, what might be the immediate impacts?"*. The more specific the impacts can be described, the better.
- Make sure you are not just thinking about positive or negative impact cascades. Ideally, a futures wheel should be a balanced representation and will likely also include counterintuitive outcomes. Also remember that the impact – and the perception of the impact – of a change can differ depending on the stakeholders involved.
- The simplest version of a Futures Wheel explores implications one step at a time as described. This can be expanded on to explore sentiment using color-coding to represent desirable/less desirable change.
- After completing the wheel, arranging impacts into a timeline can add further insights. This often serves as a prompt to push your thinking further into the long term by running another round of adding higher-order impacts. Also be aware that more complex changes such as new policies, shifts in consumer behaviours, or new technologies often necessitate deeper analysis and more rounds of futures wheeling to reach a useful depth of insights.

# *Figure 10:* THE FUTURES WHEEL




**Source:** Glenn, J.C. (2009), "The Futures Wheel".

# Pace Layers

Pace layers, developed by Steward Brand, is a framework for thinking about the different factors that drive change in complex systems, and how they evolve over time. It highlights how different 'layers' of a system changes at different speeds. There are six layers from fastest to slowest, and these layers interact with each other, with the top layers moving faster, while the slower layers provide a stabilising force and drive longer-term change. The (original) layers are: Nature, Culture, Governance, Infrastructure, Commerce, and Fashion (see figure 11) but practitioners sometimes chose to change the labelling of the different layers.

**Nature:** The slowest and most foundational layer, encompassing the natural environment and ecosystems that change over very long timescales.

**Culture:** This layer includes societal values, attitudes, beliefs, and practices, evolving slowly over time.

**Governance:** Encompasses political structures and legal systems, regulations, shift in policy and new reforms to provide societal order.

**Infrastructure:** Comprises physical and organisational systems that enable a functioning society.

**Commerce:** Involves economic activities, markets, and competition, changing relatively rapidly to drive innovation and new business models.

**Fashion:** Represents trends in style, preferences, and consumer behaviour, which reflect currents in society. This layer changes rapidly, influenced by popular culture, social media, and short-term fads.

**"Pace layers is a framework for thinking about the different factors that drive change in complex systems, and how they evolve over time"**

**Source:** Brand, S. (2018), "Pace Layering: How Complex Systems Learn and Keep Learning"; California 100 & School of International Futures (2023), "Beyond Strategic Planning: A Foresight Toolkit for Decision Makers

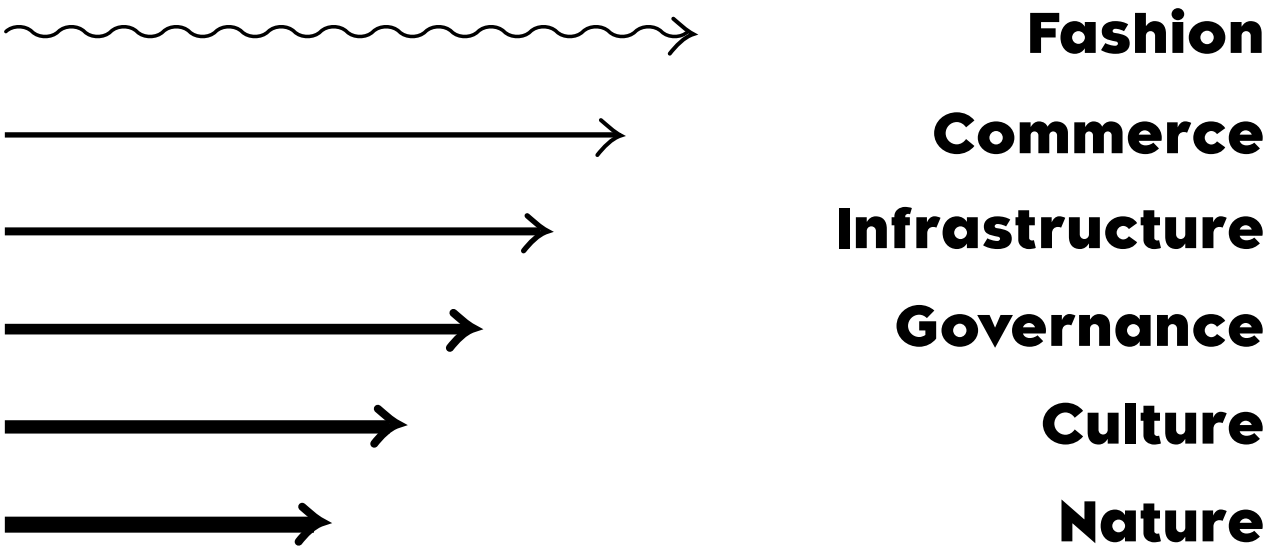
## Use Pace Layers to

- Think imaginatively about change and obtain a better understanding of how different components of a system interact and evolve over time.
- Build an understanding of complex systems dynamics and better understand how change in different layers could bring about systemic change, be it rapid or slow.
- Aid in designing systems, organisations, and strategies that are adaptable and resilient by balancing the stability of slower layers with the dynamism of faster layers.

## Key things to consider

- The simplest approach to Pace Layers is to simply brainstorm ideas about what is shaping your focal topic, working through the pace layers. Start with the top three layers (fashion, commerce, infrastructure) to get an understanding of what is currently influencing future change. Then repeat the exercise for the bottom three layers (governance, culture, nature), keeping the longer timeframes in mind.
- The brainstorming outcome across layers can ideally be reviewed with the following prompts: *"Which changes feel particularly relevant?", "What could accelerate the pace of change in the stabilising bottom layers?", "What could slow down the pace of change in the dynamic top layers?"*.
- You can extend the approach by examining how the different elements in the different layers interact and influence each other, looking for both convergence and potential conflicts that could arise between fast and slow layers.
- It is important not to get too hung up on the specific layers. It is the process of exploring different paces of change that is most important.
- Be mindful of the unique characteristics and needs of the system you are investigating. Some layers may have different significance or pace in different contexts. Also understand that cultural and historical factors can significantly influence the pace and nature of change in different layers, especially in global or diverse environments.

# *Figure 11:* PACE LAYERS




**Source:** Brand, S. (2018), "Pace Layering: How Complex Systems Learn and Keep Learning".

# Cross-Impact Analysis

**"By mapping the interdependencies, cross-impact analysis helps to understand how elements influence each other, rather than just examining them in isolation"**

Cross-impact analysis is used to explore the interactions between different drivers or events and assess their systemic impact on one another. By mapping the interdependencies, this method helps to understand how elements influence each other, rather than just examining them in isolation. This highlights the importance of considering how various drivers or events can affect each other, providing a more comprehensive understanding of potential futures.

The process involves identifying key drivers (often from a driver mapping exercise) and evaluating their interactions using a Cross-Impact matrix, where you assign qualitative or quantitative scores to gauge the strength and nature of these interactions (see figure 12). As the drivers are plotted in the matrix with their impact scores on each other, those with the highest cumulative scores are identified as having the most significant potential to influence the overall system as they have relative higher influence on multiple drivers. This process helps to prioritise drivers that have the most significant potential to shape future outcomes and develop scenarios that reflect various possible futures.

**Source:** Gordon, T.J. (2009), "Cross-Impact Analysis". Part of Futures Research Methodology V3.0 by The Millennium Project

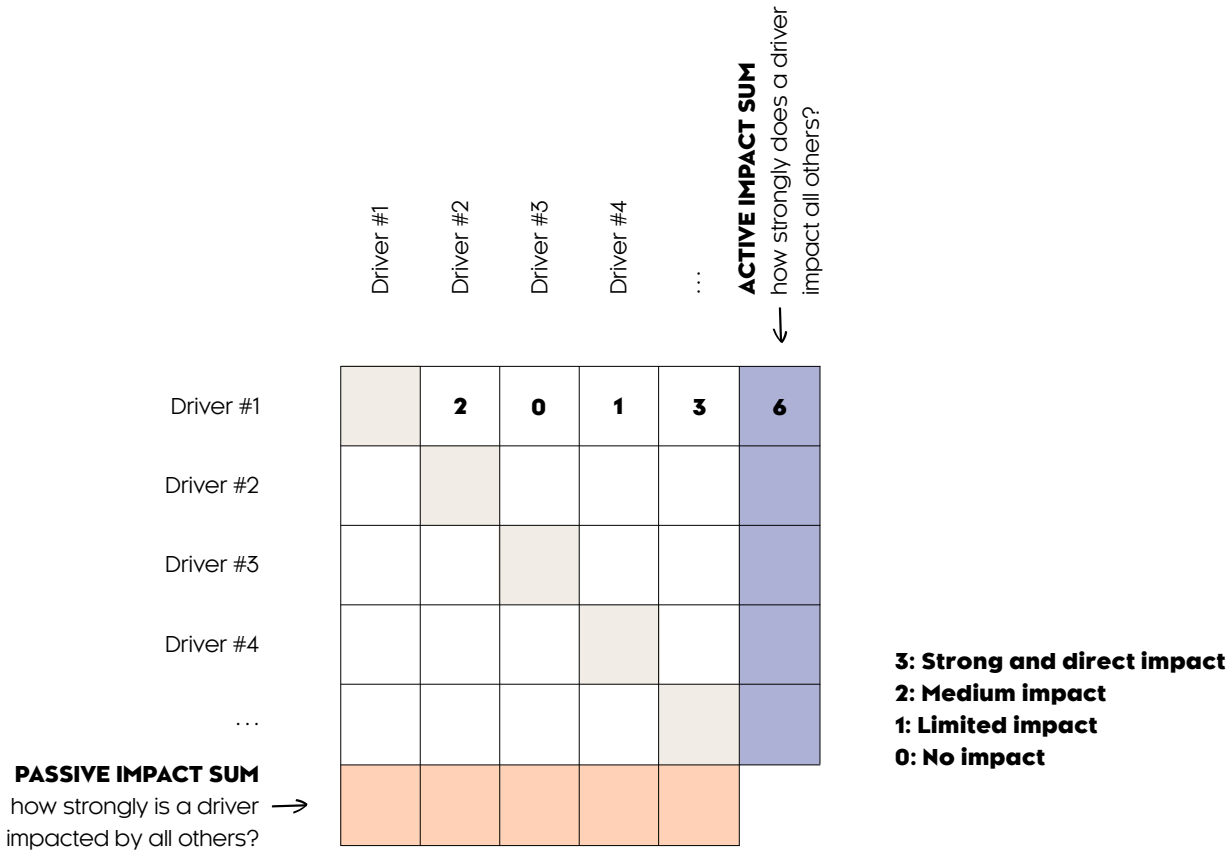
## Use Cross-Impact Analysis to

- Identify the most significant drivers of a system (the ones that seem to have the most impact across the grid).
- Explore interdependencies and strengthen the understanding that the future is shaped by interacting factors.
- To paint a fuller and more consistent picture of potential futures as valuable input into a scenario exercise.

## Key things to consider

- Cross-Impact analysis is often used in combination with other foresight tools. It can be especially useful when crafting future scenarios to make sure that scenario structure and reasoning does not have built-in inconsistencies that will undermine the credibility of the scenario.
- The first step of defining drivers or events to be included in the analysis is crucial to the success of the exercise. Any influences not included will, of course, be completely excluded from the analysis. However, the inclusion of events that are not pertinent can complicate the analysis unnecessarily.
- Rather than assigning quantitative impact scores to drivers in the matrix, it is sometimes useful to take a more qualitative approach to how the elements could interact and the outcomes it may bring. This can give you fresh perspectives on how many factors may come together in complex ways to create surprising futures.

# *Figure 12:* CROSS-IMPACT MATRIX




**Source:** Gordon, T.J. (2009), "Cross-Impact Analysis".

# ALTERNATIVE FUTURES

Challenging current assumptions and shifting perspectives

**Three Horizons**
**Scenario Development**
**Causal Layered Analysis**

# Three Horizons

You normally progress through the exploration of the different horizons in this order: H1 – H3 – H2. Without establishing H3 before H2 it becomes impossible to make the distinction between aspects in H2 that will contribute to sustaining H1 and facilitate a transition to H3. This sequence will also help prevent a 'path-dependent' thinking through the three horizons.

The Three Horizons framework, developed by Bill Sharpe, is useful to assess pathways of change, and how change can unfold over different time horizons. The framework assumes that change happens in waves in which a dominant form is eventually overtaken and displaced by another. Emerging change will challenge our current paradigm and assumptions, and over time today's decisions, policies, and products will become obsolete. This is particularly useful for understanding societal transitions, where a status quo or dominant system declines, and a new system rises in its place.

**Horizon 1** (H1) is the dominant system at present. It represents the 'business as usual' in terms of developments and current assumptions that are important/manifested in the present and that defines how we engage with the world. We rely on these systems being stable and reliable. But as the world changes, aspects of 'business as usual' begin to feel out of place, misaligned or even obsolete. Eventually, H1 will be superseded by new systems, developments, and realisations that will grow in importance in the medium term – **Horizon 2** (H2). Exactly how H2 will develop may not be apparent yet. Some aspects will be absorbed into the H1 systems to improve them and to prolong their life while others will facilitate a transition from the present to **Horizon 3** (H3) that will bring transformational shifts and completely new paradigms from the present.

**"The Three Horizons framework is useful to assess pathways of change, and how change can unfold over different time horizons"**

**Source:** Sharpe, B. (2013), "The Three Horizons: The Patterning of Hope".

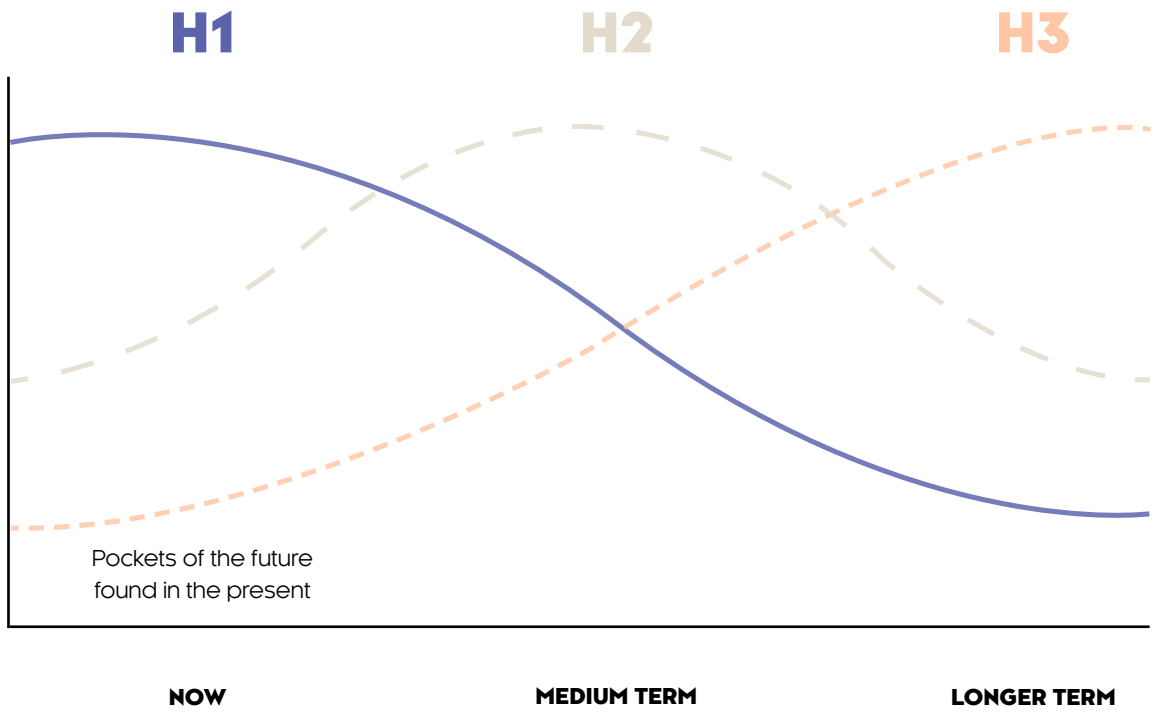
## Use Three Horizons to

- Reveal current assumptions about the future and make them explicit, allowing us to reimagine how transformational shifts away from today may arrive.
- Better assess potential pathways of change, and identify drivers that maintain the status quo and drivers that push towards transition.
- Help understand vulnerabilities in current assumptions and acknowledge how strategies aligned with the present will decline in emerging conditions.
- Highlight the value of thinking in different horizons at the same time.

## Key things to consider

- The Three Horizons exercise should ideally be highly collaborative and include diverse perspectives. This is key to reveal current assumptions and make them explicit, better allowing us to reimagine how we might arrive at a Horizon 3 future that represents transformational shifts from today.
- Remember to debrief the key takeaways from the exercise, with a specific focus on the most interesting and intriguing Horizon 3 futures and the most relevant 'transitions' in Horizon 2.
- The three horizons should not just be seen as abstract representations of change, but characterise three qualitatively different orientations to the future in the present. There is no fixed definition of what 'near- to mid- to long term' means and all three horizons are always present. For example, early manifestations of H3 – pockets of the future – are already visible in the present.
- A powerful feature of the framework is the built-in distinction between aspects that are maintaining or improving on the status quo versus those that are pushing towards transformation. This helps organisations think about change that has the potential for deep transformation. The displacement of horizons may be gradual, but in times of rapid change they can be quite abrupt as different tipping points may occur.

# *Figure 13:* THE THREE HORIZONS FRAMEWORK




**Source:** Sharpe, B. (2013), "The Three Horizons: The Patterning of Hope".

# Scenario Development

Scenarios as a method is one of the main concepts and most widely used methods in foresight. Both public and private sector organisations have implemented scenarios for a wide array of functions to support better longer-term strategic anticipation.

Scenario planning offers a structured approach that describes a plausible set of future conditions that are different to the present. This allows organisations to consider alternative future outcomes representing novel perspectives and contexts – as well as discontinuities – that may be difficult to grasp in the present. It is a process that involves both analysis and storytelling to craft convincing and engaging images of the future that provoke decision-makers to think differently about the future and to inspire action.

Scenarios enable this by always adopting an 'outside-in' approach, focusing on potential changes in an organisation's external environment – including outcomes 'beyond the numbers' that might otherwise be overlooked. This, in turn, influences the organisation's strategic environment and consequently strategic decisions. In this way, scenarios provide a common outset and a basis for a well-informed discussion of future possibilities and challenges, enabling organisations to widen their strategic perspective and approach the future with curiosity, readiness, and vision.

There are different scenario development methods, two of which are described below. Both these approaches can vary in their level of detail and the resources required, depending on how extensively the process is scoped.

### 2 x 2 Scenarios

This approach is often used to build scenarios with a 'decision focus' and strategic relevance. It takes point of departure in identifying critical uncertainties in relation to the future in focus and then leverages these uncertainties to craft alternative futures. It is arguably the most extensive approach to scenario building and generally implies a step-by-step process that takes you through research, driver mapping, and uncertainties assessment over a series of participatory workshops.

To start building the actual scenarios, there is initially a need to identify critical uncertainties (see Uncertainties Assessment) that are combined as two axes of uncertainty in a 2 x 2 matrix (see figure 14). You should decide on an axis combination that will create the most interesting or valuable scenario matrix. As a rule, the two axes must be independent of each other, so that they don't collapse. Four 'scenario-spaces' emerge from combining the two axes of uncertainty, and each 'scenario-space' is then elaborated into complete narratives that consider relevant drivers and highlight key characteristics to make them relevant for decision-making. You should make sure. events and characteristics in the scenarios are plausible and logically consistent. Also make sure that the four scenarios are structurally or qualitatively different.

## Scenario Archetypes

This approach, developed by Jim Dator, is another way to develop images of alternative futures. It is often less resource intensive than 2 x 2 scenarios and can be faster and more easily understood in a workshop setting. However, the scenario archetype approach is generally less suitable for building scenarios with a strategic 'decision focus'.

When using scenario archetypes, you start out with a set of pre-defined narrative structures that represent different assumptions about the future. Narratives are then crafted around how selected driving forces and characteristics 'play out' within these structures. Each archetype represents a different set of assumptions about the future, allowing you to interpret the 'behaviour' of different variables and elements within the four scenarios, which will reveal different outcomes across the four futures. It is important to keep in mind that the scenario archetypes are generic and not inherently positive or negative. The four archetypes are:

**Continuation:** Represents a prolonging of 'business as usual' dynamics, mostly based on current understanding of current trends. This is often the 'official' view of the future.

**Decline:** Imagines the emergence of crises that cause the decline or degradation of a current system, environment, or way of life (be careful not to simply portray a worst-case scenario).

**Constraint/Discipline:** Relates to a future with focus on controlled and managed change as our societal behaviours adapt to internal or environmental limits, and often represents a refocus/new equilibrium away from an undesirable or unsustainable state.

**Transformation:** Proposes a future where transformational factors change the game, like new technologies or social factors (be careful not to only portray the future as a 'tech-solves-all' utopia).

**"Scenarios allow organisations to consider alternative future outcomes representing novel perspectives and contexts that may be difficult to grasp in the present"**

**Source:** Glenn, J.C. & The Futures Group International (2009), "Scenarios". Part of Futures Research Methodology V3.0 by The Millenium Project Dator, J. (2009), "Alternative Futures at the Manoa School".

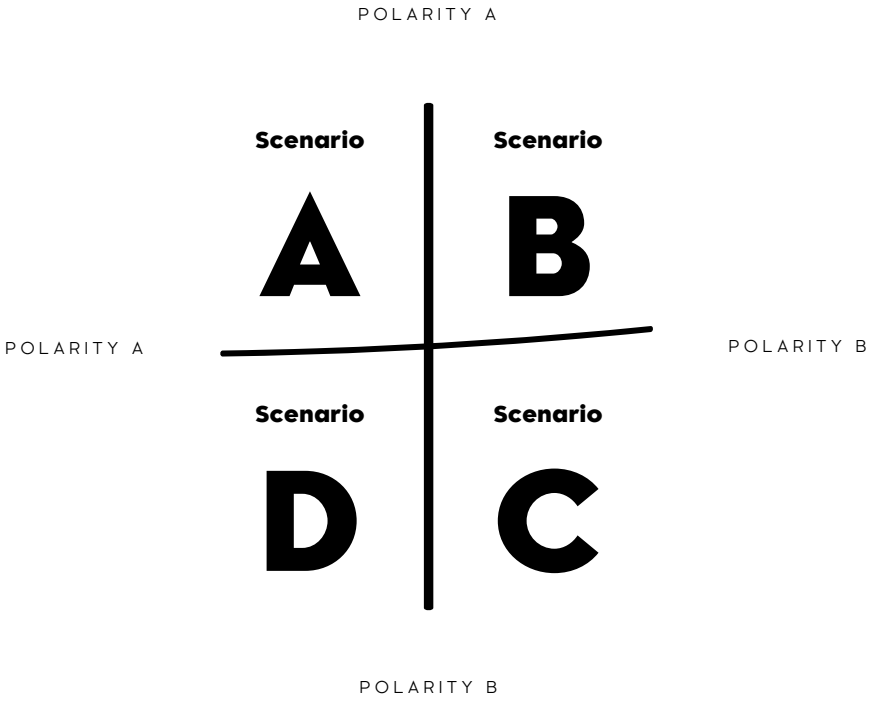
## Use Scenario Development to

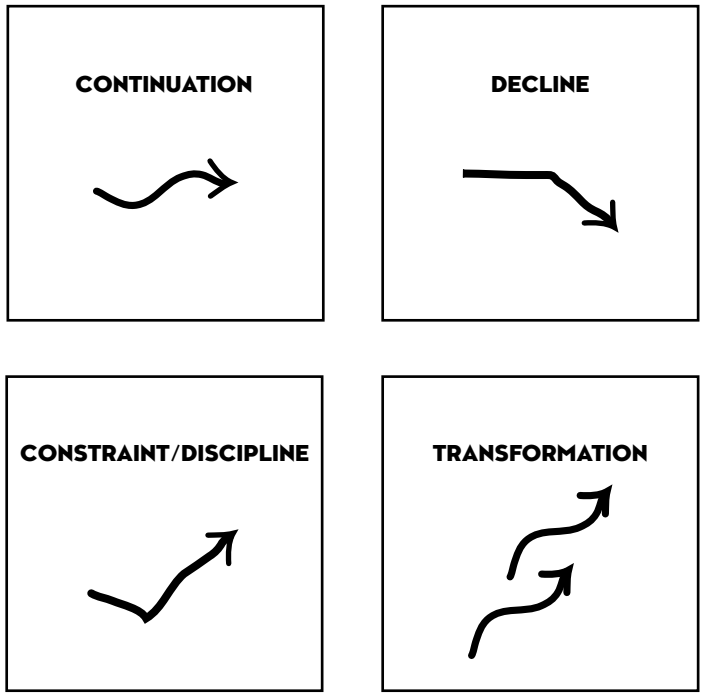
- Provoke decision-makers to think differently about alternative future outcomes that may be difficult to grasp in the present.
- Guide and inform organisations and people about future threats and opportunities and to create an outset to stress-test strategies to better plan for the future.
- Facilitate a futures-oriented conversation and understanding and stimulate strategic thinking about the future.

## Key things to consider

- Scenarios are not predictions of the future. They are not meant to be 'right' or 'wrong', 'good' or 'bad'. Rather, their function is to challenge assumptions and explore alternative ways that the future may develop. Explorative scenarios can have a richness that quantitative methods can't capture, which also helps to stimulate creativity and to break from the conventional wisdom around present and short-term problems.
- Crafting credible and useful scenarios is difficult. A good scenario is not just an abstract analysis of trends. Rather, it tells a believable story set in the future. Using a 'behind-the-scenes' scenario grid to map out key variables and elements across all scenarios helps ensure consistency. Additionally, following general guidelines can support the writing of quality scenario narratives (see figure 15).
- To make a scenario 'come alive' it can be helpful to think about what different personas might be doing in the future. *How are they living? What do they value? How are they impacted in this scenario?*
- For scenarios to be used effectively in a decision-making process, stakeholders must be convinced of the soundness, relevance, and value of the process. This hinges on the foundations on which scenarios are built, the structures that they use, and the reasoning they employ, which much stand up to critical examination.
- The articulation and presentation of scenarios depends greatly upon the intended users. Some scenarios stay at the level of broad generalities without much supporting analysis, which may make them less operational and less useful for decision-making, while they may still provide the general public with inspiration on potential futures. Other scenarios that are presented in much more technical and formalised ways may offer deeper insights for decision-making but can be challenging for ordinary readers to assimilate.
- In a decision-making context, experience suggests that when executives evaluate scenarios that are too extreme or implausible, they often become more confident in their original assumptions about the future. On the other hand, scenarios that are not challenging enough are easily dismissed as pointless. Both situations can lead to distrust in the foresight process. Finding the right balance is crucial for scenarios to have an impact on decision-making.

# *Figure 14:* 2 X 2 MATRIX & FOUR SCENARIO ARCHETYPES




**Source:** Glenn, J.C. & The Futures Group International (2009), "Scenarios"; Dator, J. (2009), "Alternative Futures at the Manoa School".

# *Figure 15:* HOW BUILD A GOOD SCENARIO

| | |
|---|---|
| **Story** | A vivid description for engaging stakeholders. We need to 'experience' the futures, so they should also involve emotion, not just logic |
| **Plausibility** | Future characteristics and events must be plausible, meaning that it must fall within the limits of what might conceivably happen |
| **Consistency** | Must be logically consistent. If the scenario have built-in inconsistency, it will undermine the credibility of the scenario |
| **Differentiation** | Must be structurally or qualitatively different. Scenarios should not be so close to one another that they simply become variations of the same scenario. |
| **Memorable** | Should be easy to remember. It helps to have catchy and desciptive titles |
| **Challenging** | Must challenge organisations' perceived wisdom about the future |
| **Decision-making power** | Should provide insights useful to decision-makers |

# Causal Layered Analysis

Causal Layered Analysis (CLA), developed by Sohail Inayatullah, is a comprehensive foresight method designed to uncover and analyse the deeper dimensions of complex issues. This tiered approach examines issues starting from immediate surface-level trends and progresses through deeper layers of systemic causes, cultural values, and worldview dimensions that influence change.

The main utility of CLA lies in supporting individuals and organisations in revealing the internalised assumptions they use to make sense of and assign meaning to specific changes. Ultimately, it can help create narratives that facilitate change. It also addresses the risk of foresight work being too superficial and overly focused on surface trends by providing a more profound understanding of the underlying factors influencing change.

The original CLA framework consists of four levels, but CIFS often uses a simplified version with three layers, as described below:

**Observable issues:** The immediate, observable trends and day-to-day realities.

**Structures & systems:** The structures, systemic factors, and historical (social, economic, cultural) facts that support the observed realities.

**Mental models & worldviews:** The deepest layer of mindsets, values, and cultural and ideological aspects that shape our worldviews and perceptions, and influence how issues are framed and understood.

**"Causal Layered Analysis is a comprehensive foresight method designed to uncover and analyse the deeper dimensions of complex issues"**

**Source:** Inayatullah, S. (2019), "Causal Layered Analysis: A Four-Level Approach to Alternative Futures".

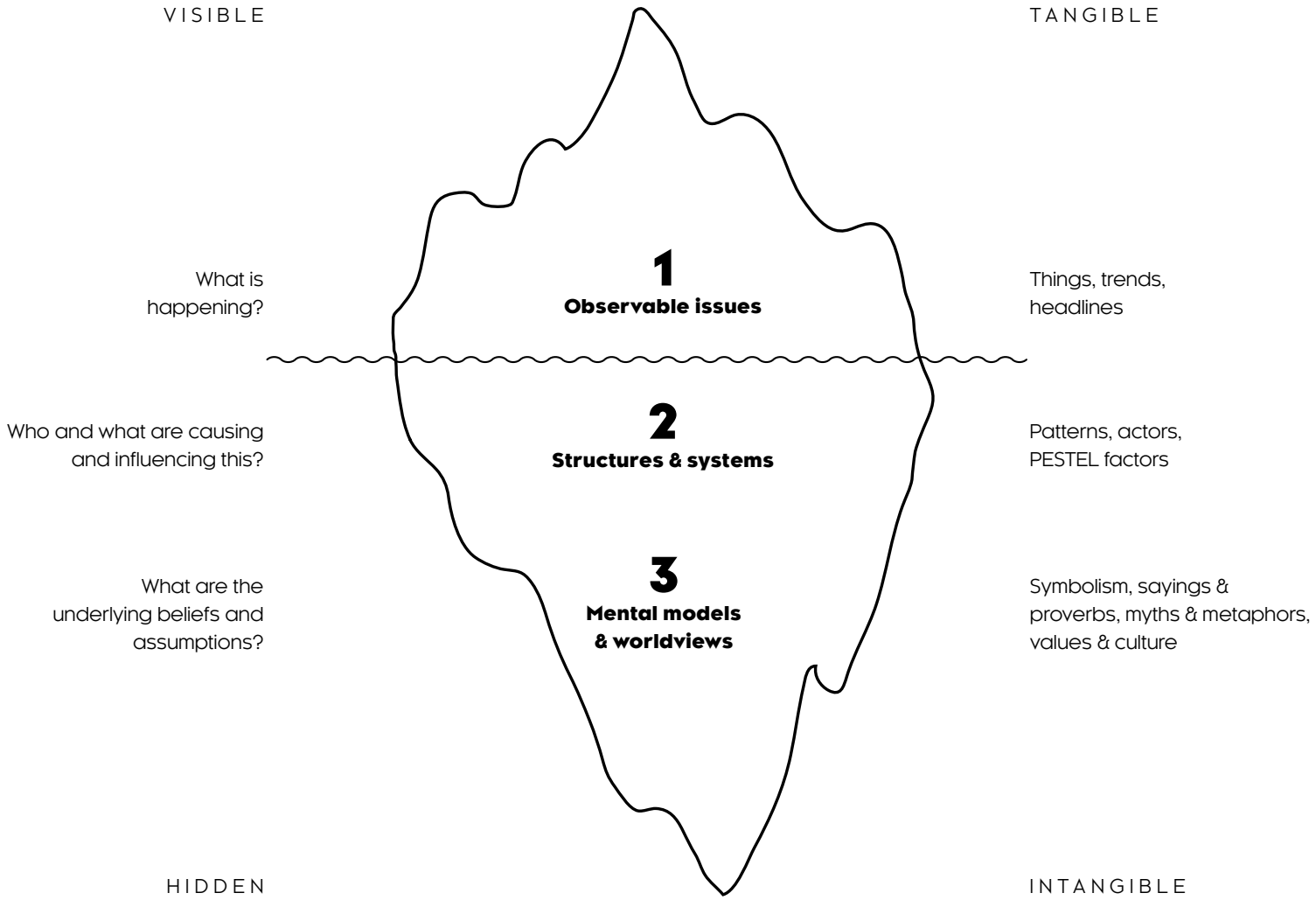
## Use Causal Layered Analysis to

- Get a deeper understanding of a particular issue or challenge by uncovering systemic causes and exploring different perspectives.
- Generate new narratives that challenge current realities.
- Map competing views of the future by recognising the different worldviews and perspectives of various stakeholders, ultimately supporting more transformative strategies.

## Key things to consider

- When working with Causal Layered Analysis, be aware that it is a relatively complex method that requires confidence in divergent thinking and exploring beyond the obvious and observable. It is also difficult to do well without a diversity of perspectives present.
- The Causal Layered Analysis exercise essentially has two phases: 1) Exploring the focal issue from the top-down starting with immediate trends and moving down through the deeper layers. 2) Working your way back up from the deepest worldview layer to create new, alternative narratives that challenges current realities (figure 16). Hence, the ultimate goal of CLA is not just to analyse, but to create new narratives that facilitate change.
- Causal Layered Analysis is a versatile tool that can be staged in various ways. Various uses include mapping the present to prevent worldview blindness, enhancing a visioning process by outlining how things can be moved towards a desired future, and unpacking an issue across different stakeholder views or worldviews.

# *Figure 16:* CAUSAL LAYERED ANALYSIS




**Source:** CIFS based on: Inayatullah, S. (2019), "Causal Layered Analysis: A Four-Level Approach to Alternative Futures".

# STRATEGIC INSIGHTS & ACTION

Tuning and rethinking strategy

**Backcasting**
**Wind-tunnelling**
**Visioning (Preferred Future)**

# Backcasting

**"Backcasting involves creating a timeline in reverse, starting from a future scenario and working backward to identify the key steps, events, and actions that will make it happen"**

Backcasting is an effective method for linking the future back to the present, helping to assess the conditions, changes, and events that logically connect a given future to the present. Unlike traditional planning, backcasting starts in the future and works backwards. If you have already identified alternative futures – or a preferred future – for instance through a scenario development process, backcasting can be used to pinpoint the factors and events that will make these scenarios come true, as well as which strategies will influence it.

Backcasting involves creating a timeline in reverse, starting from a future scenario and working backward to identify the key steps, events, and actions that will make it happen. This helps connect future change to the present, overcoming the 'present bias' that often limits our planning. One particular focus of backcasting is to identify what lies within the control of the organisation, and can therefore be managed, and what lies outside its control and therefore needs to be monitored.

Alternatively, backcasting can be used to determine what series of events could lead to a given undesirable scenario, and what steps could be taken to avoid such a scenario or mitigate its consequences.

**Source:** California 100 & School of International Futures (2023), "Beyond Strategic Planning: A Foresight Toolkit for Decision Makers

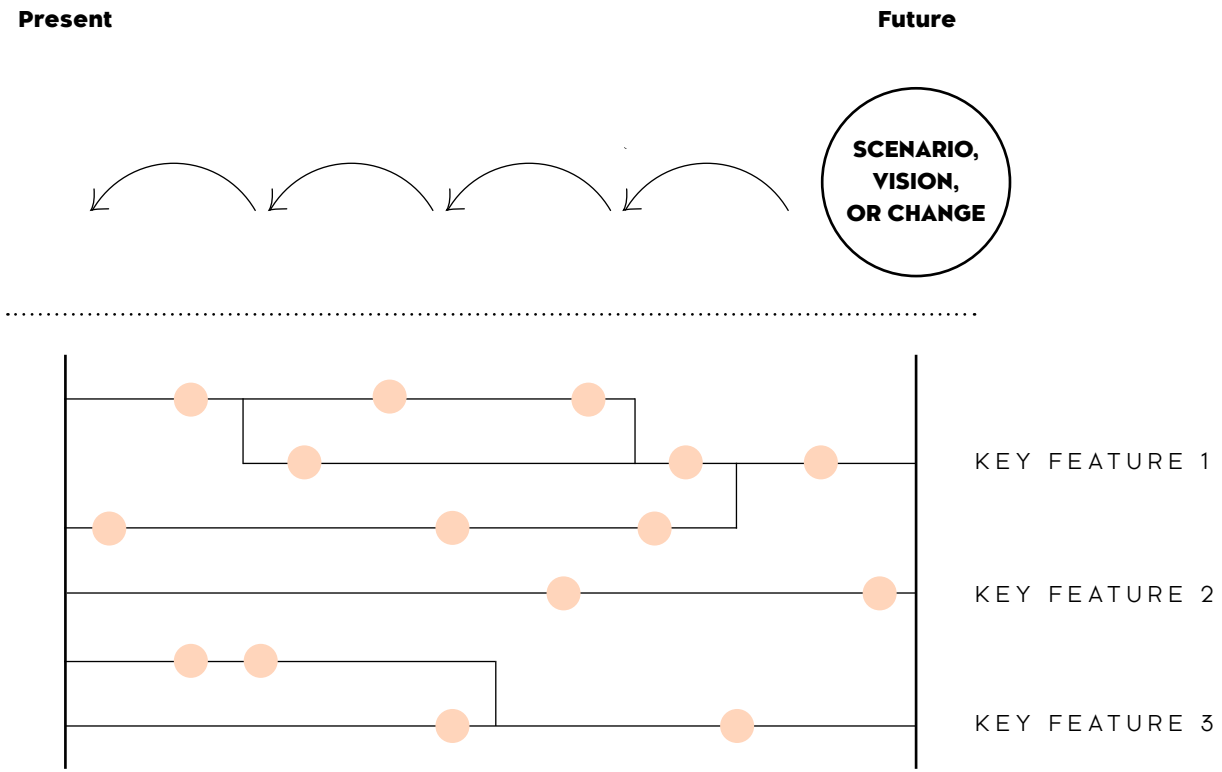
## Use Backcasting to

- Connect a given future to the present, identify what needs to be done to deliver it, and to test the feasibility of particular actions and approaches to arrive at a specific point of future change.
- Identify what future factors and events lie within the organisation's control and what events lie outside its control.
- Establish pathways of change to help identify new initiatives and interventions to enhance desirable changes or mitigate against undesirable events.

## Key things to consider

- You can backcast from a scenario, vision, or any other description of future change. A good way to set up your backcast is to outline four or five key features of the future scenario, vision or change. You can either work on one feature at a time, or you can work across these as you step back towards the present. This helps identify patterns and determine whether any specific factors or events are particularly critical (see figure 17).
- Different 'entries' on your backcasting timeline can help you explore various types of factors or events. Try to look for both external factors and events from outside your control as well as concrete actions you have taken that will have either direct or indirect implications. Consider including relevant (fictional) future data points or even adding descriptive 'news headlines from the future' along your backcasting timeline.
- After completing your backcast, take time to review your thinking by playing your backcast forward. Check that it makes sense and that it is feasible and coherent. Questioning the cause and effect of each step can help identify missing factors that are critical.
- Try to explore the actual consequences of your backcasting outcome. *What events and changes can you or your organisation influence and what do you need to do to deliver these aspects?* Also consider if and how you can influence aspects outside your control. *Who or what has control, and what can you do to support them or it?*

# *Figure 17:* BACKCASTING




**Source:** California 100 & School of International Futures (2023), "Beyond Strategic Planning: A Foresight Toolkit for Decision Makers".

# Wind-Tunnelling

**"Wind-tunnelling helps organisations understand which aspects of their strategy are resilient and which are vulnerable across different future contexts"**

Wind-tunnelling is an approach used to stress test strategies or policies against a set of different scenarios to evaluate how well they hold up under varying future conditions. It involves assessing the performance of different strategic options and objectives when facing given scenarios, considering the emerging issues and different future conditions that each scenario presents.

The exercise helps organisations understand which aspects of their strategy are resilient and which are vulnerable across different future contexts. It also helps identify specific aspects that may become important if a certain scenario begins to unfold.

The outcome of a wind-tunnelling exercise is typically a matrix that assesses the effectiveness of strategic options and objectives across a range of scenarios (see figure 18). For each option, you assess whether it works and will have a positive impact, needs adaptation to be more effective, or whether it has no impact or may even lead to negative outcomes.

**Sources:** Copenhagen Institute for Futures Studies (2020), "Using the Future"; UK Government Office for Science (2024), "The Futures Toolkit".

## Use Wind-Tunnelling to

- Explore how different future conditions might impact current strategies, identify the most resilient aspects, and become aware of weak spots.
- Evaluate options and objectives against plausible futures to decide on a preferred strategy that performs well in multiple plausible futures and changing conditions.
- Build a portfolio of options suited to different external conditions with the goal of balancing the need to define a clear strategy with the need to maintain a high level of strategic agility in uncertain conditions.

## Key things to consider

- Strategic actions or options that yield benefits in all or most scenarios are considered robust. These should be pursued as no-regret moves if resources allow. Actions that work disproportionately well in specific scenarios can serve as contingency plans to be adopted in suitable circumstances or modified to make them more robust across scenarios. Additionally, high-risk, high-reward 'big bets' could lead to significant breakthroughs or catastrophic failures depending on how the future unfolds.
- In uncertain environments, organisations must balance the need to define a clear strategy with the need to maintain a high level of strategic agility. Wind-tunnelling is a powerful tool to help identify a portfolio of actions that can provide impact across various scenarios, balancing immediate needs with the potential need for quick pivots as the future unfolds.
- Wind-tunnelling is a powerful tool not only for stress-testing of existing strategies under different future conditions but also for developing and evaluating entirely new strategic options.
- The true value of wind-tunnelling comes from thinking through the consequences of an uncertain future and asking the question *"What if this future happens?"*. Engaging a diverse set of stakeholders ensures a broader range of perspectives and helps identify strategic blind spots.

# *Figure 18:* WIND-TUNNELLING MATRIX

| | SCENARIO A | SCENARIO B | SCENARIO C | SCENARIO D |
|---|---|---|---|---|
| **Option #1** | ● | ● | ● | ● |
| **Option #2** | ● | ● | ● | ● |
| **Option #3** | ● | ● | ● | ● |
| ... | ● | ● | ● | ● |

● **Positive impact**
in the specific scenario

● **Needs modification**
in the specific scenario

● **Negative impact/counter-productive**
in the specific scenario

# Visioning (Preferred Future)

In foresight, visioning is sometimes referred to as 'incasting' because it involves exploring a particular preferred scenario in-depth and mapping out the pathway to that preferred future. This contrasts with the visioning approach used in conventional strategic planning to focus on a 'vision statement'. A visioning exercise should build on preceding foresight work and can be a valuable next step after a futures wheel, scenario development, or other exercises that help you think about alternative possibilities or change. Using visioning in conjunction with backcasting is especially helpful in exploring possible paths towards your preferred future, making it more actionable to get there.

Visioning as a foresight tool is a powerful participatory approach that empowers individuals and organisations to imagine a preferred future and commit to achieving it. It is a method for identifying, developing, and enriching a compelling, preferred future, often as a step in creating a transformative strategy. This process emphasises the importance of collaboratively and deliberately envisioning the future, as it is often challenging to realise a future that we cannot clearly imagine. It helps move the conversation away from what we expect will happen – the conventional expectation of the future – towards making aspirational and transformational futures more tangible. This process deepens participants' understanding of their aspirations regarding the future, fostering a sense of agency and a stronger commitment to shaping the desired outcome (see figure 19).

**"Visioning as a foresight tool is a powerful participatory approach that empowers individuals and organisations to imagine a preferred future and commit to achieving it"**

**Source:** UN Global Pulse (2023), "Vision Building"; Sibbet, D. (n.d.), "5 Bold Steps Vision Canvas".

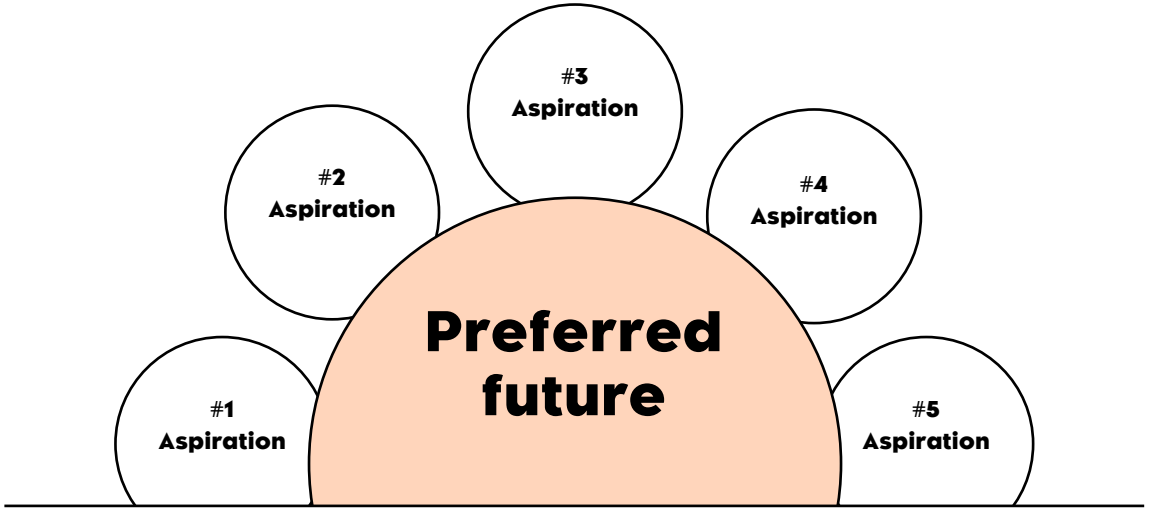
## Use Visioning to

- Align stakeholders on a shared vision of a preferred future.
- Outline actionable steps needed to reach a preferred future.
- Align individual and collective aspirations and foster a sense of agency and a stronger commitment to shaping desired outcomes.

## Key things to consider

- The purpose of visioning in foresight is always to create a shared vision co-owned by stakeholders. Elaborating and enriching a vision for a preferred future is one of the most effective mechanisms for engaging a team, organisation or community and getting them excited to push forward into new territory. Including diverse perspectives, experiences, and values into the process also helps challenge dominant narratives and reduces the risk of perpetuating past problems.
- There are different approaches to visioning. Some are more analytical while others are more unconstrained and experimental. For all approaches, it's essential to include a set of visioning questions that can help inspire and guide participants' thinking and help them adopt the visioning mindset, as well as a canvas to help capture output in a structured way.
- The visioning canvas (see figure 19) offers a useful framework for initially uncovering stakeholders' hopes and aspirations for a preferred future, serving as a foundation before defining what that future might look like. The process involves explicitly identifying challenges that may hinder progress, and enablers that can support reaching the desired future. Finally, it outlines concrete and attainable actions necessary to achieve this vision. Part of this exercise may even be to define audacious goals, to complement the articulation of the preferred future.
- As part of defining actionable steps to deliver the preferred future, a useful prompt is *"Who or what will be the winners and losers in this change?"*. Hence, a collective understanding of the current reality you are looking to transition from is essential to be able to define a meaningful pathway to the preferred future, and should be part of any visioning exercise.

# *Figure 19:* VISIONING CANVAS




| CHALLENGES | ACTIONS | ENABLERS |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

**Source:** UN Global Pulse (2023), "Vision Building"; Sibbet, D. (n.d.), "5 Bold Steps Vision Canvas".

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*Design & graphics Sara Frostig*
*Cover illustration Sophia prieto*

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