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FUTURE NEWS

TO CONNECT, TO INFORM AND TO INSPIRE

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WHAT COMPANIES THAT EXCEL AT STRATEGIC FORESIGHT DO DIFFERENTLY

by Wendi Backler, Alan Iny and Moe Turner

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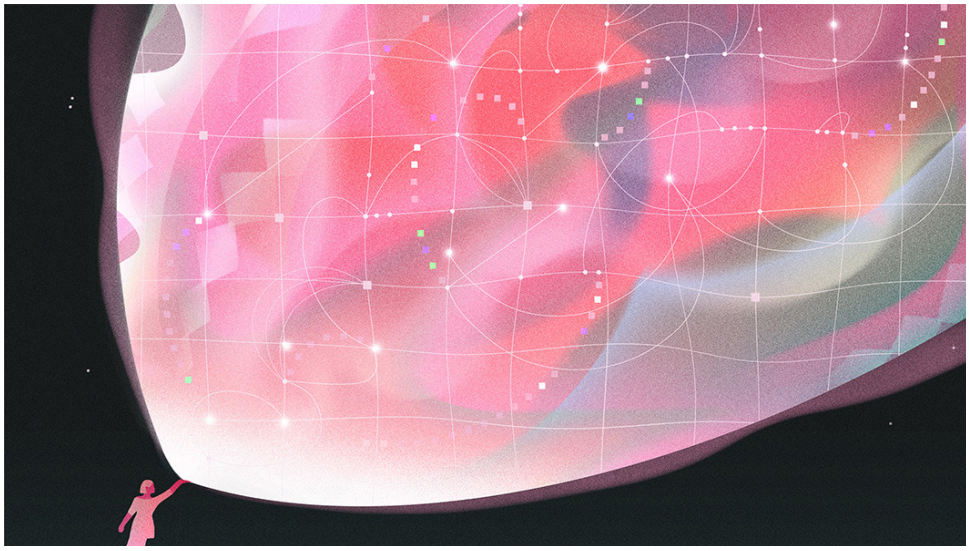


Image by Iryna Korshak

At the start of a new year, it's human nature to want a crystal ball: What lies ahead, and how will it affect us? This feeling is particularly acute in times of uncertainty, when the ability to engage in meaningful foresight can feel elusive at best. And whether the world is objectively more volatile, it certainly feels that way to CEOs: Based on our analysis of earnings calls, 2025 saw a significant spike in discussions about uncertainty, with little sign of abating in 2026.

In our experience working with leadership teams, we've found that many get trapped in firefighting mode and often react to volatility by freezing up or reverting to gut instinct. But a minority of companies have a different response when confronted with an unpredictable future. In a recent survey of executives at 500 organizations, we identified clear patterns of behavior that differentiate organizations that report turning uncertainty into advantage through foresight practices from organizations that struggle to effectively use foresight.

By strategic foresight, we mean the disciplined practice of scanning for change, exploring multiple plausible futures, and using those insights to make better choices in the present. The field traces back to Cold War military planning but was embraced by the corporate world in the 1960s and '70s, when companies such as Royal Dutch Shell began using scenarios to rehearse possible shocks rather than betting on a single forecast. Today's methods range from monitoring emerging signals to war games to scenario planning—with AI rapidly expanding capabilities.

Organizations that get strategic foresight right excel in two key areas. The first is process, with leaders that enable teams to view the full spectrum

of unknowns on both real-time and long-term horizons. The second is mindset: Foresight leaders look beyond risk management to seek future opportunities in unpredictability and routinely rely on data with the help of a sophisticated foresight toolkit.

These foresight leaders, spread across industry, revenue size, and ownership model, don't just report being better prepared. Companies with more advanced foresight capabilities also report a significant edge over their competition: Moving from standard to a more state-of-the-art level of foresight is associated with a 5% increase in financial performance. The good news for laggards? They can take concrete steps to avoid getting left behind.

CREATING ADVANTAGE FROM UNCERTAINTY

Our research revealed that foresight exercises are common across organizations, but most are simple and patchwork: 60% of respondents report relying primarily on basic foresight methods. By basic foresight methods, we mean information that is largely qualitative and periodic, gleaned from reading trend reports, running SWOT-style scenarios, and tracking dashboards. Advanced foresight, in contrast, is systematic and data/AI-enabled, using methods like machine-learning forecasts, weak-signal and sentiment mining, and using digital twins or war-gaming to stress-test strategic moves. Worse, only about 15% strongly agree that foresight is contributing positively to their organization. Those grappling with foresight implementation bottlenecks most often cite a common blocker: the degree to which strategic decisions are driven by short-term pressures.

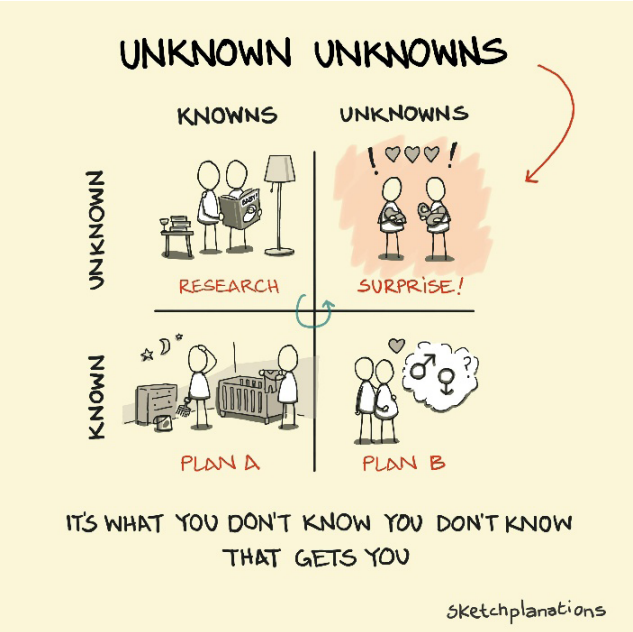
Yet at its best, foresight is an organizational capability, not a series of one-off exercises. It tracks what's reasonably predictable, prepares for what isn't, and cuts through noise to the few signals that matter. As strategy's foundation, it improves long-term choices and in-the-moment decisions through a combination of prediction, positioning, and real-time awareness—so the next time a rule change rewrites compliance overnight, a supplier or partner is hit by ransomware, or extreme weather stalls operations, you're prepared to not just ride out the storm, but to make the most of the situation. At a company with an effective foresight system in place, the system tells you when to make your move.

Our survey revealed that it's not just tech startups or organizations with large budgets that can lead in foresight. The effect holds across sectors, sizes, and operating models—including the public sector and nonprofits. The more advanced foresight leader cohort looks much like the broader sample: industry mix does not substantially differ, and they are only about 10 points more likely to be privately owned, with no strong trends by scale.

Moreover, our self-reported performance metrics align with previous academic research showing that firms that are prepared for the future are more likely to become industry outperformers and to achieve superior profitability and market-cap growth. The takeaway: robust, systematic foresight pays off.

HOW LEADERS STRUCTURE THEIR FORESIGHT CAPABILITY

Foresight leaders understand that they need a comprehensive perspective on uncertainty—this includes different types of unknowns, but also the ability to consider both present-day and future challenges. If we think about uncertainty on a matrix, it illustrates how some unknowns are predictable and short-term, others are unpredictable and long-term, and so on. Foresight leaders design their processes to capture all four quadrants.



COVERING TWO TYPES OF UNKNOWNS.

Some features of the future are reasonably predictable. For these *patterned unknowns* you can form evidence-based expectations using historical data. Most organizations stop here, by trying to pinpoint the future that will unfold using trend reports, analyst takes, and performance extrapolations. Companies can still find advantage in the interpretation of signals, but their competitors will increasingly have access to similar data, and predictive analytics is becoming more accessible to a broader swathe of strategic teams.

Foresight leaders add a second layer, by considering *breakout unknowns*. These are aspects of the future that, even with solid data, teams would struggle to predict—often these elements are not just unpredictable, but hard to even imagine. Foresight leaders build systems to identify, explore, and prepare for what can't be predicted. They treat true unknowns as a

design challenge, not a forecasting exercise. Foresight leaders are nearly twice as likely as laggards to report having a systematic foresight process for addressing "unknown unknowns."

The two types of unknowns require different methods and emphasis. On the one hand, for example, for predictable unknowns, Alphabet has used internal corporate prediction markets. The company essentially gathers and uses the wisdom of crowds through its broad employee base to increase forecasting accuracy for both internal and competitor future milestones.

On the other hand, for true unknowns, Netflix designed its own foresight system for resilience using chaos engineering, an experimental approach to generating data about possible future events for which there is limited current context or predictability. Netflix teams run its software and infrastructure through partially random failure injection experiments—conditions to expose vulnerabilities engineers might not have thought of. They deliberately break things to expose blind spots before customers do.

COVERING TWO TIMEFRAMES

Foresight leaders overcome the pressures of short-termism by running foresight at two speeds in parallel: sensing foresight for *real-time decisions* and shaping foresight for *long-term bets*. Laggards tend to overlook the former, with only 30% reporting that they refresh foresight frequently, compared to 60% of leaders. At the same time, foresight leaders report using multiple timeframe foresight views (for example, short and long term) in parallel more than twice as often as laggards do.

While many teams are pulled into constant firefighting, foresight leaders stay responsive to rapid shifts while also building disciplined views of the far-off future to guide strategy. For instance: Right now, real-time weak signal detection systems sense the first murmurs of market and competitor moves; for later, scenario planning defines the testing ground for no regrets moves.

The 2021 semiconductor shock shows the contrast. Two automakers, Toyota and Tesla, faced a chip shortage. Because these organizations had different styles and sources of advantage, they focused on two distinct foresight approaches. Toyota leaned heavily on the long-term view through advance contingency mapping, planning, and preparation. Tesla prioritized the near-term, real-time view, enabling the company to pivot quickly through flexible design choices at the first sign of issues.

SHIFTING THE FORESIGHT MINDSET

Most leadership teams engage in some form of scenario planning and trend tracking, yet these efforts rarely change decisions. To move from scattered, low-impact activity to foresight leadership requires two mindset shifts: focusing on potential future upside opportunities, not just avoiding future risk; and putting data ahead of intuition, so forecasts are trusted and acted upon.

UPSIDE ORIENTATION

Most organizations use foresight primarily to reduce downside—developing alerts for known risks and monitoring familiar threat lists. This is useful, but insufficient. It's one thing to track what has hurt you before; it's another to detect what's likely to matter in the future.

Foresight leaders flip that emphasis. When asked about their strategic orientation, leaders are about 20% more likely to report using foresight to search for upside opportunities, using foresight methods amid uncertainty and shifting conditions (versus a more typical focus on avoiding downside risk), than laggards.

Considering the upside requires not just a view of relevant possible futures but also a clear understanding of how the organization creates value. Instead of gearing foresight solely around detecting the next catastrophe, leaders set up systems to detect signals and forecast features of plausible futures from which they could gain advantage because of their differentiated capabilities. This is not to say that leaders focus on upside at the expense of being ready for downside turns; they are doing both.

For example, Walmart built Scintilla, a platform that allows the retailer to detect early signals of shifts in customer preferences and purchasing behavior and experiment with possible future products through test groups. The aim of the Scintilla foresight system is to help teams to rapidly pivot operations and design products, more effectively capturing demand spikes. Whereas many organizations focus on data-driven systems to capture stock needs, Scintilla is an example of foresight focused on upside opportunity detection.

DATA-FORWARD FORESIGHT

Most businesses still struggle to make objective data sets the basis for leadership decisions; instead, intuition and internal politics play an outsized role. However, foresight leaders orient by default to data using a toolkit designed to help them narrow in on the signals and views of the future that matter most to their strategy process.

They also apply an outside-in view, avoiding focusing too much on single exceptional instances—which suggests they take a more sophisticated quantitative view of the future than laggards. For example, most organizations project key metrics, attempting to anticipate sales, engagement, and launches years in advance. Often this is done based on an organization's past performance, alongside a few market reports or expert datasets. Even more often, these predictions turn out to be wildly different from the actual future that unfolds.

Modern statisticians, in contrast, build predictions from base success rates across similar organizations in similar instances, rather than anchoring on the individual past performance of a single organization. Foresight leaders, when asked about their forecasting processes, were twice as likely to report using this more advanced approach. The result is a flywheel: Better forecasts lead to higher trust, which leads to broader use, which leads to better data, and finally to better forecasts.

One way that organizations approach data-oriented foresight, particularly where market data may be sparse or not directly applicable to innovative products, is by implementing broad, low-cost experimentation, effectively allowing teams to generate new data about many possible future paths. Consider LEGO's Creative Play Lab: It provides a clear process for bottom-up prototypes and pushes teams to generate beta-test data early. The lab deliberately probes where ideas fail, not just where they work, which enables leadership to narrow in on the strongest, most relevant s

ignals.

MOVING TOWARD FORESIGHT LEADERSHIP

As company leaders begin the New Year, a simple retrospective can reveal what stands between your team and foresight leadership.

START WITH A SINGLE EPISODE

Recall a recent change in your operating environment that your organization did not anticipate. Looking back, what signals might have preceded the change? What do you wish you had been tracking? Maybe you had all the data, but somehow it wasn't translated into the right strategic moves. What moves do you wish your organization had made? For example, suppose a competitor launched a product you didn't anticipate—you might wish that you had noticed their patenting activity years ago so that you would have seen their earliest moves and been able to change course.

LEARN FROM WHAT YOU'VE MISSED

Repeated failures of future detection often point to gaps in foresight. The foresight matrix defines four complementary lenses for viewing the future of your organization. For opportunities you've missed can help to highlight quadrants that may need more systematic focus. If we continue the example above, missing the competitor's patenting suggests a gap in projecting capabilities—the quadrant of the matrix that relates to long-term views of reasonably predictable future events.

CHECK YOUR ORGANIZATIONAL ATTITUDES

Not all failures of foresight stem from a gap in foresight routine. For foresight to drive strategy, the right organizational attitudes must be in place. Consider what you and senior leaders around you focus on: Are you continually stuck in a cycle of short-term reaction to the perceived threat of the moment, or are you able to focus on hunting for upside amid uncertainty? Is intuition taking a front seat to quantitative approaches?

Moving toward foresight leadership is about more than going through the motions—fostering the right set of organizational attitudes creates the bridge between foresight dashboards and decks and the actual strategic moves that generate advantage. Imagine that, at our hypothetical company, the strategy team told leadership they were tracking patenting activity and even reported the competitor's activity years ago. But at that time, leadership was so focused on the next quarter's results that they failed to imagine how competitors might translate patents into new products. In this case, the gap was not the foresight projecting capability, it was the integration of that capability into the strategic process.

Knowing what to track and how to spot changing conditions that offer business opportunities is the start of the journey to becoming a foresight leader. Organizations that prioritize these capabilities can move faster and will be far better equipped to turn uncertainty into advantage. It's not a crystal ball, but it will be a critical tool for the new year—and beyond.

FUTURISTS IN ACTION

MUSEUM OF FUTURES
AN ORIGIN STORY

by Claire Marshall

It all began in August of 2018 with a call from the Sustainability team of the City of Sydney. The City of Sydney had previously introduced the Australia-wide CitySwitch Green Office Program, to help building managers implement sustainable practices. However, they were receiving feedback that it was too easy for building owners to reject their suggestions, saying that their employees were not in favour of change. In an effort to combat this, the City of Sydney launched a new program called the Better Buildings Cup – "the race to find Australia's most sustainable building" – and they wanted, in the words of the Sustainability Manager at the time, Esther Bailey, "something cool" that would get people's attention and act as a catalyst for getting employees to engage with the program.

When I met them in the City of Sydney offices, they explained the concept and the parameters. Whatever was created would need to be situated in the foyers of some of Australia's largest office buildings. It needed to move easily from building to building. And, most importantly, it would need to grab people's attention, cutting through the static around climate change, encouraging visitors to engage with the sustainability activities of the Better Buildings Cup.

Sitting in the meeting my mind buzzing with ideas, I remember thinking about what was usually in foyers of large buildings. A memory of football memorabilia in glass cases came to mind. What, I wondered, would memorabilia from the future look like?

This line of questioning led to the idea of staging a "museum of futures". It also seemed an intriguing way to tell narratives of change. It had the added punch of capturing people's attention with something that looked familiar - like a museum - but on closer inspection was deceptively provocative.

Now I want to add in, that I am definitely not the first person to have this idea. In fact there are many different 'museums' of 'futures' and we will explore a few in the posts to come.

In consultation with the sustainability team it was decided that the *Museum of Futures* would "exist" in the year 2050. In part this was due to the City of Sydney's 2050 strategic plan, which was currently being developed. The exhibition would present ten "artefacts from the future" along with their corresponding narrative "histories". Five would present a negative future - where our collective actions on climate change were too little too late, and our eco-anxieties become our reality. The other five objects would present a positive future where our actions in the present would create a snowball effect; changing the collective narrative, and resulting in a world that thrives. Not only would this approach reinforce the premise that there were multiple futures but it would effectively present both "the carrot" and "the stick"; contemplating the future we want to avoid and the preferred future. The sustainability team was receptive to the idea, and commissioned it on the spot. I was given $10,000 to make it happen.

MAKING OF THE MUSEUM

There were five verticals in which the sustainability team were trying to engage employees: transport, waste, carbon offsetting, renewable energy and living buildings. The purpose of engaging employees with these areas was twofold:

1. They wanted to elicit responses from employees to targeted questions around these areas; to shape the decisions of the building managers, and
2. They wanted employees to participate in the activities of the Better Buildings Cup, which was designed to facilitate behaviour change.

The first step in the design process was to consider the five areas of sustainability the City of Sydney wished to address; to understand what the dominant narratives around them were, and how they could be reframed. To do this I performed a rough discourse analysis for each vertical, looking at what "the future of x" claimed to be.

For example, one of the themes the sustainability team wanted to look at was transport. Australia's "love affair with the car," has been widely written about[1]. While personal vehicle ownership might seem the norm for many, "Generation Y and younger people are turning away from car ownership"[2]. This is an interesting shift in narrative, from cars being something we own, to cars being something we just use. Another common narrative in the discourse around the future of transport is the ubiquity of autonomous vehicles. This narrative predominantly frames autonomous vehicles as personally owned cars or taxis. This is not sustainable. To counter this narrative I completed a horizon scan looking for weak signals that showed other ways transport might change. I came across the perfect example: the testing of autonomous vehicles out at Homebush Stadium in Sydney. What if I combined two weak signals; autonomous vehicles that were not personally owned but communal?

The result was the exhibit "Less cars and more community"

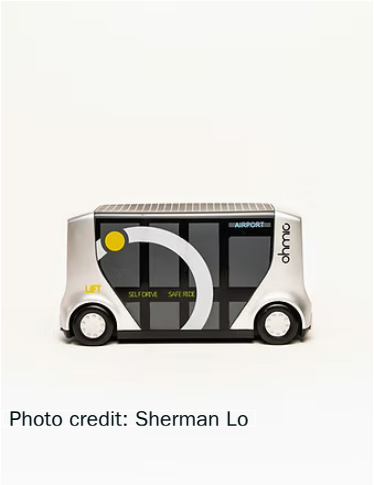


Photo credit: Sherman Lo

LESS CARS MORE COMMUNITY

This object is a scale model of what's known as a "communal autonomous vehicle" or CAVI. CAVIs were introduced into Australian cities in 2025, but became widespread by the end of the decade.

Communal Share bikes, scooters and skateboards helped residents get to the end of their street where CAVI's then provided a transport solution to reach the local transport hub. At a hub residents could access buses, high speed trains and even light aircraft. As residents began to eschew personal vehicle ownership many residential roads around the city were repurposed as green corridors or urban farming projects.

While CAVIs provided bridging transport between streets and local transport hubs, they also unexpectedly fostered community relations. Many CAVIs became a place for residents to catch up or borrow a book from the CAVI library, or for students to work on their studies during the commute.

On an interesting note, the word "Cavo" became popular during the late 2020s as a way of describing someone who lived near you and with whom you were friendly. Prominent linguists say that Cavo is a synonym for the word 'neighbour', but others argued that the word described an entirely new and organic relationship between people which more accurately translated to 'community friend'.

BEHIND THE SCENES

To make this exhibition I first reached out to HMI technology, they were the company trialling the autonomous vehicles out at Homebush. I arranged a meeting with Andrew Mahaffey and as luck would have it they had a scale model of the vehicle made, and they generously gave me the 3D printing instructions. I then found a friend who had a 3D printer, who printed the whole vehicle and then painted it to look exactly like the model.

THE FLIP SIDE

In the first *Museum of Futures*, for every positive future where we take an action that addresses climate change there was also a work that spoke of what would happen when we didn't. I have to admit this is one of the least binary pairs, as its dark companion was the exhibit "Our air quality up in smoke". Here is the 'future history':

OUR AIR QUALITY UP IN SMOKE

These two objects are a toddler-sized anti-pollution mask and a bottle of Australian Air, both of which entered the public consciousness in the early 2020s. Anti-pollution masks first became popular in India and China where they entered the market as precautionary wear for commuters. However, as the burning of plastic waste resulted in air pollution reaching dangerous levels, even in areas away from main traffic arteries, they soon became ubiquitous.

In the early 2020s, Australian air was considered some of the cleanest in the world and bottled and sold internationally. However by 2025, Australia's air was no longer deemed to be of sufficient quality to be exported. At the time, many blamed the increased pollution on sub-standard city planning, but it is now the consensus that growing emissions were in fact caused by continued use of fossil fuels and the burning of plastic waste that was previously fit for recycling.

By 2027 the use of pollution masks in Australia was part of daily life. In 2028, the Australian government introduced guidelines recommending that parents keep their children indoors for most of the day to avoid exposure to pollutants. This led to a nationwide epidemic in vitamin D deficiency and many children being afflicted with 'brittle bone' syndrome. With outside activity restricted Australia's reputation as a sporting nation declined. Australia was no longer invited to be part of the Ashes in 2028 and at the time of this 2050-held exhibition, Australia's most recent Olympic medal was won in rhythmic gymnastics back in 2024.

Photo credit Sherman Lo

BEHIND THE SCENES

This was an easy exhibit to put together, because I stumbled across Auzair - a company that was literally bottling air (that is right not oxygen but just air) from the Blue Mountains and selling it - predominantly in India. I met Tony the CEO in a cafe and he was telling me about people living in New Delhi and other major cities in India using these cans of compressed air to travel from their air-conditioner cars to their air-conditioned offices because the air pollution was so bad.

We had this conversation at the end of 2018, and the exhibition opened in May 2019. Later that year of course, the Blue Mountains was the last place you would want to be collecting air from because, like a lot of the country, it was on fire. At this time I had a toddler and a small baby, and we felt like we were trapped inside the house, the air so thick and so acrid that if we went outside my son would start coughing. Which was why in December 2019, I did the very strange thing and stole from my own exhibition. I grabbed the toddler sized PM2.5 masks (and the air although I admit I never used that). Of course, these masks also came in handy a few months later when we needed them for a very different reason - but that is another story, and another exhibition.

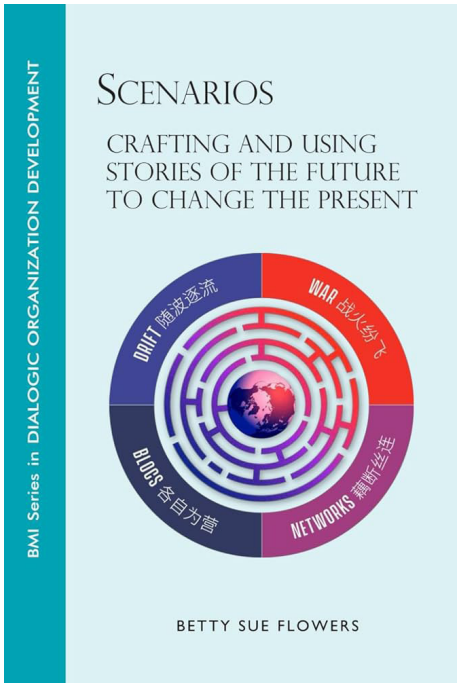

Photo Credit: James Horan / Museums of History NSW

Find out more about the museum at museumoffutures.com

Book Review

by Charles Brass – Chair, Futures Foundation

Scenarios
Crafting and using stories of the future to change the present
by Betty Sue Flowers



Constructing alternative possible scenarios is one of the techniques that futurists use when asked by their clients to navigate their way into the future.

Leaders need well-developed foresight because all big decisions are influenced by their story of the future, whether they are aware of it or not. The "official story of the future" is a more or less coherent, more or less conscious, more or less shared narrative about what will happen in 3 months, 6 months, a year, or five years. But as Betty Sue Flowers points out, here's the weird part: The future is a fiction. It doesn't exist. Yet you can't make rational strategic decisions without one.

To manage this, organizations analyze ever-growing volumes of information with increasingly sophisticated analytical techniques and produce forecasts that attempt to predict the future. However, data alone is not enough, and projections are always based on assumptions, A common one being that things will keep trending as they are now.

When an important decision needs to be made, especially when the people involved in making that decision have opposing ideas about what should happen, it can be challenging to hold a generative dialogue rather than staging a fight. In this context, almost any discussion can immediately

devolve into an argument. Scenarios can be very useful in creating a space for dialogue in which people can listen to each other and even help tell the story of a possible future that is not the one they most wish to create.

Flowers emphasizes that scenarios are not intended to be predictions. Instead, they act as a stage setting for generative dialogues and much better decisions to be made.

By creating a set of different, plausible stories of the future, they are best used to:

- Create a container for frank, thoughtful, safe, imaginative conversations about how the organization might adapt if trends change.
- Disrupt assumptions sometimes unconsciously held in current stories.
- Stimulate more complex and informed stories of the future.
- Increase foresight and the organization's ability to adapt, and
- Set the ground for generative dialogues that improve the organization in the present.

This book begins with the business case for scenarios, depicts various managerial mindsets one runs into, and explains the client-consultant agreements needed to utilize scenarios for dialogic organization development. You will find clear directions for how to co-create 2-4 equally plausible stories of the future, and use them to stimulate heightened levels of psychological safety and generative capacity in any group that has to make big decisions.

There are models for identifying which alternative futures to create scenarios for, advice on constructing and engaging a cross-section of stakeholders, and how to work with them to produce enough fleshed-out logic to begin writing each scenario. She notes things to do and avoid as the group works toward completed scenarios, ready for use. She emphasizes that while there are better and worse quality scenario documents, what's important is the quality of dialogue they generate. The book is full of seasoned advice on both the content of scenarios and the processes used to produce and use them, to make high-quality dialogues more likely.

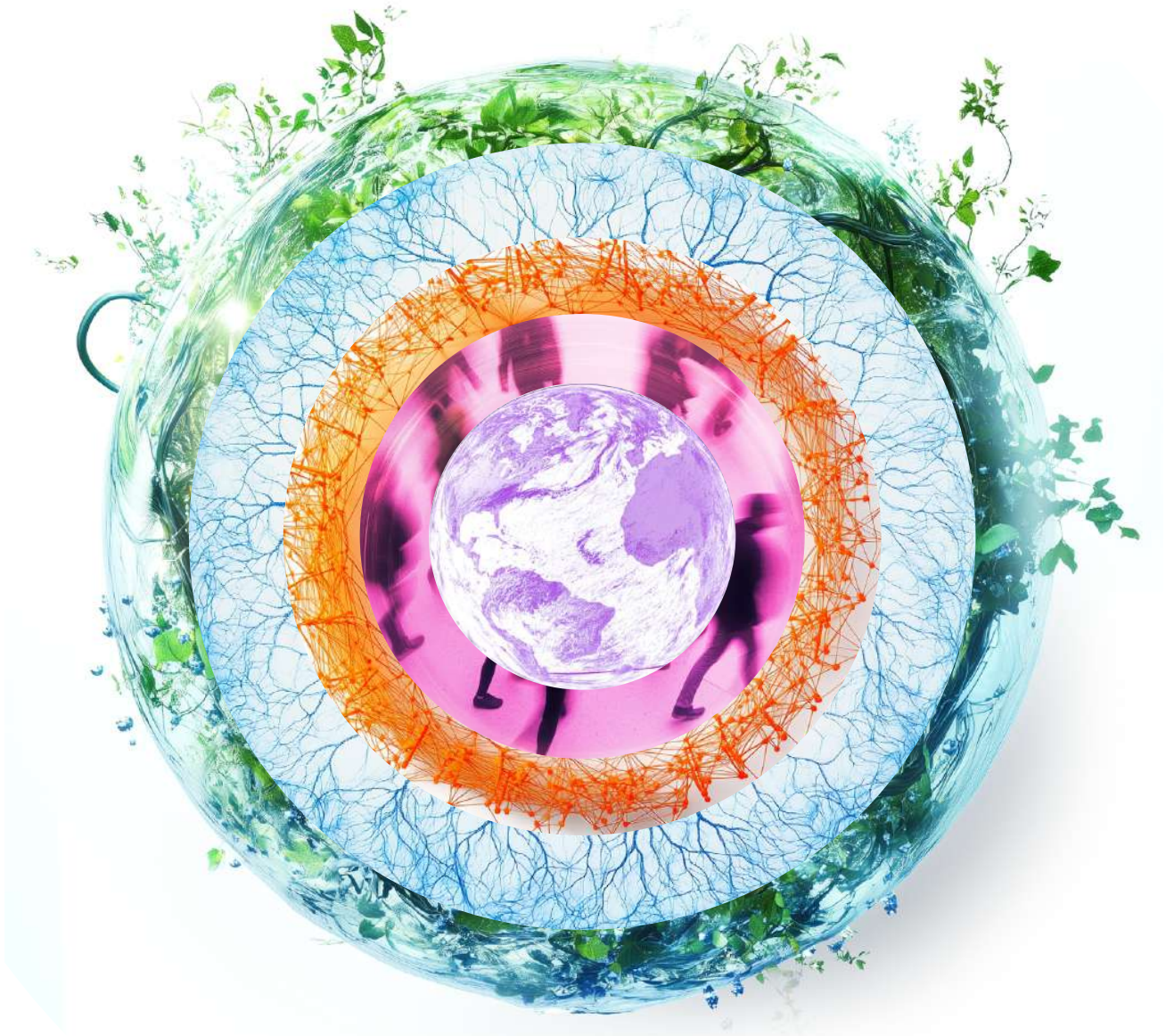
You won't find scenarios in OD textbooks, but they deserve a place. Perhaps one of the reasons is given by Flowers herself: "Even if a senior executive has asked the strategy team to develop a scenario process, staff time for such a project is always limited – overworked, underfunded or both" (p9).

As Flowers describes it, scenarios can stimulate the three enablers of transformational change, narrative, emergence and generative images, to produce conversations that make a difference. While the use of scenarios is most associated with strategic planning, the models offered here can be used for any planning requiring foresight, for example, talent management, product development, sales, to name but a few. Like Appreciative Inquiry and Future Search, Scenarios offer another path to a similar result: generative conversations and a new and better story of the future.

Signals in the Noise

DUBAI FUTURE FOUNDATION
OUR VIEW OF THE FUTURE

As well as hosting a major futures conference every year for the past four years, the Dubai Future Foundation publishes an annual report called the Future Opportunities Report



The following extract is from this report

Signals in the Noise

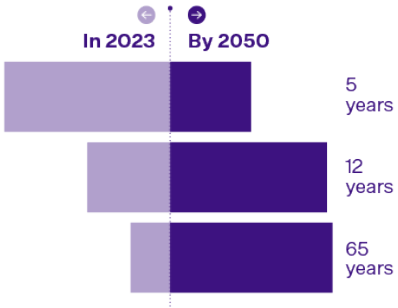
DUBAI FUTURE FOUNDATION - OUR VIEW OF THE FUTURE

ASSUMPTION 1

Lives Will Be Longer and Healthier

Average life expectancy around the globe has more than doubled over the past 225 years.

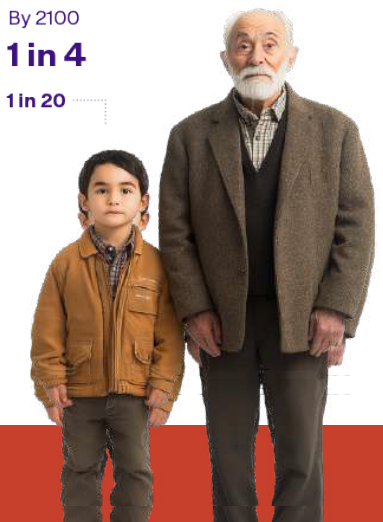
In 1800 it was 30 years,[37] and it has now reached 73.3 years.[38, 39] It dropped marginally during the COVID-19 pandemic, but by 2054 life expectancy is expected to reach an average of 77.4 years worldwide.[40, 41]



A new age distribution is emerging

In 2023, the total number of people aged 65 years or over was approximately half the total number of children under the age of 12 years and a quarter of the number of children under the age of 5 years.[42]

By 2050, the total number of people aged 65 years or over is expected to equal the total number of children under the age of 12 years and to be more than twice the number of children under the age of 5 years.[43]



By 2100, one in four of the population will be aged 65 years or over, whereas 1 in 20 will be younger than 5 years.[44]

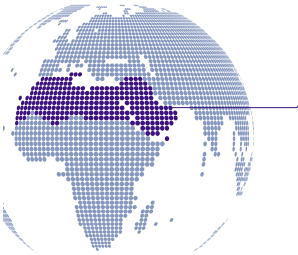
The percentage of the global population aged 60 years or over is likely to rise from 14.5% in 2024 to 22% in 2050,[45] and the number of people aged 80 or over is expected to triple between 2020 and 2050, reaching 426 million.[46] With healthy ageing, older people will create significant economic opportunities and societal benefit.[47]

Signals in the Noise

DUBAI FUTURE FOUNDATION - OUR VIEW OF THE FUTURE

ASSUMPTION 2

Climate Change Will Persist

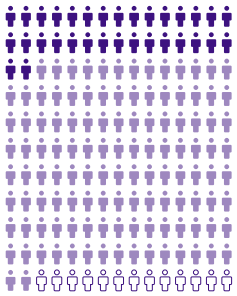


Temperatures expected to rise by **more than twice the global average by 2030**

Global temperatures will continue to rise

Compared with pre-industrial (1850–1900) levels, the average global temperature in 2023 was about 1.45°C higher.[48, 49] The temperatures in the Middle East and North Africa are expected to rise by more than twice the global average by 2030.[50]

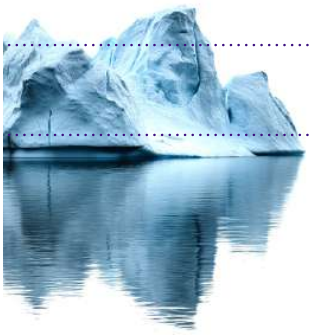
The decade leading up to 2023 was the warmest on record.[51]



By 2030, climate change will have driven **32–132 million people into poverty**

Impoverished countries are more vulnerable to the adverse impacts of climate change.[52]

It is estimated that by 2030, climate change will have driven 32–132 million people into poverty.[53] Climate change is a particular threat to countries in sub-Saharan Africa and South Asia, where impacts are likely to be medium to high in severity, positioning climate change as one of the greatest threats to people and ways of life in these regions.[54]



889 mm per year in 2010s

171 mm per year in 1990s

Sea levels will also continue to rise

The rate of glacier loss monitored by the World Glacier Monitoring Service increased from –171 mm (6.7 inches) per year in the 1990s to –889 mm (2.9 feet) per year in the 2010s[55] and accelerated to 4 feet per year between 2021 and 2023.[56] In September 2024, Khalifa University deployed the United Arab Emirates' first Antarctic ice-monitoring instrument, known as Snow Ice Mass Balance (SIMBA). The project is studying sea-ice formation affecting global climate, with Antarctica holding 90% of Earth's freshwater ice.[57]

Signals in the Noise
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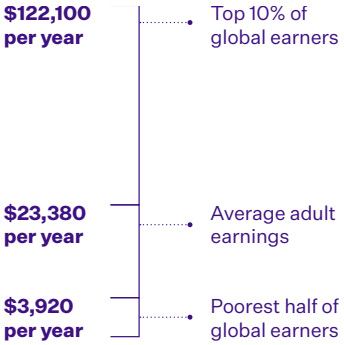
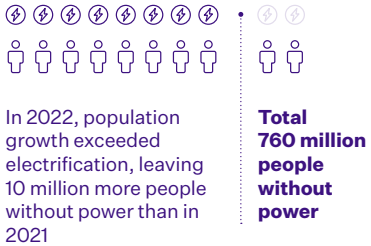
ASSUMPTION 3

Inequalities Will Continue



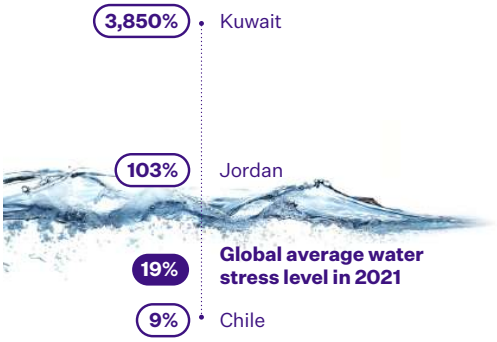
Income gaps persist.

Using the principle of purchasing power parity, the average adult earns $23,380 per year (2021 figures) and has assets valued at $102,600. However, the average adult from the top 10% of global earners takes home $122,100 per year with average assets of $771,300. The average individual from the poorest half of global earners takes home $3,920 per year and has assets valued at $4,100.[58] While the top 10% of global earners now own 53.5% of total national income, representing a modest reduction from their peak of 58.2% in 2000 over the past 25 years.[59]



Some people still lack access to electricity.

Global electricity access rose from 73% in 2000 to 91% in 2022. However, 2022 marked a concerning shift – population growth exceeded electrification, leaving 10 million more people without power than in 2021 and resulting in a total of 760 million people around the world without power.[60]



Water stress levels vary greatly around the world.

Globally – and likely to persist – the average water stress level in 2021 was 19%.[61] Measured as fresh water withdrawn as a proportion of available fresh water, regional disparities are significant, ranging from countries that far exceed sustainable limits such as Kuwait (3,850%), Egypt (141%) and Jordan (103%) to those with lower water stress levels such as Japan (36%), the Netherlands (16%) and Chile (9%).[62]

Signals in the Noise

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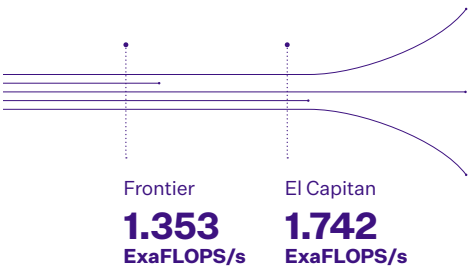
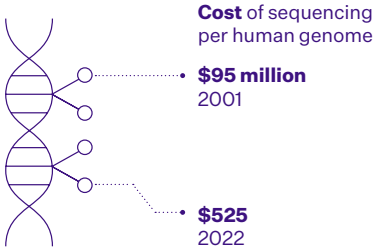
ASSUMPTION 4

Technology Will Continue to Advance



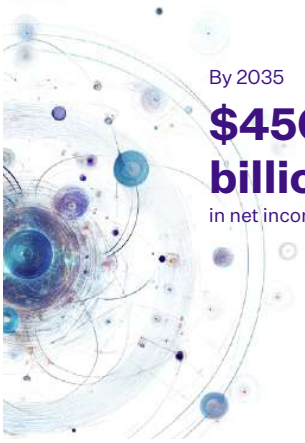
El Capitan is now the fastest supercomputer.

Frontier was the fastest supercomputer until 2023, when El Capitan – based in the Lawrence Livermore National Laboratory in California, United States – carried out operations at 1.742 ExaFLOPS/s.[63] Frontier recorded a new speed of 1.353 ExaFLOPS/s.[64]



DNA sequencing is cheaper.

Technological advancement has enabled a reduction in the cost of sequencing per human genome from just over $95 million in 2001 to $525 in 2022.[65]



Quantum computing will reshape sectors and industries.

By 2035, quantum computing could yield $450–850 billion in net income across sectors such as finance, healthcare and energy. Early adopters may capture 90% of this value by securing talent, intellectual property, and partnerships, gaining substantial competitive advantages.[66]

Signals in the Noise

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ASSUMPTION 5

Global Interdependencies Will Remain

DHL's global trade depth

20% (2003) → 25% (2023)

$33 trillion
global trade in 2024

Service trade +7%
Goods +2%

The market for **critical minerals** such as nickel, lithium and aluminium is expected to

double

within five years

Global trade will continue to expand.

Despite significant trade shifts between China and the United States, and between Russia and the European Union (EU), flows of trade, capital, information and people reached new highs in 2022 and 2023, with DHL's global trade depth – international compared with domestic flows – reaching 25% in 2023 compared with 20% in 2003.[67]

The world will remain connected through global supply chains.

Despite significant challenges, global trade was set to reach $33 trillion by the end of 2024. This growth was driven by increases in service trade (+7%) compared to a mild increase in goods trade (+2%), with growth particularly strong in apparel (+14%), office equipment (+13%) and information and communications technology (ICT) (+13%) sectors.[68]

Critical raw materials will remain key especially for the green transition.

Even with the passing of the Critical Raw Materials Act in 2024[69] and the EU plans to increase its domestic production of rare earth elements from none today to 20% by 2030,[70] China still dominates mining (54%) and refining (77%) of rare earth elements.[71] As the market for critical minerals such as nickel, lithium and aluminium is expected to double within five years,[72] global interdependence will play a crucial role in meeting these needs.

The full report can be ordered from the futures foundation – simply email info@futuresfoundation.org.au and request Dubai Future Foundation Future Opportunities Report 2050.