

# Transformative scenarios in a climate-challenged world

An introduction to alternative futures (2021-2035)  
for planning and decision making in the  
emergency management sector



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# Navigating our volatile world

# Navigating our volatile world

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## The context we live within

The duration, scale and intensity of the 2019-2020 Black Summer bushfire season and the devastating impact of COVID-19 remind us we cannot predict the future, and what we expect will happen won't necessarily play out the way we expect it to. We can however, learn to better prepare for the future and take action to more quickly adapt as it unfolds, and importantly take action to shape the future we want and in doing so significantly reduce the risks of the hazards ahead.

How we perceive the world and how we choose to operate and behave as professionals and leaders plays an enormous role in both helping to minimise and mitigate future risk as well as keep people and the environment as safe as possible.

**“Recent global events have provided us with the opportunity to question what we value, what we do and how we do it.**

**As emergency services organisations they have also encouraged us to wonder what else is possible to help us better plan, prepare, respond and recover.”**

# What if I told you *back in...*?

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## ...January 2018, that very soon in Australia...

...catastrophic bushfires would burn 18.6 million hectares of land, kill over a billion native animals, destroy 2,800 homes, create hazardous air conditions across major Australian cities leading to major urban respiratory health issues, with total economic cost estimated to exceed \$103 billion?

...these bushfires would create smoke equivalent to 306 million tonnes of CO<sub>2</sub> emissions that would travel 11,000km over the Pacific Ocean to New Zealand, then Chile and Argentina?

## ...August 2020, in New Zealand, that next month...

...at exactly the same time there is a drought in the north of New Zealand, a 3,000-hectare wildfire would rip thorough the Lake Pukaki area for one week before being extinguished by a snow storm!

## ...January 2019, that while the Black Summer fires were burning...

...a virus first identified in Wuhan, China would spread across almost every corner of the world, be declared as global health emergency in January 2020, infect 174m people and kill 3.8m and shrink the global economy by 13-32%...?

...closer to home, Melbourne's five million residents would be in complete lockdown at home for 112 days in 2020, Australia and New Zealand's borders would be shut to all international travel, major industries would be on the brink of collapse with escalating mental health, family violence and other social issues...?

## ...March 2020, that during world-wide COVID-19 lockdowns...

...air pollution levels dropped such that first time in 30 years, the peaks of the Himalayan mountains were visible from the Punjab?

...nitrous oxide emissions in Sao Paulo dropped by 77%, electricity demands dropped by 30% in Italy, India and Germany, road congestion halved in Los Angeles and New York?

...dolphins were seen swimming in the clear waters of the Venice canals, and the reduction in cargo ships allowed whales to communicate in ways never before observed by environmental scientists?

...people across the world would suddenly start working from home by the millions?

**I would have replied that this is madness, there is no way this would happen and if we saw it coming, we'd have done something about it.**

But we didn't believe it was likely, we didn't expect it, and it still happened.

# What if I *now* told you...?

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## ...that from 2022-2025...

...the eastern seaboard of Australia and flood plains of Canterbury, New Zealand, would lose 800 homes to storm surges, and rising flood waters would displace over **2 million** people from their homes...

## ...that we can improve the future and...

...there is an approach we can take to help adapt and transform what we do to further reduce the risks and impacts of these hazards and disasters. We'll improve our ability to save more lives, assets and resources and create a more resilient future for communities across Australia and New Zealand?

## ...that in 2030...

...the direct and indirect recovery cost of the 2024 urban and bushfires exceeded \$400 billion, pushing Australia and New Zealand into deep recessions with skyrocketing mental health issues. At the same time, borders remained closed to outside assistance due to resurging new strains of COVID-19, whilst the majority of our armed forces continue to be deployed offshore supporting increasingly violent geopolitical conflicts in south east Asia?

## ...that it will be challenging and...

...stepping into this approach would take courage and resolve to test our own thinking and world views, open ourselves to challenge our assumptions and imagine that we don't actually have all the answers we need.

**Would you be willing to explore?**

# Where are we now?

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## Exploring the future

In 2020 and 2021, under the stewardship of BNHCRC and AFAC and lead by Reos Partners and RMIT University, a select team of leaders and professionals from across the Australia and New Zealand emergency management sector (EMS) and related organisations (see Appendix for details), came together – in our virtual COVID-19 context – over a series of months to better understand the driving forces in the world that interact to shape the future in unpredictable and volatile ways; ways that humans cannot reliably forecast or predict.

The scenario team used these driving forces to construct a series of plausible futures that invite the EMS and the organisations within it to examine their current thinking, and challenge existing assumptions, perceptions, planning, operations and cultures.

The future scenarios explore what might happen over 2021-2035 in a climate-challenged world and how these futures might plausibly come about. While you may not see these futures as immediately likely (as many of us did with Black Summer or COVID-19), they could happen.

## The invitation and the challenge

We invite you to immerse yourselves in these worlds and experience what these futures might be and feel like for Australia and New Zealand, for our communities, our businesses, our environment, our families and homes, our health, and our way of life.

We then challenge you to consider the implications for our sector and your organisation should these futures come about. What are the implications for the tools, capabilities, networks, resources at our immediate and potential disposal to minimise risk and preserve life?

Do we have what we need? Do we have the resources, capability, workforce, leadership, relationships, culture, diversity of thinking? If not, what then might we do to figure out “what” we might need to do and importantly “how” we might do it? These questions provoke us to build upon what we know works well; not to discard our current thinking, but to add to it.

It takes courage and vulnerability to test our assumptions, examine our thinking and reconsider our perspectives and courses of action. But in EMS we are collectively in positions of trust and accountability.

[Are we as ready as we can be? Can we embark on this exploration together?](#)

# Condensing a complex world into scenarios

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## Creating scenarios

One way to help make sense of the complex and uncertain world around us is by creating scenarios. Scenarios are relevant stories about alternate futures and how they might plausibly come about.

The scenario team chose to create scenarios that look ahead fifteen years – long enough that significant change can take place, yet close enough to be tangible and meaningful. The team began to explore what might shape the future over this period of time. Understanding what futures might plausibly emerge involves understanding what is certain and uncertain about the future. In particular, it is the driving forces that are most uncertain in the world around us (known as the contextual environment outside the EMS) that might have a significant impact on the emergency management sector itself. Exploring these uncertainties helps us to better understand what future directions the EMS might take and what kinds of impacts these future uncertainties can have on both the industry as a whole as well as the organisations within and around it.

Through an intensive, ongoing process of interviewing, research and workshops with key industry representatives, the scenario team explored many driving forces in the world and identified two main certainties about the future and five main uncertainties.

The two factors that the team agreed are certain\*, no matter what we as a human race now do to avert climate impacts, we are already on a fixed trajectory of changing weather and climate. Over the next fifteen years:

1. There will be a **continuation of existing climate trends**. These trends include:

- Increasing average temperatures and heat;
- Increasing drought/decreasing rainfall (overall); and
- Increasing sea level rises and ocean acidification.

2. Whilst on this trajectory, there will also continue to be **increasing volatility, frequency and magnitude of weather extremes**:

- Longer fire seasons and more severe fire weather;
- More frequent and intense heatwaves; and
- More intense storms and flash floods.

\* *Strong consensus in the scientific community, such as CSIRO and IPCC as the preeminent multinational body of climate science, suggests that these factors will almost inevitably occur.*



# Condensing a complex world into scenarios

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## Creating scenarios

The scenario team identified and categorised many external driving forces in the contextual world around us, outside the EMS, that could have the most substantive impact on the sector itself. While many uncertainties were identified (see appendix), those identified by the team as most uncertain and most impactful included:

- The degree to which governance regimes are long-term, proactive and strategic versus short-term, less active and responsive;
- The extent to which social cohesiveness is present in society - whether society bonds together in collective support for one another versus operating in an individualistic, “me first” approach;
- The extent of economic prosperity and access to capital;
- The degree to which societal functioning is reliant upon technology;
- The extent of population spread and movement between rural and urban landscapes;
- The extent of global geo-political tension; and
- The impact of epidemics/pandemics.

It is these key uncertainties that lay out the structural framework for the possible future scenarios.

**“Better understanding the driving forces that shape the world outside the EMS can really help us think through what might happen next.**

**This is something we don’t do every day.”**

**“A small change in one of more these uncertainties can have an enormous impact on the EMS.”**

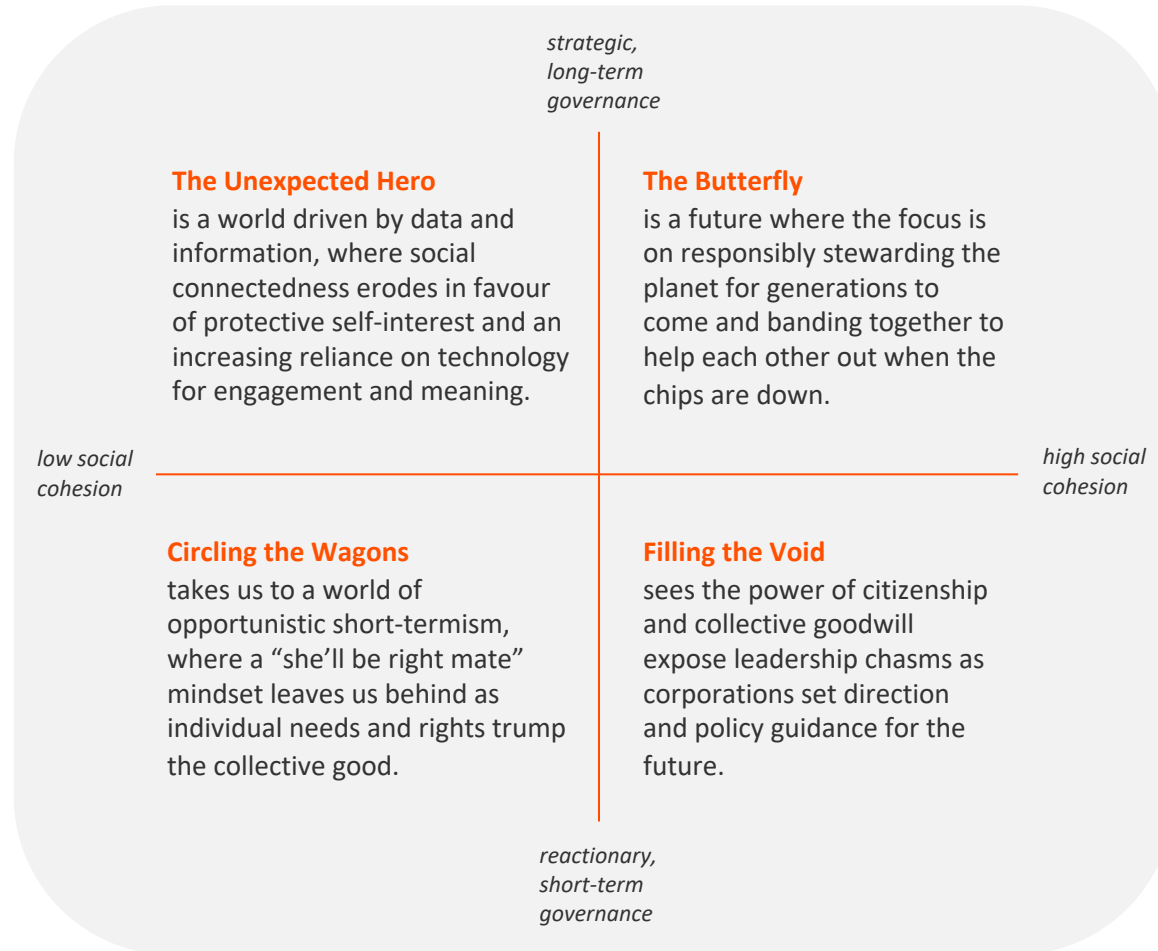
# Four possible futures (2021–2035)

# Four possible futures (2021–2035)



## Scenarios

Four distinct yet, plausible scenarios emerged from these uncertainties. Each scenario unfolds in a different way that leads to a different future. Each scenario has distinct and profound implications for the EMS.



The following pages present each scenario in more detail. As each scenario unfolds, try to imagine each future as vividly as possible, experiencing each world as if it were happening around you...

# 1. The Unexpected Hero

(more strategic long-term governance and lower social cohesion)

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The explosion of technology advances outpaced those of the early 2000's more than four fold. Artificial Intelligence (AI) innovations emerging from Asian tech labs have begun to revolutionise corporate and government operations providing scalable machine-learning, and razor sharp efficiency gains. A powerful new "evidence base" has begun to transform decision making, as well as investment and budget priorities. This did not come cost-free however, as alongside compounding pandemic related lockdowns, a generation of young people globally have grown up with limited social interaction and at-home online education. Social connection and meaning is attained through technology interfaces rather than face to face, as content continues to be curated by global social media platforms that reinforce current world views, prejudices and biases.

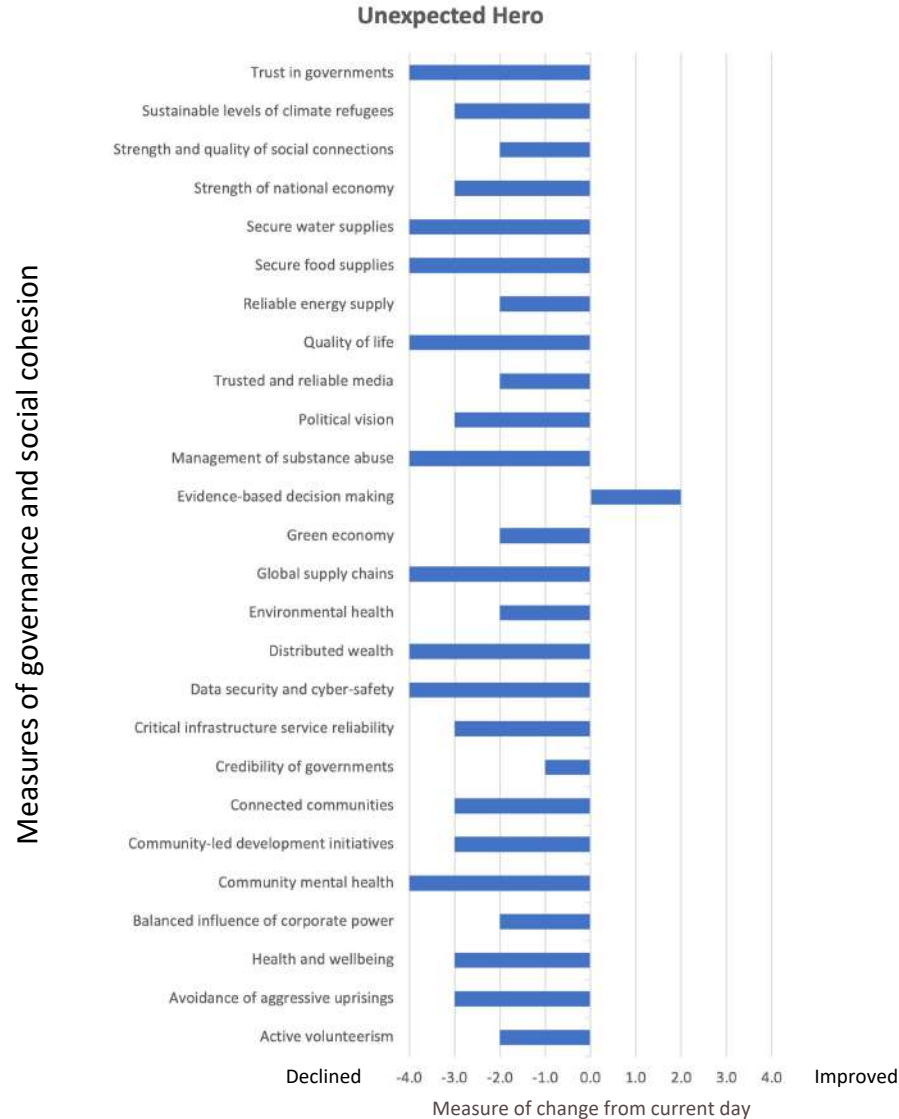
The devastating economic impact and recovery costs of COVID-19 and Australian Black Summer bush fires in 2020-21, were just the tip of the iceberg as subsequent compounding weather events and pandemics continue to rage with unpredictable volatility. Global food insecurity, water supply shortages, climate refugees flooding from neighbouring South Pacific states further exacerbate social inequities. The wellbeing of individuals and general population health indicators erode, and the quality of life in Australia and New Zealand reach historic lows. Mental health and substance abuse incidents hit crisis points driving both societal apathy and aggressive uprisings. Once characterised as easy going people, pent up intolerances and scepticism between factions across Australia and New Zealand, grow into a mix of violent clashes. Highly sophisticated cyber terrorist cells cause widespread government and consumer data security breaches, disrupting access to basic services, energy grids, banking systems and communication platforms. Although significant resources are allocated to tackling this elusive and growing threat, the scale and breadth of challenge exceeds the capability and resources of law enforcement and related agencies.

Government attempts to ease disruptions through fiscal stimulus packages and handouts fall short. As technology continued to boom, advances in AI deep-learning

data mining software, combined with open-source data ecosystems and the establishment of WikiLeaks 2.0, enable economists, academics and private industry to look transparently beneath the rhetoric to expose evidence of government ineptitude, resource wastefulness and self-serving policy. This breakthrough technology began exposing corruption world-wide. Public demands for more evidence-based, ethical, long-term decision-making are relentless. The old-school playbook of political point scoring for "rescuing" preventable problems is called out publicly for what it is. Such political actions, once newsworthy and almost heroic in decades past, are now universally criticised as short-sighted and propagandist. The new "ethical AI" can now calculate and predict comparative social, economic and environmental benefits of preventative measures. While it's early days and AI is not without errors and flaws of its own, it's learning quickly and receives wide applause. Government self-preservation now necessitates making and delivering strategic, "best for all" actions, not just saying it. AI has shaken up politics and decision making – like Uber did to taxis in 2010 – no one saw it coming. The system is transforming – there's a new hero in town.

Outcomes of the 2029 and 2030 federal elections in both Australia and New Zealand, ensured success to the parties prepared to think and act for the future. The old 1968 speech of Robert Kennedy lamenting that GDP, "measures everything... except that which makes life worthwhile" inspires a resurgence and rethink of national prosperity. However, this monumental turn around has not been a silver bullet. The history of political short-termism and social ruptures has left a generation of citizens suspicious and concerned. This is only exacerbated as tech innovators get richer and many jobs regarded as either dangerous, repetitive or procedural are increasingly replaced by machines – from 3-D-printed buildings, to law enforcement, to defence, to surgical operations. There are winners and losers. It will take years for government to earn back trust and flatten out growing economic disparities, but reliable information helps. It will be tough, but at least the future looks brighter for the next generation.

# 1. The Unexpected Hero (more strategic long-term governance and lower social cohesion)



# 1. The Unexpected Hero

The journey to 2035 as seen emerging through events over this time...



## DAILY NEWS

### Kasparov has Deep Blues after losing



2021

## THE WALL STREET JOURNAL

IBM CEO Lays Out New Initiatives in Cloud, AI: Arvind Krishna says coronavirus pandemic will 'dramatically accelerate' adoption of AI, cloud computing

By Sara Castellanos and Steven Rosenbush

International Business Machines Corp. on Tuesday is set to launch a slew of business-oriented artificial intelligence and cloud-computing products, the first major initiatives under the leadership of Chief Executive Arvind Krishna.

The pandemic will "dramatically accelerate" the adoption of hybrid-cloud and AI, Mr. Krishna said, as companies turn to cloud services to help their employees work and serve customers remotely, as well as to AI to automate certain types of work.



29 March 2021  
**The Guardian**  
For 200 years

### 'We will have to choose our apocalypse': the cost of freedom after the pandemic

By Sam Byers

To remake society after the pandemic, we must swap lots of self-improvement for something more radical, argues author Sam Byers

Across much of the west, March is a milestone both surreal and distressing: a full year of life in Covid-19's shadow. Twelve months ago, we couldn't imagine what we were about to experience; now we can't process what we've endured.

This was a year of reasonable contradictions. We were collective, yet individualism was rampant. We hystered the "global" to produce a vaccine, then vaccine nationalism the effort here that. Even as we us together, Covid defied conspiracy theories in the "Whisper" tone as a part.

On one thing, at least, we were all in agreement: we wanted to be free. The problem was that we couldn't agree on what that freedom looked like, or who should enjoy it. Even as new horizons of collective action and mutual support seemed possible, the urge to do whatever we wanted, free from the incovenience of consequences, took hold with renewed force. Set against the freedom from infection was the freedom to endanger others by leaving lockdown; the freedom to do away with masks and now airborne death in the supermarket; the right, via



### Israel Sends Robots Armed with Machine Guns to Palestinian Border

5 May 2020

## THE WALL STREET JOURNAL

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25 March 2021  
**THE AUSTRALIAN**

### We went to the moon! Now the government says its getting real on disasters.

Following the bushfires and cyclones of 2024, Government lays out strategy to move populations away from high risk locations.

This is expensive. But it not entirely new. On large timescales humans have moved regularly. In recent history there are also examples of whole communities "moving up the hill". The scale proposed - over the next 10 years - is breathtaking.

And who funds this? The pandemic introduced the idea that economic theory wasn't complete. Now, new economic theory and practice sweeping the globe following the advancement in artificial intelligence will fund it - that's the promise. "Chaos" and their algorithms had been running the markets for nearly two decades.

Now, following this summer's series of truly unprecedented disasters, which resulted in whole communities disappearing and a death toll that is still being counted, government is setting out a path that might faint of heart... but probably



### Hackers are investing in each other's operations - just like VCs invest in startups

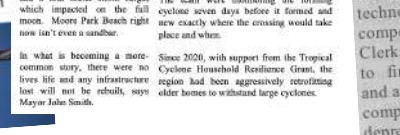
25 March 2021

## THE COURIER MAIL

Disaster averted by "weather brain" AI

By Sara Castellanos and Steven Rosenbush

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Friday 8 November 2030  
**Northern T**

### First 3D Printed Office Tower

Darwin becomes the site for the first 3D printed commercial structure built entirely without workers. Construction costs were halved and with no downtime or overtime, the machines worked day and night. A skeleton crew of maintenance staff oversaw the operations and reported a successful first build.

Construction costs to grow while significant and labour, and more security from AI. The cost of construction is expected to rise significantly over the next 10 years.



### Stitch in Time Saves Nine

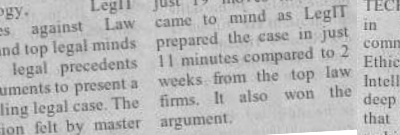
2030

## The Domin

Monday 2 May 2033

By Sara Castellanos and Steven Rosenbush

International Business Machines Corp. on Tuesday is set to launch a slew of business-oriented artificial intelligence and cloud-computing products, the first major initiatives under the leadership of Chief Executive Arvind Krishna.



Thursday 1 January 2032  
**The Courier**

### Unions Reel as Job Losses Continue

UNION heavy weights meet in Brisbane to continue to fight for legislation against the introduction of robotics and technology over "good old fashioned jobs".

"The hardworking man on the street doesn't deserve this treatment. Every person has a right to work and a right to a decent job," claims National Head of the Trades Union, who said the union will continue to fight for legislation against the introduction of robotics and technology over "good old fashioned jobs".



### Dandenong Star Journal

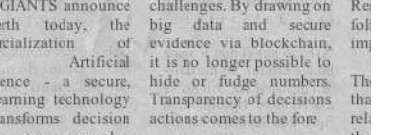
2035

## Drone swarms to the rescue

By Sara Castellanos and Steven Rosenbush

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Friday 11 April 2029  
**The New Z**

### Drone swarms to the rescue

The weekend's bushfires never stood a chance! Drone swarms to the rescue.

New, advanced computers and sensors know exactly what is going on. Drone swarms when there's a bushfire or even just an exhaust pipe from an old internal combustion engine vehicle. They know what vegetation is likely to go up first and who lives in houses most vulnerable. And there are a range of response options available even before fire fighters are deployed.



### Drone swarms to the rescue

2035

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## 2. The Butterfly (more strategic long-term governance and higher social cohesion)

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Small, short-term sacrifices for long-term gain has been the mantra since COVID-19 in 2020 and 2021. While such “constraint on liberties” initially caused much consternation, the benefits of building “credits in the bank” for a rainy day outweighs such concerns. In stark contrast to the “me first” of previous decades, those who put the good of the whole before themselves are praised for their “mateship” and balancing the scales. This flows into community sentiment through a resurgence of neighbourly support and influences government policy through decisions to increase capital expenditure initiatives that support many. This includes road and public infrastructure upgrades and building code revisions to minimise flood and fire risks for cities and towns. Such “future-proofing” strategies are applauded by urban communities and the press alike. However, these decisions are not without costs for rural, low-income communities with aging, risk-prone infrastructure. Residents unable to afford private property upgrades are forced to relocate as new climate risks legislation imposed by government mandates these changes. While communities banded together to help, it hasn’t been easy – some towns are too expensive to upgrade and are now classified as “unlivable”.

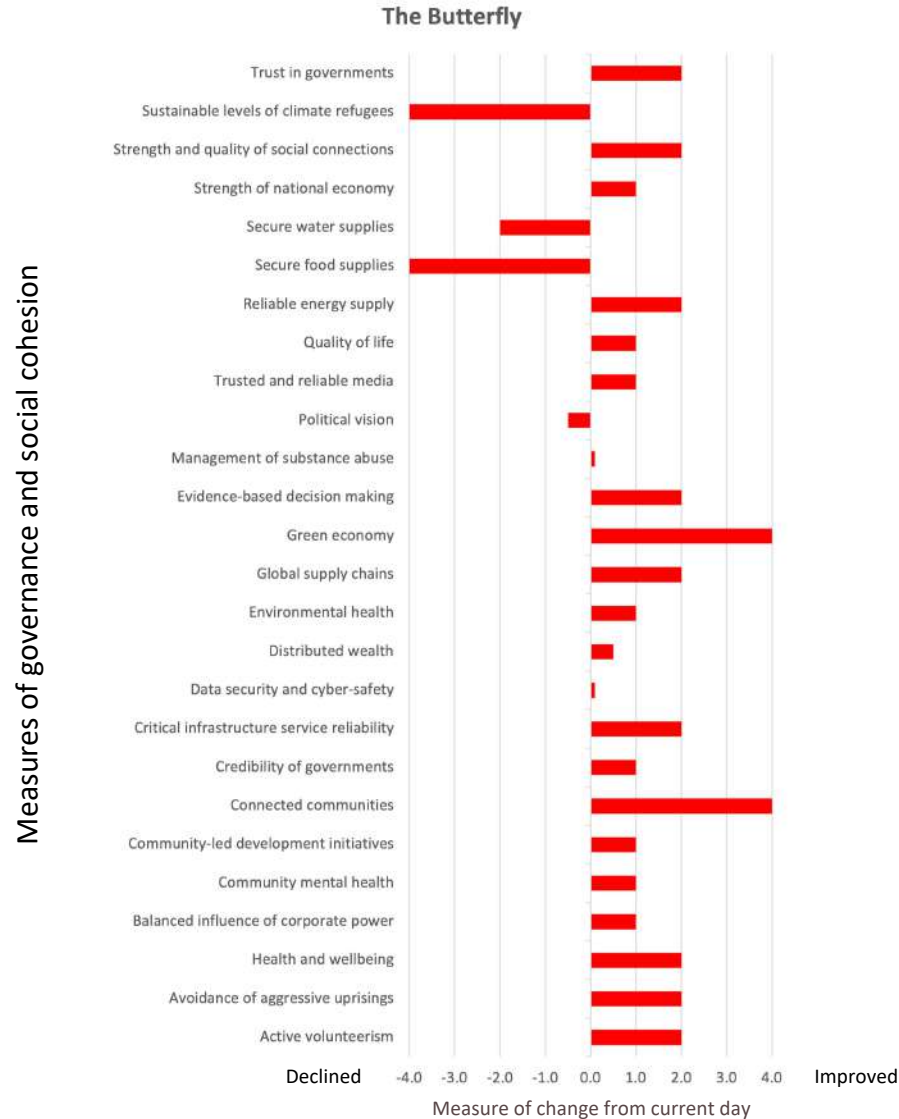
Like the *#metoo* movement initially sparked in 2006, social movements advancing the values of equality and fairness, uncover political and economic corruption and nepotism across politics and government bureaucracy, causing unprecedented infighting and violent protests. The problem is deeper than anyone predicted and public pressure mounts. Eventual reforms in institutional governance have led to new accountability and transparency measures, as annual reporting requirements extend from economic measures to include environmental and social values. Corporate ‘resets’ follow as key executives and directors of global corporations stand trial for “climate crimes” following the introduction of global climate protection laws. Killing the earth is equivalent to killing human life and individuals are being held to account. Corporate scrambling to restructure and self-review drives short-term down-grading of credit ratings and stock prices. Companies ahead of the curve in strong corporate governance and ethical practices see share prices steadily rise to outpace those with short-sighted outlooks. New tax breaks for

“environmental stewardship” attract significant activity and offshore investment. A new cadre of leaders have come to the foreground. Mounting global climate crises devastate parts of the world. Public outrage builds and mainstream media supports positive climate action.

The thriving green economy has gone beyond proof of concept in pilot locations across Australia and New Zealand with the transition to renewables advancing at record pace. New “green” jobs and commercial opportunities explode beyond previous expectation and government incentives to “zero carbon” emissions escalate. 2031 marked the year 50% of road transport became electrified. Following the granting of legal rights to the Whanganui River in 2017, many other natural assets and ecosystems have followed suit. Communities themselves have been granted legal status to combat predatory private practices that don’t benefit community or planet. Carbon intensive businesses in agriculture, mining, and energy are declining rapidly as they are forced to painfully pivot their business models to survive or die out in the transition. Forward thinking unions have reinvented their purpose and agency in this transition and found new ways to advocate for fairness and equity. While family subsidies are being provided during this upheaval, the toll financially, socially and on mental health exceeds government health budgets. This is further exacerbated by the high influx of refugees seeking asylum from neighbouring climate and war affected states. Advances in 3D printing technology enables sustainable dwellings to be created quickly and more affordably but food security is now a crucial agenda, as unequal supply remains dangerously problematic. While “community building” in climate-challenged locations is jointly financed through climate tax, goodwill and hands-on support of local communities and NGOs, demand for rebuilding continues to outstrip supply and community resilience is continually stretched.

Transformation is exhausting. While the journey has been extremely tough with emotional, mental and financial sacrifice, the structural building blocks are slowly emerging for a more sustainable, healthy future. Mateship, looking for the positives, and wanting to protect our children’s children keep us inspired.

# 2. The Butterfly (more strategic long-term governance and higher social cohesion)





# 2. The Butterfly

The journey to 2035 as seen emerging through events over this time...



13 APRIL 2021  
**NZ becomes first in world for climate reporting**

**HON DR DAVID CLARK** **HON JAMES SHAW**  
 Climate Change Commerce and Consumer Affairs  
 Commerce and Consumer Affairs Minister David Clark says Aotearoa New Zealand has become the first country in the world to introduce a law that requires the financial sector to disclose the impacts of climate change on their business and explain how they will manage climate-related risks and opportunities.  
 The Financial Sector (Climate-related Disclosure and Other Matters) Amendment Bill has been introduced to Parliament and will receive its first reading this week.  
 "It is important that every part of New Zealand's economy is helping us cut emissions and transition to a low carbon future. This legislation ensures that financial organisations disclose and ultimately take action against climate-related risks and opportunities.  
 "Becoming the first country in the world to introduce a law like this means we have an opportunity to show real leadership and pave the way for other countries to make climate-related disclosures mandatory," said David Clark.

**The Guardian**  
 Friday, 18 April 2021  
**Systemic Government Corruption**  
 The Minister for Transport and CEOs of local jurisdictions were caught handing mishandling \$20m of payments destined for community building after a tip off from local residents. It has since been uncovered that infrastructure projects dating back 8 years have been handed to 'friends and colleagues at the expense of the community. All suspects have had salaries frozen and being held in custody until their hearing commences later this month.



**Autonomous trucks hit the highways, with Australian tech helping drive the revolution**  
 By Matt Brown  
 Posted 19 Jun 2021 7:45am AEST  
 Every day across Australia, trucks are driving the

**The Age**  
 Thursday 3 December 2030

**Forestry Sector Ringbarked**  
 MELBOURNE: Fibre from forests is so 2020. We can't believe they didn't see it coming. After a decade of slow decline the forestry sector is no more as companies relying on they fail to see alternative sustainable fibre sources. Environmental groups celebrate the industry's demise, saying it's a win for the planet.

**Green Economy Proof of Concept**  
 By KATE SAMPRAS  
 Hunter Valley Region of NSW celebrates proof of concept as it showcases evidence of its successful new green energy vision. Attracting online audiences from around the world, the region's government and community share their journey and path to a successful "pilot region" for a sustainable industry with the potential for new infrastructure and jobs for the future.

2021

2025

2030

2035

**Germany's First 3D-Printed Residential Building is Near Completion**  
 After 100 hours of 3D printing, the structure is only five weeks away from opening its doors.  
 By Derya Ozdemir  
 June 22, 2021

**The Age**  
 Thursday 7 October 2027  
**Corruption Unmasked**  
 CANBERRA: In breaking news, six senior ministerial staff have been arrested on corruption charges of embezzlement and aiding a foreign power in what is one of the most dangerous and subversive plots uncovered to date. Following a 12-month sting operation, police intercepted encrypted messages and computers. Evidence of All suspects in high security further investigation conducted.



Liked by John and 681,560 others  
 wiselb Last petrol station in New Zealand converted to electricity  
 #byoc #newgen @party ... more  
 View all 18,600 comments

**Textiles Circularity Centre**  
 Last updated 26 March 2021



Textiles Circularity Centre funded by UK Research & Innovation (2021-2024). The Textiles Circularity Centre will turn post-consumer textiles, crop residues and household waste into renewable materials for use in textiles, developing new supply chains, textile production, design and consumer experience.

**NZ Herald**  
 Monday, 29 January 2025  
**NZ - World's First Hydrogen**  
 In breaking news, the New Zealand Prime Minister announced the commissioning of the world's first commercial hydrogen plant, after securing World Bank and corporate financing. Australia scrambled to follow suit by establishing a new government entity for world class sustainable hydrogen development in partnership with New Zealand. An Australian government spokesperson admitted that it's New Zealand's counterpart would be leading this important initiative as a joint ANZ venture.

**The New York Times**  
 Tuesday, 12 Jan 2029  
**Chairman & CEO convicted**  
 The former CEO and current Chairman of ABC Mining Corporation have lost their appeal at the International Criminal Court (ICC) in The Hague, having been found guilty of climate crimes over three decades from 1995-2025 and each sentenced to 20 years jail. The UN Climate Crimes Tribunal said the verdict is final and cannot be appealed any further.

**Economist**  
 Dec 2031  
**Plant-based meats feed 10b**  
 In growing action to reduce our carbon footprint, alongside breakthrough advances in food and nutrition technologies, plant-based meats have for the first time outstripped demand not only in Asian countries but in Germany, Australia and New Zealand, with many seasoned carnivores unable to distinguish real lamb from plant-based substitutes. The old culture of eating meat is now as much part of history as the combustion engine as a new generation looks ahead to saving the planet ahead of their own stomachs. In doing so, carbon emissions from the agricultural sector in Australia and New Zealand have dropped dramatically as new and more reliable agriculture initiatives better suited to volatile climatic conditions have taken precedence.

# 3. Circling the Wagons (more reactionary, short-term governance and lower social cohesion)

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The population migration from urban to regional and rural areas has reversed projections of 2019 as families follow each other to secure cheaper housing opportunities, safer and healthier places to live and capitalise on work-from-home employment policies and new technology. While regional areas scramble to keep pace with increasing public infrastructure and service demands, the once vibrant and bustling capital cities as centres for commerce, arts, culture and entertainment are struggling to remain vibrant as businesses relocate, corporations continue to downsize their office footprints and immigration levels recede as global tensions rise.

In 2020, the WEF reported the cost of fighting COVID-19 could be 500 times as much as pandemic preventative measures. The same now appears to be true on climate action but at an exponential scale. Geo-political tensions escalate as global superpowers exert their dominance through coercive land and commercial acquisitions, trade embargoes, “debt trap diplomacy” with developing countries, and aggressive cyber and military assaults. Global supply chains disruptions have slowed commodity trading, constraining the domestic economy and are driving up unemployment rates. Attempts to offset this loss include knee-jerk asset sales by government, such as offering offshore drilling rights adjacent to environmentally sensitive areas, and lobbying for increased fossil fuel industry. Defence is becoming significant export, with ANZ armed forces now deployed to both the Pacific Islands and the South China Sea for global peace keeping initiatives, creating a “national security threat” on home soil. Global tensions are mirrored locally, as racial violence and ideological intolerances escalate within and between communities.

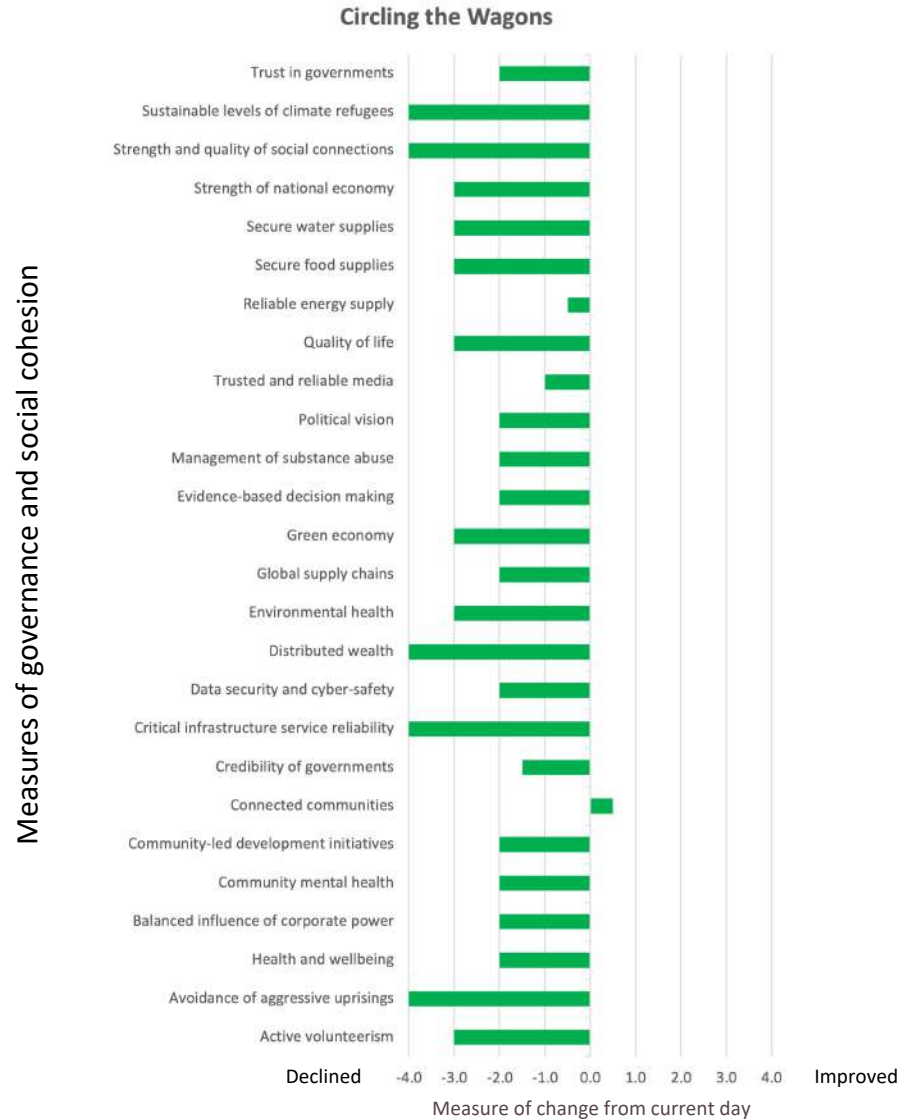
Successive governments continue to trade populist policy to win votes as progressive and conservative policies merge. Media attention and internal feuding takes priority over forward planning and good governance. Waiting for the next problem to address is modus operandi. Perpetual government outsourcing of expertise and knowledge exacerbates the depleted government capacity and fuels external dependence and corporate opportunism. National debt levels now eclipses those of 2021, leaving deep economic burdens for future generations. The economic decline is attributed to strategic ineptitude, lack of vigilance and a “she’ll be right” attitude.

The world was moving quickly while we are looking for fast returns and easy wins. Numerous major infrastructure and “green energy” projects have been shelved while national credit ratings decrease, inflation builds and mounting domestic challenges overwhelm government resources and capability. Tempting “conditional” funding bailouts are being offered by competing superpowers. Australia and New Zealand drop out of the top 50 countries on the Environmental Performance Index (EPI) and leading green corporations are transitioning headquarters to “climate supportive” Sweden and Germany. Remaining operators are either owned by foreign states with long-term sweetheart deals or struggling entrepreneurial ventures. Some corporates are willing to offer support, yet the volatile global context and shareholder demands encourage prioritisation on earnings maximisation. Some carbon intensive industries are quietly booming. A cadre of ethical companies, NGOs and community groups attempt to make government complacency transparent. Their voices remain largely unheard or confused in mainstream media manipulation, a whitewash of deep fake news and political self interest. Deep frustration, civil unrest and violent protests erupt in capital cities to deaf ears and apathy. A groundswell of anger is rising across the fractured communities – with unequal access to resources, self-interest increases.

Increasingly volatile climate hazard events drive an escalation in property insurance claims, eventually rendering many rural and coastal properties uninsurable. Remaining properties face skyrocketing premiums and increasing taxes, unaffordable by many. The urban exodus from the early 2020’s is now having consequences. Plummeting regional property prices and rising inflation follow.

Unbearable heat and climate-related events lead to compounding infrastructure damage, including water supplies, food supply chains, transport routes, communication towers, health and education assets. Food and commodity shortages as well as public health and wellbeing implications result. Families and communities bunker down. Increasing economic disparities and social fractures have led to a rise in “exclusive” communities for the rich and an increasing rift between the “haves” and “have nots”. It seems that “circling the wagons,” staying close and looking after one’s own is the safest option.

# 3. Circling the Wagons (more reactionary, short-term governance and lower social cohesion)



# 3. Circling the Wagons (more reactionary, short-term governance and lower social cohesion)



**VICTORIA**  
**Canberra opens bids for gas, oil drilling near Twelve Apostles**  
 The federal government has released 21 offshore blocks for exploratory drilling, including in Victoria's Gippsland and Otway basins, with one site just six kilometres from the Twelve Apostles Marine National Park.  
 By David Estcourt • June 15, 2021 – 07:19pm



2021

**WORLD ECONOMIC FORUM**  
 Fighting COVID-19 could cost 500 times as much as pandemic prevention measures

Thursday, 5 October 2023

**ANZ Troops deployed to South China Sea**  
 As tensions build between China and neighboring States, western forces send unprecedented troops to the South China Sea in an attempt to broker peace and maintain regional stability. China continues to demand its sovereign rights to the sea as Taiwan and Philippines.

2025

**The Age**  
 Monday, 15 February 2027

**Rural Towns Uninsurable**  
 The Insurance Industry has claimed 144 country towns and the 2,600 houses and businesses within them are officially unable to be insured. Changing and volatile weather conditions rendered the geographies too inaccessible for safe protection. Unions support the move as they are unwilling to put their members at risk.

2030

**The Advertiser**  
 Friday 29 November 2030

**Whyalla Melts**  
 After successive days of extreme heat, major infrastructure buckles under the heat. From melting asphalt to buckling train tracks, road, rail and air transportation to and from the town has become impossible. Power supplies have been cut making the heat life threatening for the elderly and for small children.

2035



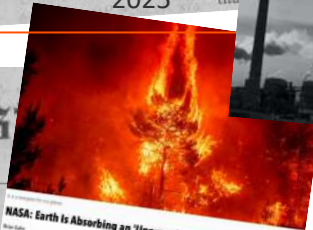
**HEALTH**  
**On Top of Everything Else, the Pandemic Messed With Our Morals**  
 The traumas of the past year have left some people wrestling with an awful question: Am I still a good person?  
 JONATHAN MOENS JUN 8, 2021



Throughout the pandemic, people have had to make impossibly tough

**The Australian**  
 Monday 5 August 2024

**Busy as Bourke St?**  
 MELBOURNE: Bourke St Melbourne is no longer the definition of bustling as major retail outlets vacate their premises, buskers try their luck in suburban hubs and pedestrian traffic is limited to the remaining office workers not working remotely. While attempts to rejuvenate the street are valiant, it's just not possible without workers, tourists, residents and the energy and revenue they bring. One thing leads to another as restaurants and cafes can no longer viably operate. It's sad to see what is happening and none of us can predict what next.



NASA: Earth is Absorbing an 'Unprecedented' Amount of Heat



**BBC News**  
 Monday, 15 February 2027

**Head in the Sand?**  
 Australia seems to think the earth is still flat. As bushfires rage uncontrollably throughout numerous States, successive governments are still arguing whether climate change actually exists. Community representatives are taking matters into their own hands...

## 4. Filling the Void (more reactionary, short-term governance and higher social cohesion)

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The compounding challenges facing government including the exponentially increasing costs of health and climate disaster recoveries, left governments not knowing where to turn. As escalating national debt reaches record highs, government attempts to appease community uproar through crisis payment options. Ill conceived planning and implementation blunders allow for corruption, misuse and unequitable application. Old solutions are eventually dusted off with austerity measures re-introduced as a last resort: increasing taxes and slashing service delivery and capital expenditure budgets. While this is met with much public outcry as demand for services outstripped supply, it is those with lower incomes who suffer the most. Rising discontent, unemployment, substance abuse and domestic violence don't help. Frustrated with a lack of leadership from government and an inability to support recovery efforts, Australian and New Zealand societies pull together to lend a hand look after each other.

In June 2020, the hashtag *#BlackLivesMatter* was tweeted almost 50 billion times globally. By May 2031, it reached 1.3 trillion. Sophisticated social movements supported by data and evidence are resulting in unprecedented escalations of legal action against perpetrators of corruption, sexual assault, and misogynistic practices. While unscrupulous leaders from religion, to sport, to business and politics are increasingly being held to account for their actions; many are still avoiding punishment. Trust in traditional "power and control" hierarchies hits an all-time low. Society turns its back on formalised institutions encumbered with legacy regulations and outdated bureaucracy – from churches to volunteer groups – in favour of more open collaboratives that utilise technology to enable immediate, scalable, agile, self-organisation of citizens en masse to address issues that matter most to them: from successfully advocating to close the last coal-fired power station, to low-cost housing, to supporting communities, to creating self-sustaining green townships – all areas where successive governments have failed to deliver. Despite the economic downturn and rising social inequality, citizens support each other as best they can: family, neighbours and community become the source of greatest trust and safety. Social engagement and citizenry is coming of age.

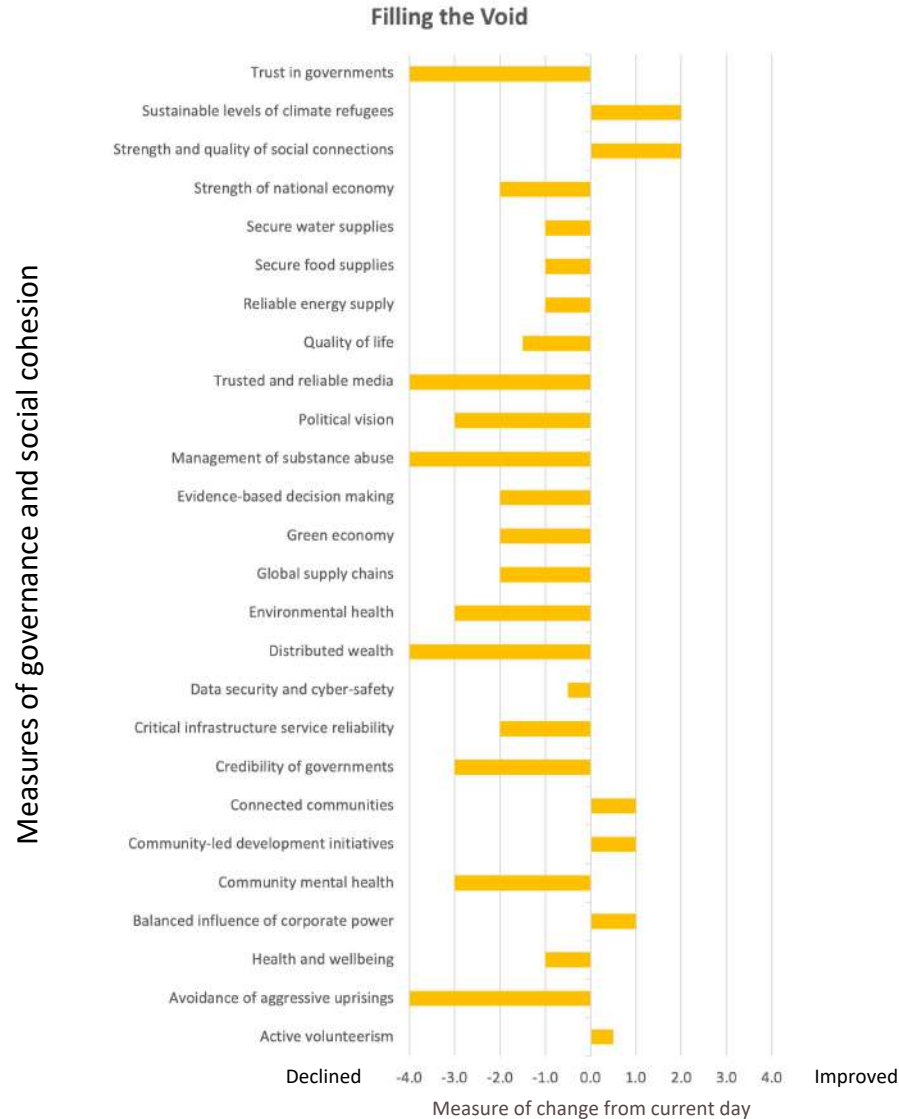
Increasingly frustrated by government short-termism and the lack of systemic action on social issues and climate change, forward thinking corporations and industry groups remain acutely aware of the impact climate will have on their own economic prosperity. They seize the opportunity and by harnessing the increased power of social movements, jostle to fill the leadership void of government and set their own agendas for the future; from progressive carbon emissions and green energy targets, to transport electrification goals and world-leading workplace racial equity and diversity standards. Institutional investors applaud and support the initiative.

The Climate Leaders Coalition gains momentum and global recognition as increasing bushfires, heat, drought and extreme storms render previously productive agricultural land as either uncommercial or uninhabitable. Along with ongoing weather-related damage to public infrastructure, transport disruptions and frequent insect and rodent plagues, the physical landscapes of regional Australia and New Zealand is changing. Western science and national policy settings fail to address the damage. The wisdom of traditional owners is sought by industry and citizens alike to try and restore and heal key landscapes.

Philanthropists and an increasing number of businesses get behind the zeitgeist, throwing their financial weight and energy behind the ground swell of increasing community-lead initiatives from flood recovery to community health. Buoyed by new resources and professional expertise, the positive impact created by some groups quickly escalates, at times exceeding financially depleted government agencies. However, not all goes to plan as community leaders argue over position and priorities. Mistakes and injuries result. Yet, with a common disdain for government bureaucracies, communities find a shared purpose and eventually muddle through.

In a last ditch attempt to regain power and relevance, the government reacts by arresting citizen leaders for illegal and dangerous actions. The arrests backfire, leading to angry protests and violent clashes reminiscent of the Tunisian Arab Spring. As citizenry is being redefined, so is politics. Politics per se is not seen as serving its people; no party is better than the other and history has made this clear. Citizens have had enough, business is weighing in. The balance of power is shifting.

# 4. Filling the Void (more reactionary, short-term governance and higher social cohesion)



# 4. Filling the Void (more reactionary, short-term governance and higher social cohesion)



Welcome to the United Nations



A campaign banner reminds residents to wash their hands and to disinfect their homes to prevent the spread of COVID-19. Photo courtesy Maria Mobilisation Front

STORIES FROM THE FIELD  
**Brazil's favelas organize to fight Covid-19**

Giulia Martino was born and raised in the Complexo da Maré, a group of 16 favelas (slums) with around 140,000 inhabitants in Rio de Janeiro. A journalist and community activist, she

**About the author**  
**UNIC Rio**  
 The United Nations Department of Global Communications (DGC) promotes

2021

**Northland drought: No feed, no water and coronavirus increases farmers' stress**

Dorcas Payer - 08:58, Apr 17 2020



**Australia's 300 largest public companies will need to deal with climate change 'as a matter of priority' or risk losing institutional investors**

Jack Derwin | 29 June 2021



**'Really surreal... moment BLM activist rescued far-right protester from mob'**



**The West**

Thursday 10 December 2020

**AboutUs reaches 7m members**

PERTH: Founders of Social media platform AboutUs celebrate 7 million members. Individuals and community groups flock to the platform as a way to safely self-organise support for fellow neighbours and communities struggling with recovery from health issues or storm damage to their property. No one is left out and help is often reciprocated. It has often been referred to as the new Amish for the 2020's

2025 source for



**THE AUSTRALIAN**  
**Australia lacking leadership on carbon**

2030

**Daily Telegraph**  
 Friday 7 June 2030  
**Corporate Community Bond**  
 SYDNEY Syty Bank provides record \$25m pledge to support local community groups establish sustainable energy and water solutions for 8 small townships as dither and "fill in forms". Local telecommunications engineers eagerly provide pro bono time and implementation expertise in an attempt to "stick it up the big guy".

CommunityNew ANZCitizens

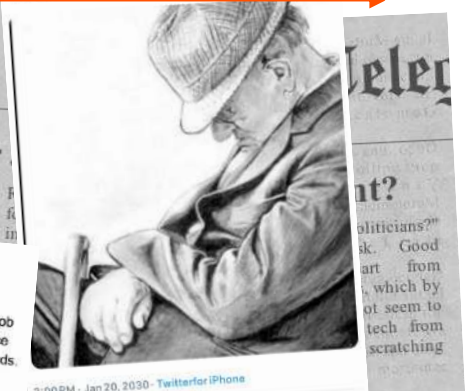
Where is Government??? @PrimeMinister 2035

**The Age**  
 Monday 5 August 2024

**ailed for Helping Farmer**

**Traditional Owners Welcome**

DUBBO: Communities and agriculturalists welcome Aboriginal elders to reintroduce traditional caring for country practices as government bodies fail to protect damaged landscapes from decades of unsustainable practices. Elders say recovery might be tough and slow but they are willing to try. A ten-year grant was crowd funded for their support government funding was allocated elsewhere.



What about climate?

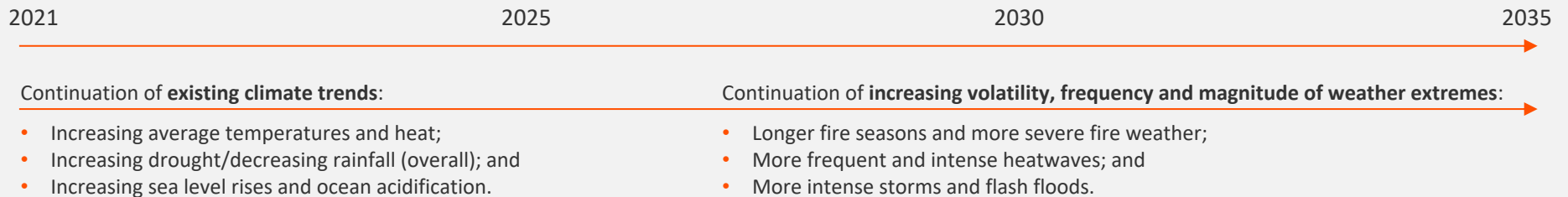


# What about climate?



## Climate turbulence is already here

The planet is already on a fixed trajectory of changing weather and climate. Across all scenarios from 2021-2035 the following will occur:



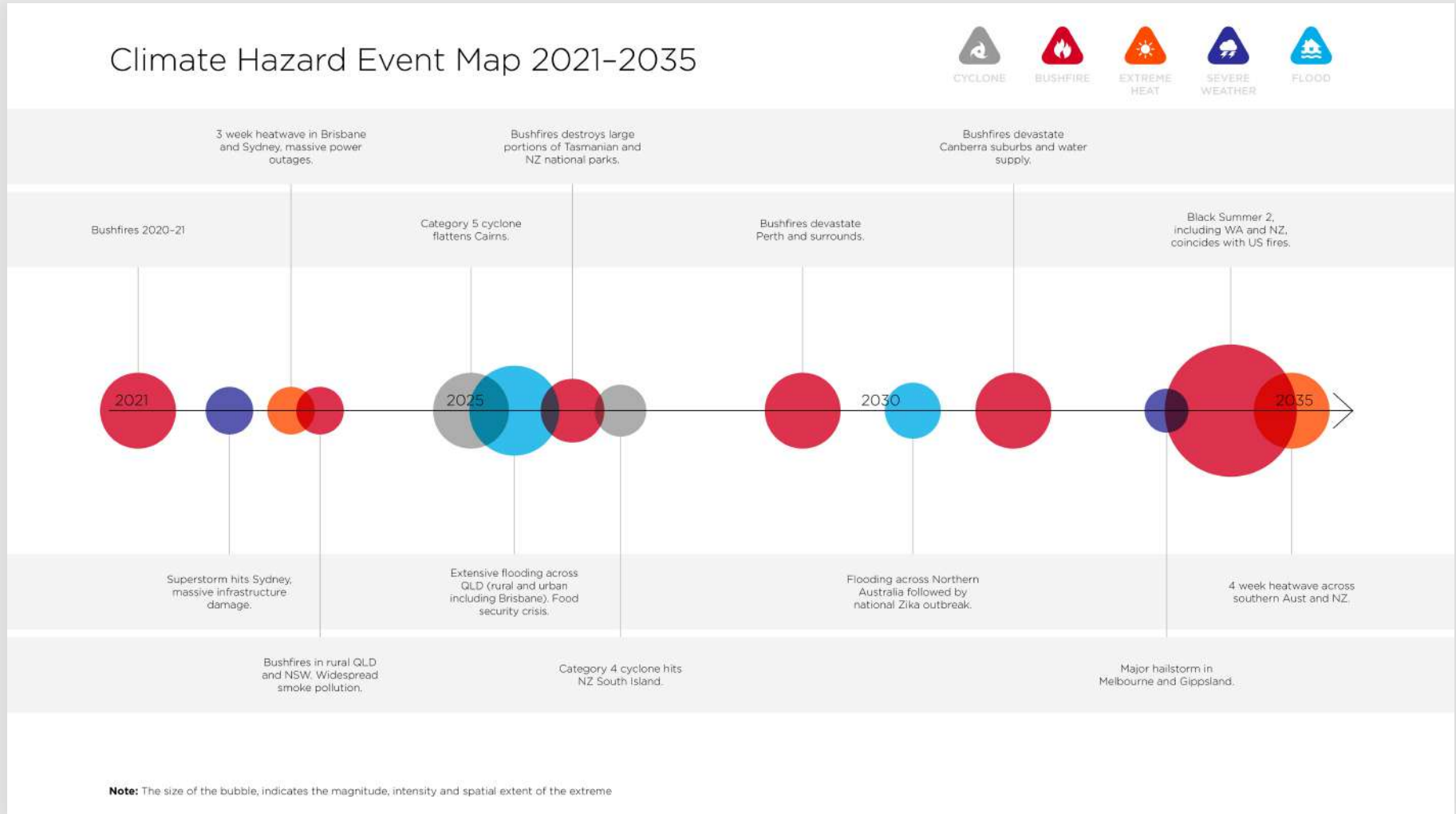
However, by their very nature, increasing volatility, frequency and magnitude of weather extremes cannot be reliably predicted. As such, the following page outlines an indicative “hazard event map” depicting a range of possible hazards over the fifteen year timeline of the scenarios.

The hazard events on this map:

1. Extend across the geographies of Australia and New Zealand
2. Apply to different aspects of the EMS: urban operations, rural operations, land management and SES
3. Represent a range of hazard types that vary in volatility, frequency and magnitude.

It is proposed that the hazard event map is an “overlay” to all scenarios. In this way it is possible to explore the same hazard events in different scenarios. In doing so, it will highlight the different extent of risk and degree of impact that these same hazard events pose in the different scenarios that might emerge.

# Climate Hazard Event Map 2021-2035



# Overlaying climate onto scenarios

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## The events are the same, the risk and consequence are not

The impact of hazard events is dependent on the context and world we live and work in. While the same hazard event (such as a bushfire) might occur in any future scenario, the risks that a particular hazard event poses and the impacts it could have, might be profoundly different across different scenarios (Please refer to [the full IPCC report](#) for more detail).

It is by overlaying hazard events on the scenarios that this “interaction” can be seen. It is important to factor this interaction into our exploration of the scenarios and our decision-making processes for the future.

For example, if responding effectively to bushfires demands a significant proportion of the workforce be recruited from a community volunteer base, how might the ability to recruit and train members (and hence effectively respond to fire) be impacted in **Circling the Wagons** (a world of lower social cohesion) versus **The Butterfly** (a world with higher social cohesion and community engagement)? It is highly likely it won't be the same in different scenarios. As such, our decision making, planning and priority setting will necessarily need to be adaptable to this difference. If adapting to a **Circling the Wagons** world is deemed insufficient in itself, the EMS might even need to consider what role it can collectively and strategically play to influence an increase in community social cohesion in the future.

While there will be **increasing volatility, frequency and magnitude of weather extremes** over the next fifteen years, we cannot accurately predict how and when these events will occur. As such, this hazard map is indicative of one way these events might play out. The map has been constructed to be relevant to the different geographies across Australia and New Zealand and to the different organisation types across the EMS including urban operations, rural operations, land management and SES. In addition, the map enables individual organisations and the sector more broadly to collectively plan, prepare, respond and recover to these events as they vary in volatility, frequency and magnitude in the different scenarios.

Over time, as agencies become more familiar with building these considerations into their strategic and operational planning, they can replace this hazard event map with alternate maps that include different stretches and challenges for each agency. This can be done by mixing and varying the event volatility, type, frequency and magnitude as it relates to the specific context of each organisation.

# Using scenarios in practice

# Where to start: three domains of strategy

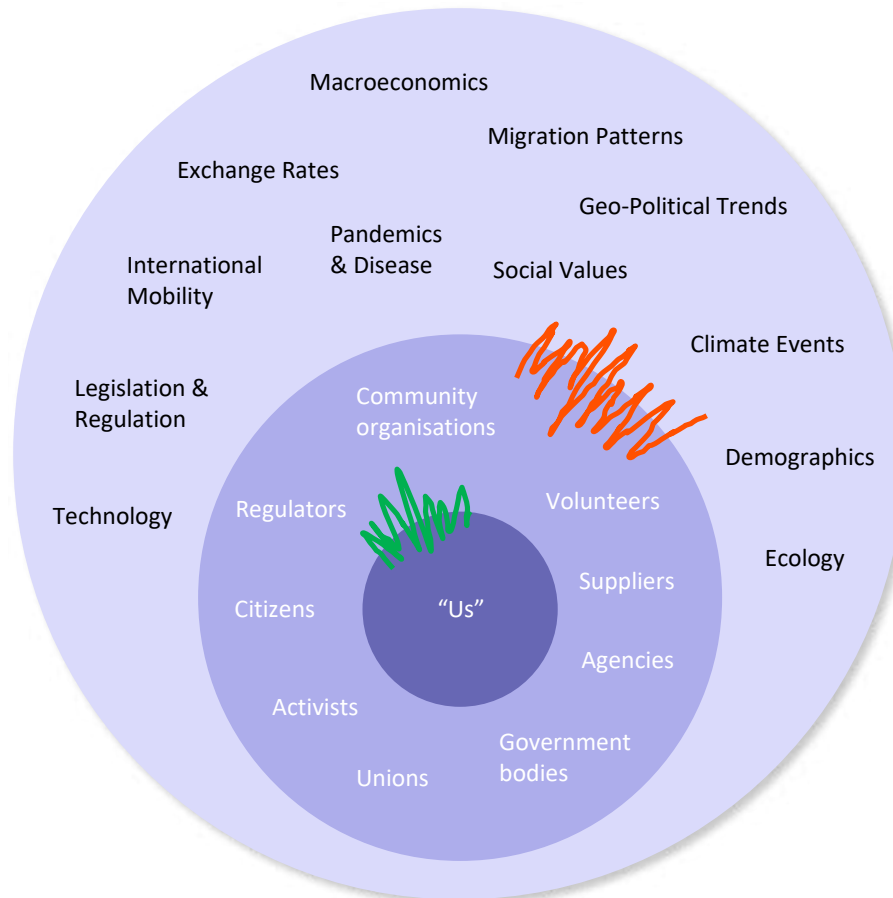


## Three domains of strategy

Scenarios are not about the sector or the organisations within it. Scenarios exist outside the sector in the contextual environment. That is, the domain consisting of driving forces (social, technological, economic, environmental and political trends) that influence what happens to the sector itself.

While organisational strategy and planning primarily relates to the organisation and how it chooses to act and interface within its transactional environment, it is often at the interface of the sector and the contextual environment that higher leverage system transformation can also be nudged forward as actors within the sector work together in new ways.

This is important to emphasise as it is at both of these two interfaces that scenarios are most powerful in their application.



The **contextual environment**  
(composed of general 'factors' and driving forces outside of the sector)

The **transactional environment**  
(the EMS and related actors – the domain of *influence*)

Our own **organisation**  
(a single 'actor' – the domain of *control*)

**Organisation Strategy Interface**  
(the interaction of the organisation and the transactional environment)

**System Transformation Interface**  
(extending influence to adapt to and transform the contextual environment)

Source: van der Heijden

# Getting started in our own organisations

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## Learning from the future

As leaders and decision makers working within our own organisations, exploring the future through scenarios allows us to step out of our transactional, day-to-day environment and consider what is happening in the world around us. Why is this important? Because it allows us to learn to “see” how this contextual environment might be influencing the sector itself, and subsequently impacting our capacity as an organisation to succeed in what we are attempting to do. As the world around us changes, so does both the context within which we operate, and the sectoral and organisational priorities and capabilities required for our success. In matters of risk and safety, looking up and out of our current organisation is more than important, it is essential.

By parachuting into each scenario, exploring and visualising what is going on, and then overlaying the increasing volatility, frequency and magnitude of weather extremes, it is possible to experience a cognitive and visceral sense of what the future in each scenario may hold. By immersing ourselves in each scenario we can begin to feel what it's like to live in there as a leader or worker, a citizen, a neighbour, a spouse, parent etc.

This exploration provides a unique opportunity to examine our own thinking and assumptions, test our plans and strategies and capability sets, and assess how robust they might be in these different contexts. From this point, leadership and decision-making teams can consider how to best plan, innovate, collaborate etc. in ways that not only adapt well to these futures, but help shape and transform them.

Even if we truly believe a future scenario is unlikely, it doesn't mean it couldn't happen... take note of the world we live in today.

**Are we as ready as we can be for what may come?**

**“I never really believed a future like that was possible until I explored the scenario. What an insight! Now I have to stop and re-think what we're planning and doing.”**

**“Scenario planning has never really been about predicting the future. Its value lies in how scenarios are embedded in—and provide vital links between—organisational processes such as strategy making, innovation, risk management, public affairs, and leadership development.”**

# Getting started in our own organisations

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## Instructions:

To start applying these transformative scenarios:

1. Read the Guide that explains how to use these scenarios in practice:  
*Transformative scenarios in a climate-challenged world: a guide for using scenarios in the emergency management sector.*
2. Follow the steps within the Guide, using the blank Climate Hazard Event map and the Climate Wildcards attached when prompted.
3. Refer to the research and methodology documents:
  - *Preparing emergency services for operations in a climate-challenged world: summary report*
  - *Implications of climate change for emergency services operations: insights from the literature*
  - *Research methodology for scenario development*

All of these documents can be found at

[www.bnhcrc.com.au/research/climatescenarios](http://www.bnhcrc.com.au/research/climatescenarios).

# That's not all: further scenario applications

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## Scenarios have many uses

Scenarios have been used by organisations to support their strategic and operational planning since the 1950's, first applied by the US Military and later in commercial settings at the RAND Corporation. By the 1970's many corporations began using scenario planning in more sophisticated ways, including by Royal Dutch Shell as a way to reduce uncertainty and complexity in its long-range forecasts and enable managers to "see ahead". Since then, the application of scenarios has deepened and become more sophisticated over time. Scenarios have been applied across whole countries, governments and industry sectors as a way of better understanding the dynamic context within which they operate, and how this context might impact on their ability to succeed and thrive as they intend.

Scenarios work effectively within **organisations and teams**: Scenarios are used to "wind tunnel" or assess the robustness of existing strategic and operational planning processes in alternate possible futures. By integrating various wind tunnelling processes into "business as usual" processes, new strengths are added to the organisation for improving foresight capacity, risk mitigation and operational effectiveness. Scenarios are a powerful for opening teams and organisations to the outside world. Royal Dutch Shell famously "rehearsed the future" of plummeting oil prices. By preparing for what might come they took preventative action which enabled the organisation to be staggeringly successful during the chaos of the ensuing 1973 Oil Shock. Other companies were left wondering what just happened and scrambled to survive. An oil price drop was seen as highly unlikely and against industry predictions. But it did happen and only Shell was prepared.

Scenario applications are also effective in building confidence and capability of **individual leader or decision maker** to question their assumptions and beliefs about the world and how they think the future will unfold and to consider alternate perspectives. There are many cases in history where leaders' assumptions about the continuation of current trends has led to the undoing of many exceptional organisations, such as Kodak or Nokia. Managers too focused on their own immediate concerns, couldn't or wouldn't pay attention to external changes emerging, and when they finally did, it was too late.

More recently, scenarios have also proven to be transformative at a **sector, country or regional** level, enabling groups of stakeholders to see together what might need to be done – separately and collaboratively – to succeed in future contexts. In a number of cases, scenarios have been attributed to helping shape the future direction of countries, such as [transition out of Apartheid in South Africa](#) or the [direction of Colombia](#) under President Juan Manuel Santos.

## Transformative scenario planning

Transformative scenario planning provides a methodology for people to work with complex problematic situations that they want to transform but that they cannot do so unilaterally or directly. While traditional scenario planning provides a framework for "adapting" to different possible futures as they might emerge, the Transformative scenario planning method used in this work, also enables actors to work together and separately to not only adapt to the future, but help create it. The process provides a unique space for actors to work cooperatively and creatively to get unstuck and to move forward. For further detail please refer to the book by Adam Kahane (2012), [Transformative Scenario Planning: Working Together to Change the Future](#).



# That's not all: further scenario applications



## What do these applications actually look like in practice?

Working with scenarios can be daunting at first. It takes courage and resolve to open ourselves to challenge our assumptions and world views and admit that we don't actually have all the answers we need – either as a team or organisation, an individual leader or as a sector. Working with scenarios requires openness, a learning mindset, an acknowledgement that we cannot reliably predict or control the future and that we don't and can't have all the answers.

The application of scenarios can make an enormous difference to our current effectiveness and future success as we translate new learnings about possible futures into our planning, decision making, learning and operational priorities. The applications can extend from building capacity of individual leaders through to whole-industry and even country or region-wide initiatives. Scenario applications generally fall into three broad categories:

**Teams or Organisations** – Applications can involve a range of programs, workshops and exercises that can be integrated into day-to-day operations and standard ways of operating for improving decisions and outcomes. For example:

- **Strategic planning processes** – processes and workshops for opening teams to the outside world and integrating scenarios into strategic processes for strengthening existing plans or priorities.
- **Building leadership and team capability** – in-house development programs to build leadership agility, foresight capacity, strategic thinking for future risk mitigation for improving planning and operations.
- **Innovation programs** – “safe spaces” for bringing different leaders or teams together to examine and explore what could be done to improve operations and adapt to alternative futures.
- **Implementation and BAU alignment** – aligning scenarios, strategy and operations as business-as-usual – providing a clear line of sight between planning and action.

**Individual Leaders or Decision Makers** – programs provide safe and confidential learning spaces for leaders, individually or with peers, to build confidence and capacity and explore what works in practice. For example:

- **Leadership development programs** – sector-wide open programs to build networks, strengths and capacities for leading teams and organisations effectively in complex and uncertain contexts.

- **Executive leadership coaching** – tailored, confidential one:one coaching to support leaders adapt to leading in complex contexts where there are no easy solutions and no precedent answers.
- **Action learning journeys** – a robust methodology for small groups of industry peers to share, explore and resolve key challenges together in a confidential manner.

**Sectors, Countries or Regions** – Events, processes or ongoing platforms for driving system-wide transformation across a sector, jurisdiction, country or region. These involve proven processes for making progress when stakeholders face common challenges but have neither the resource, capacity or authority to solve them alone. For example:

- **Transformative Scenario Processes** – wider scenario engagement to connect with broader stakeholder groups and encourage immersion and insight. These processes building shared understandings and create new system-wide relationships, new insights, new capacities, new commitments and new experimental initiatives.
- **Innovation Labs** – Strategic and collaborative innovation processes that bring together key stakeholders from across a given system to work on specific systemic challenges together – to collaborate and experiment on what can and must be done to best adapt to and transform our current situation.

# We're here to help

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## Keep the conversation going...

To continue the conversation about transformative scenarios in a climate-challenged world or for further advice or support, please contact:



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# Acknowledgements

# A collaborative effort



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# A collaborative effort



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Andrew Coghlan  
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Shane Fitzsimmons  
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Melissa Pexton  
Naomi Stephens  
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Bushfire & Natural Hazards CRC  
SA State Emergency Service  
Australian Red Cross  
WA Department of Fire & Emergency Services  
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Resilience NSW  
NSW National Parks & Wildlife Service  
WA Department of Fire and Emergency Services  
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Australasian Fire & Emergency Service  
Authorities Council  
Australian Institute of Disaster Resilience  
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## AFAC climate change group

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