

For Coventry University

Foresight in Disaster & Emergency Management

Presented by Beth Allen, Derwent Risk & Resilience

20th November 2025

Session Plan

— Introduction to foresight

Where can foresight be applied
in DM/EP?

Hazard identification

Horizon scanning

Thinking in systems

“

Strategic Foresight is the discipline of exploring the future to anticipate changes, to develop possible transition pathways and to withstand shocks, to “help us act in the present to shape the future we want.”

”

[UNDP RBAP Foresight Playbook](#)

Introduction to Foresight

Foresight equips us with the tools to anticipate future risks and opportunities.

Why Foresight?

- Risk is not static and can change very rapidly
- Foresight gives us the opportunity to anticipate and manage known, changing, and emerging risks

Foresight is NOT



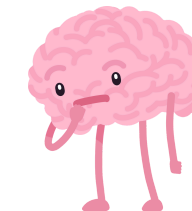
Prediction

Foresight does not predict, or forecast, the future with certainty. It explores multiple possible futures to prepare for a range of outcomes.



A One-Off

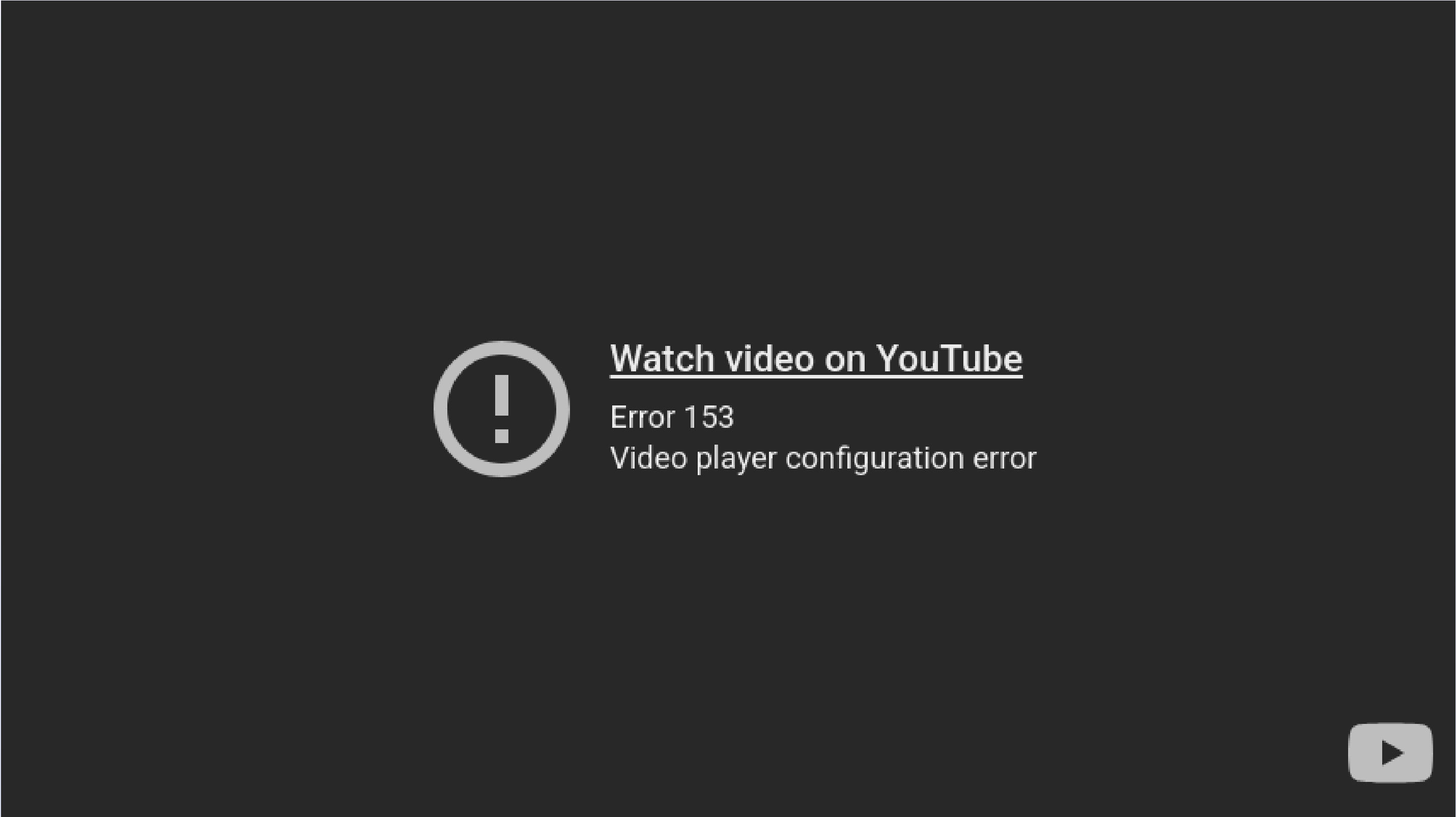
Foresight also explores opportunities, areas for interventions, and innovations in futures.



Speculation

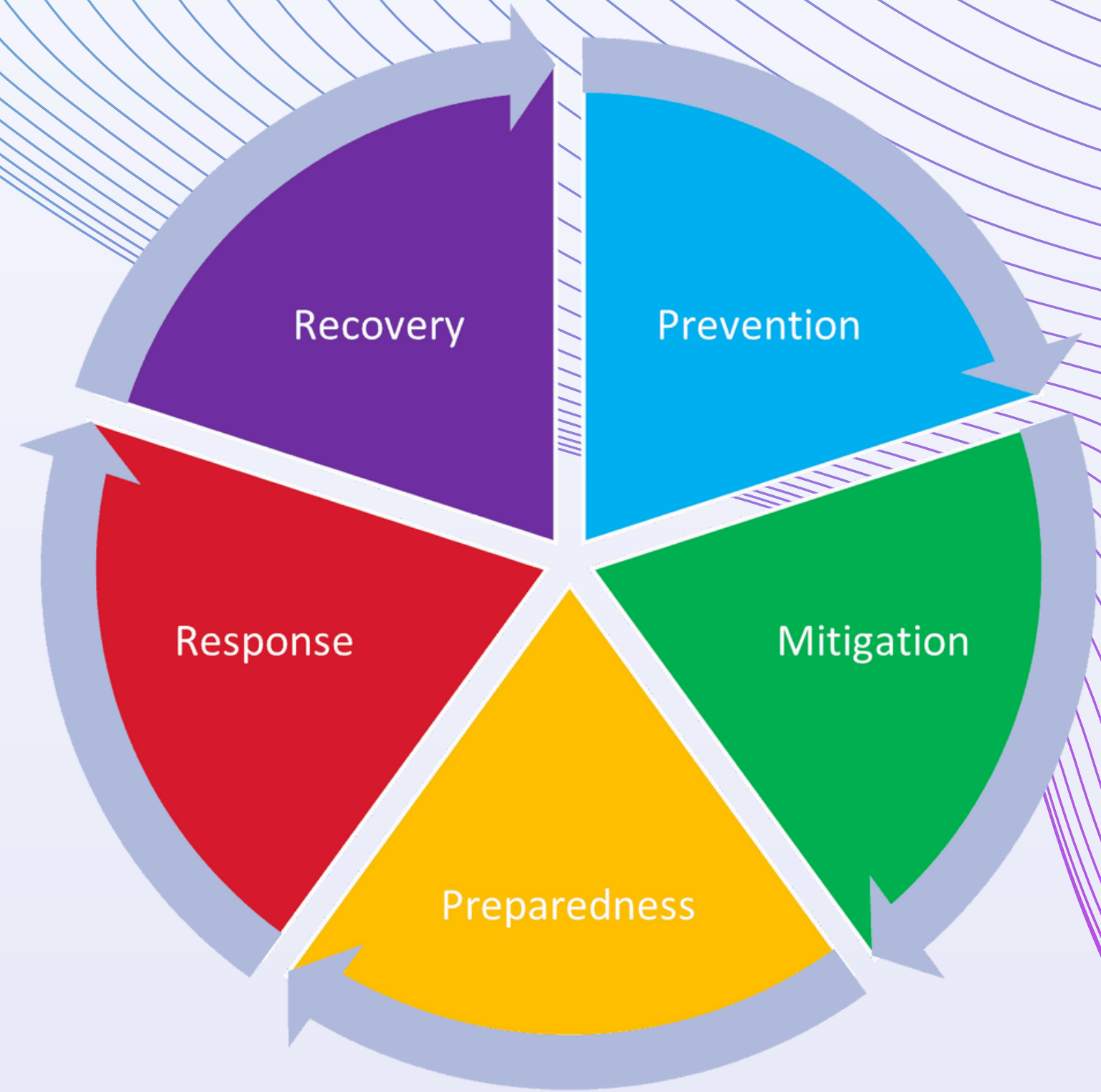
Although foresight embraces uncertainties, it is grounded in evidence-based analysis and methodologies.

Video: UNDRR (2023) Strategic foresight and risk reduction to accelerate implementation of the SDGs



The image shows a dark grey overlay on a video player. On the left is a white exclamation mark inside a circle. To its right, the text reads: Watch video on YouTube, Error 153, and Video player configuration error. In the bottom right corner of the overlay is a white play button icon. To the right of the video player, a purple mouse cursor icon is visible.

Where can foresight be applied in DM/EP?



Where can foresight be applied in DM/EP?

Risk assessment and mitigation

- Emerging threats & risk drivers
- Proactive risk reduction

Emergency planning and preparedness

- Adaptable plans based of future scenarios
- Risk-informed resource allocation

Optimise crisis response

- Anticipate cascading effects of disasters & complex conditions

Recovery

- Envisioning long-term recovery pathways
- Integrate risk-informed development into recovery plans

Innovation and Tech

- Explore emerging tools and tech to support all stages
- Anticipate and prepare for ethical and operational challenges of new tech

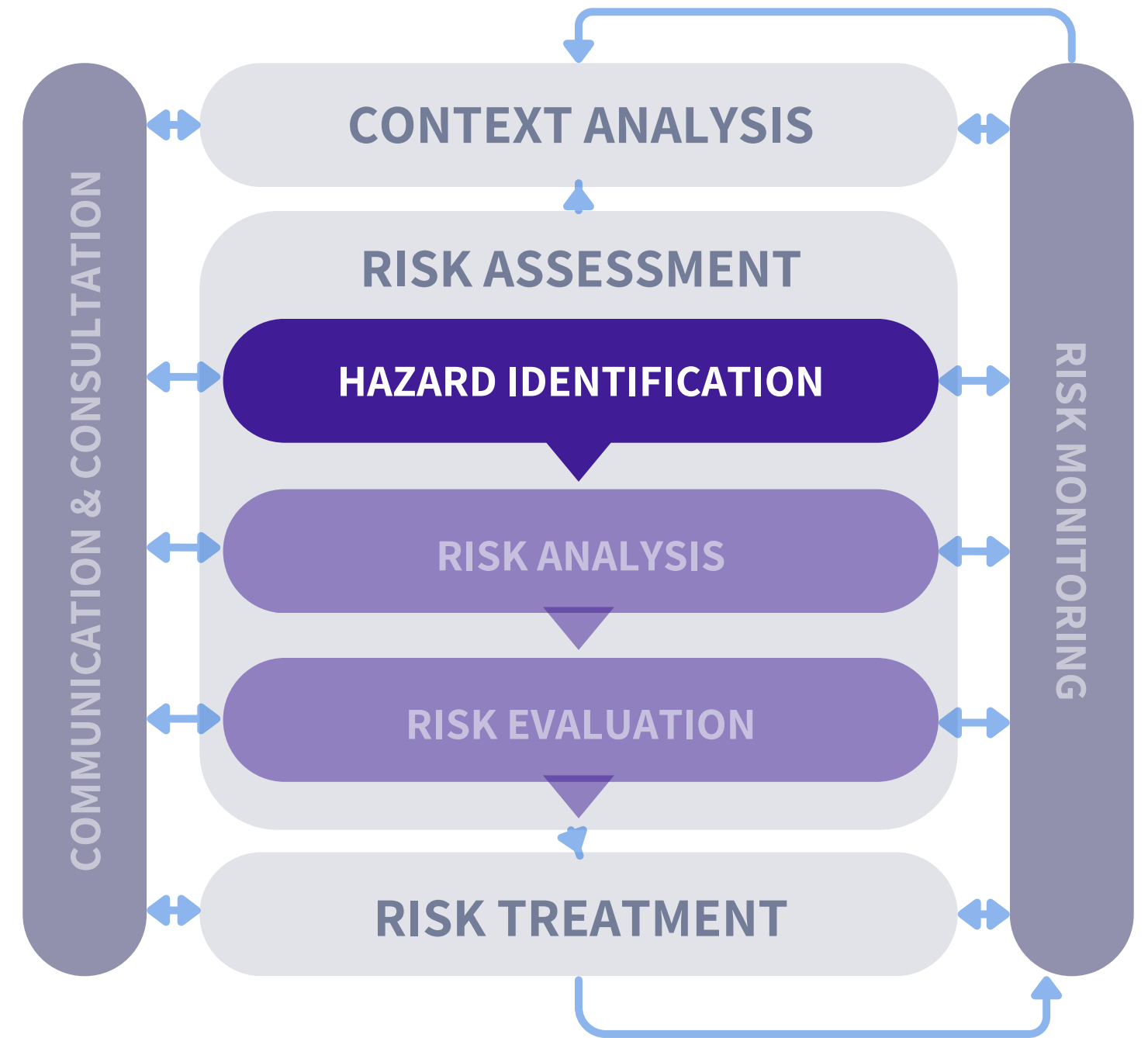
In practice

Hazard identification through foresight

Horizon scanning is an approach to foresight which facilitates a structured and systemic analysis of potential hazards, opportunities and uncertainties.

The risk presented by hazards that are not identified cannot be managed

ISO 31000: Risk Management Process





Case Study:

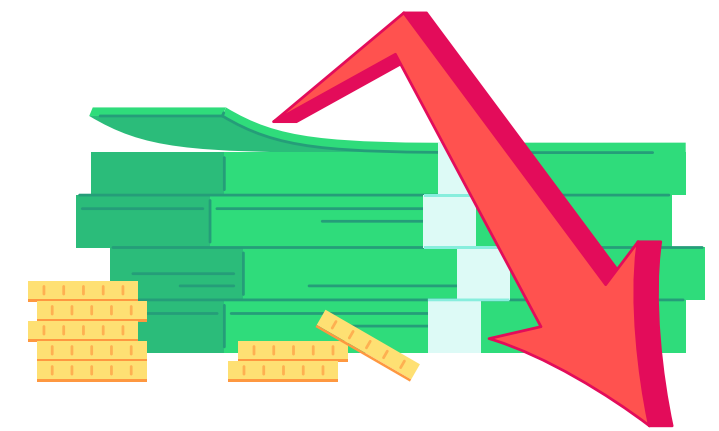
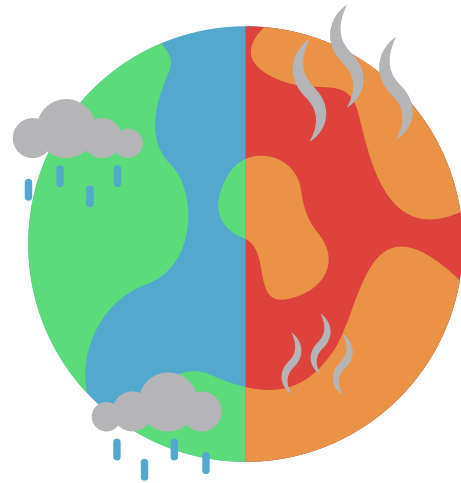
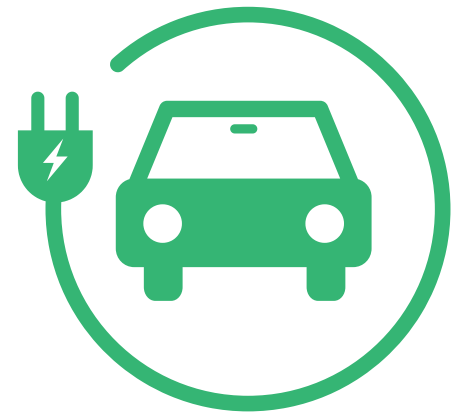
The Fire & Rescue Services Act 2004

A legal framework for fire and rescue authorities in England and Wales.

Key Provisions:

- Authorities must identify and assess **foreseeable fire and rescue-related risks** in their area.
- Authorities must develop **Integrated Risk Management Plans** to outline strategies for mitigating identified risks.

What emerging hazards might fire services face over the next 50 years?



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Resources Key

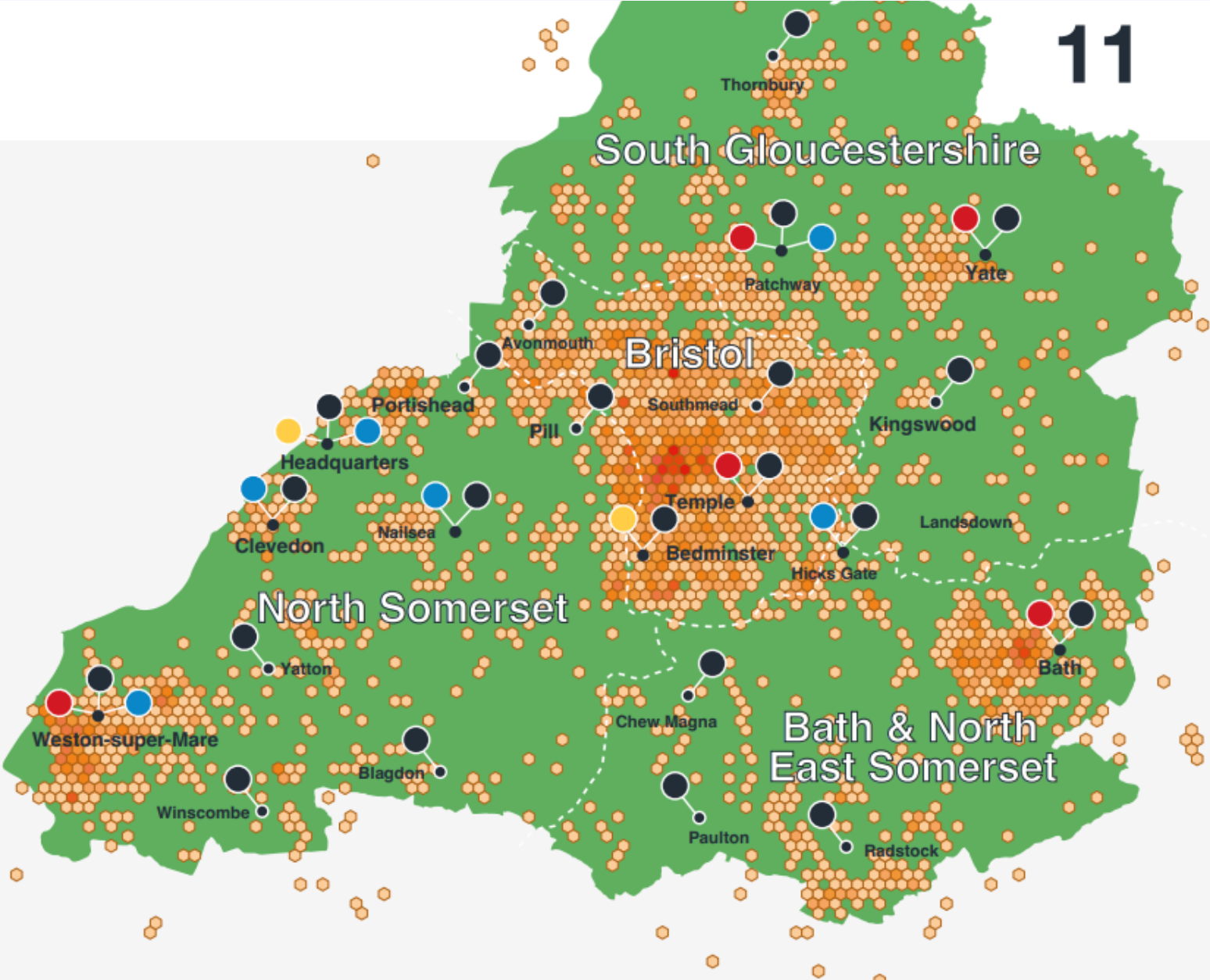
● Prevention

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Incidents – known risk to property, classed as

Medium risk incidents – don't pose an immediate risk to

Low risk incidents – pose a low risk to life or property, but still

Demand

Secondary Fire / Incidents & Deployments



5.3 Secondary Fire

Secondary fires are generally small outdoor fires, not involving people or property. These include refuse fires, grassland fires, and fires in derelict buildings or vehicles. If these fires involve casualties or rescues, or five or more pumping appliances, they will become primary fires.

5.3.1 Incidents & Deployments

Figure 5:4 shows the number of incidents and deployments to secondary fires from 2015 to 2020, with forecasts showing potential incidents and deployments for 2021 to 2024.

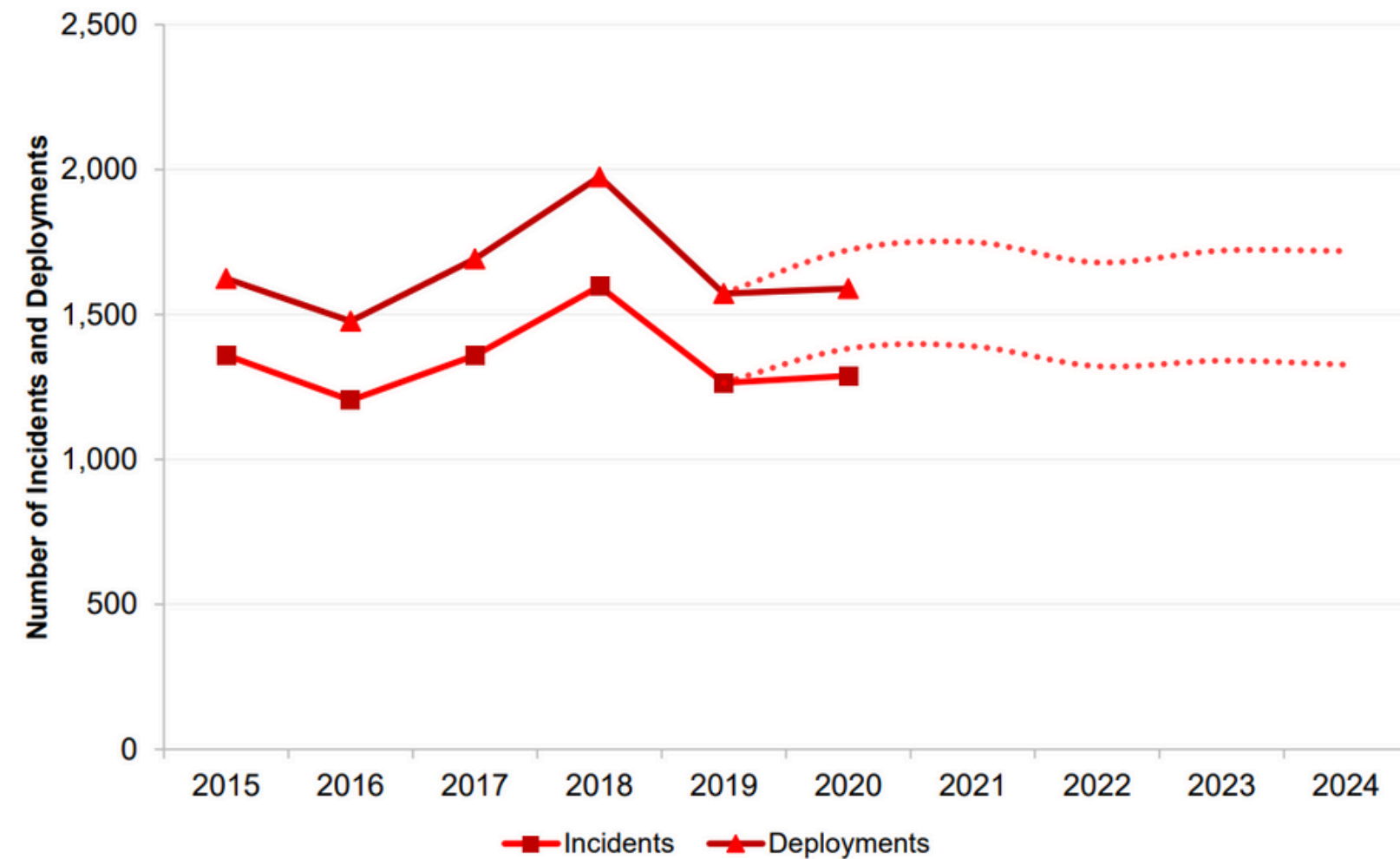


Figure 5:4 Secondary fire incidents and deployments from 2015-2020, with forecasts up to 2024.



Horizon scanning

Horizon scanning facilitates the systematic identification of early **signals** of emerging risks or changing conditions that could amplify risks.



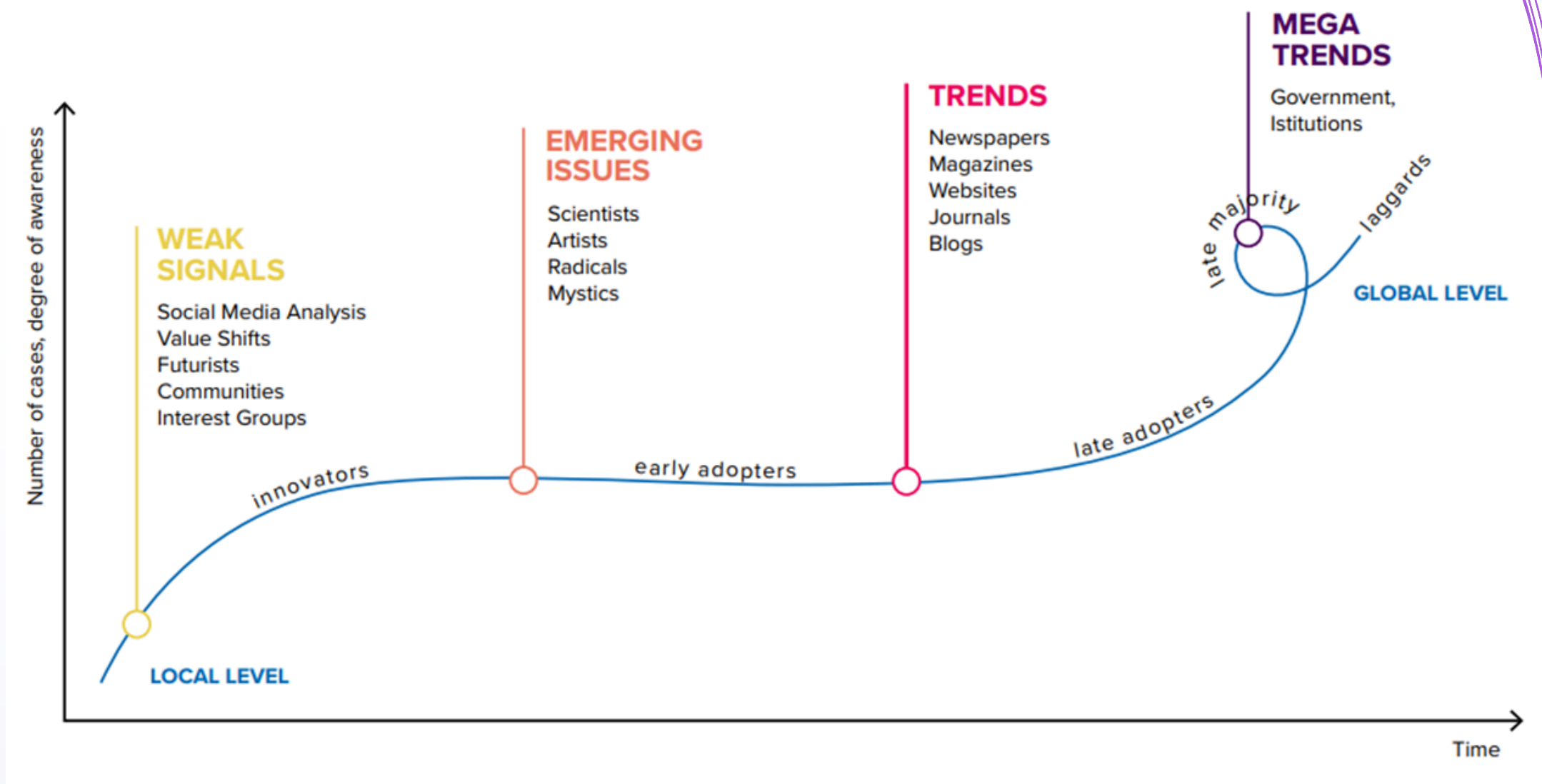
Signal

A signal is a piece of evidence that indicates a possible change.

Weak signals can later emerge as issues and trends

- Weak signals can appear to be new and surprising.
- Their relationship to other signals and trends isn't always clear at the time.
- They can be a sign of emerging hazards

FIGURE 2: EMERGING ISSUE ANALYSIS



Source: UNDP Regional Bureau for Asia-Pacific (2021) Foresight Playbook.

A story of signals...

REVIEW · Volume 11, Issue 2, P131-141, February 2011

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Urbanisation and infectious diseases in a globalised world

[Emilie Alirol, PhD](#)^{a,b} · [Laurent Getaz, MD](#)^{a,b} · [Beat Stoll, MD](#)^c · [François Chappuis, PhD](#)^{a,b} · [Prof Louis Loutan, MPH](#)^{a,b} [✉](#)

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China pneumonia outbreak: Mystery virus probed in Wuhan

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Coronavirus: 'You must stay at home', Boris Johnson orders

Care homes had 'fragile' workforce at start of pandemic, inquiry hears



The inquiry is currently examining adult and residential care as part of its scrutiny of how the pandemic was handled

Niall Blaney

Trends in Parasitology



Volume 34, Issue 9, September 2018, Pages 772-783

Review

Human Mobility and the Global Spread of Infectious Diseases: A Focus on Air Travel

[Aidan Findlater](#)¹ · [Isaac I. Bogoch](#)^{1,2} [✉](#)

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Urbanization and Disease Emergence: Dynamics at the Wildlife–Livestock–Human Interface

[James M. Hassell](#)^{1,2} · [Michael Begon](#)³ · [Melissa J. Ward](#)⁴ · [Eric M. Fèvre](#)^{1,2} [✉](#)

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Coronavirus declared global health emergency by WHO

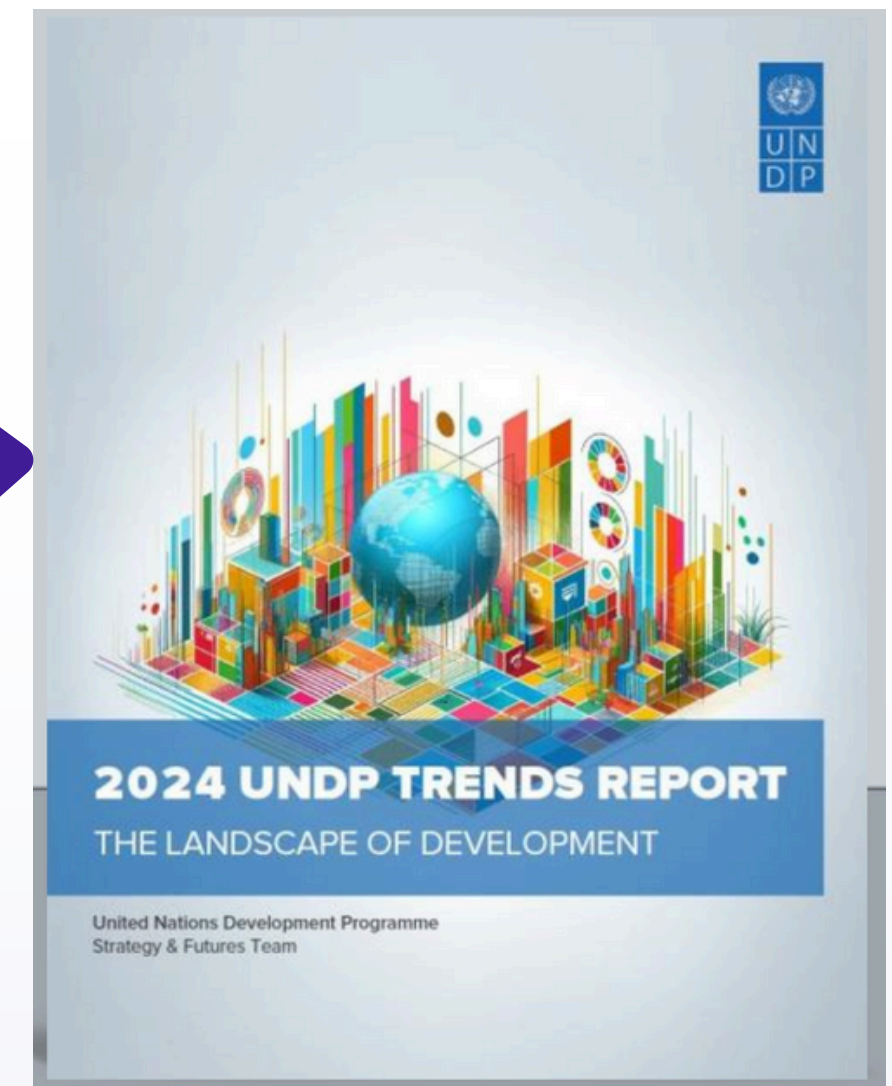
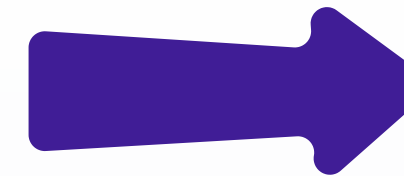
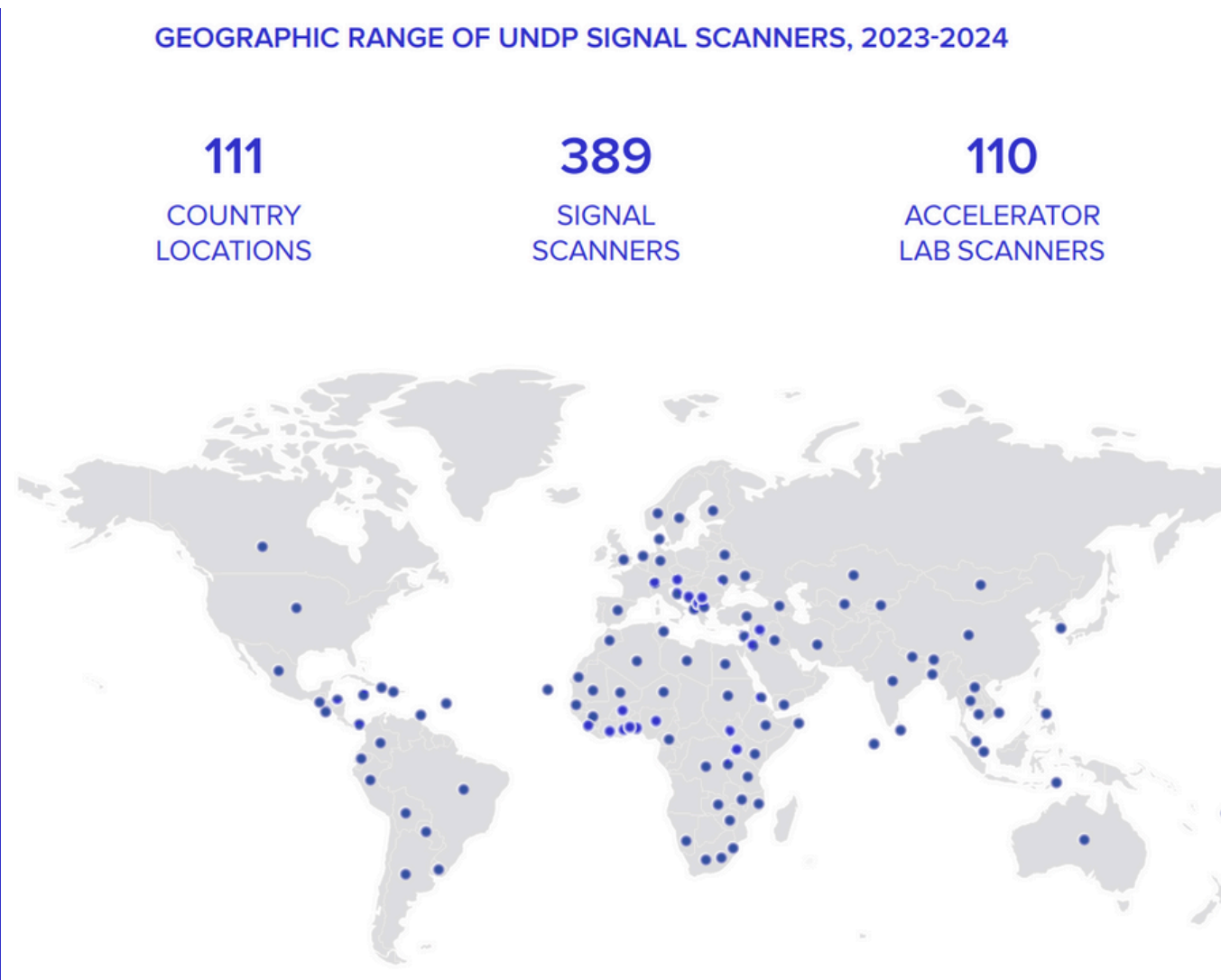
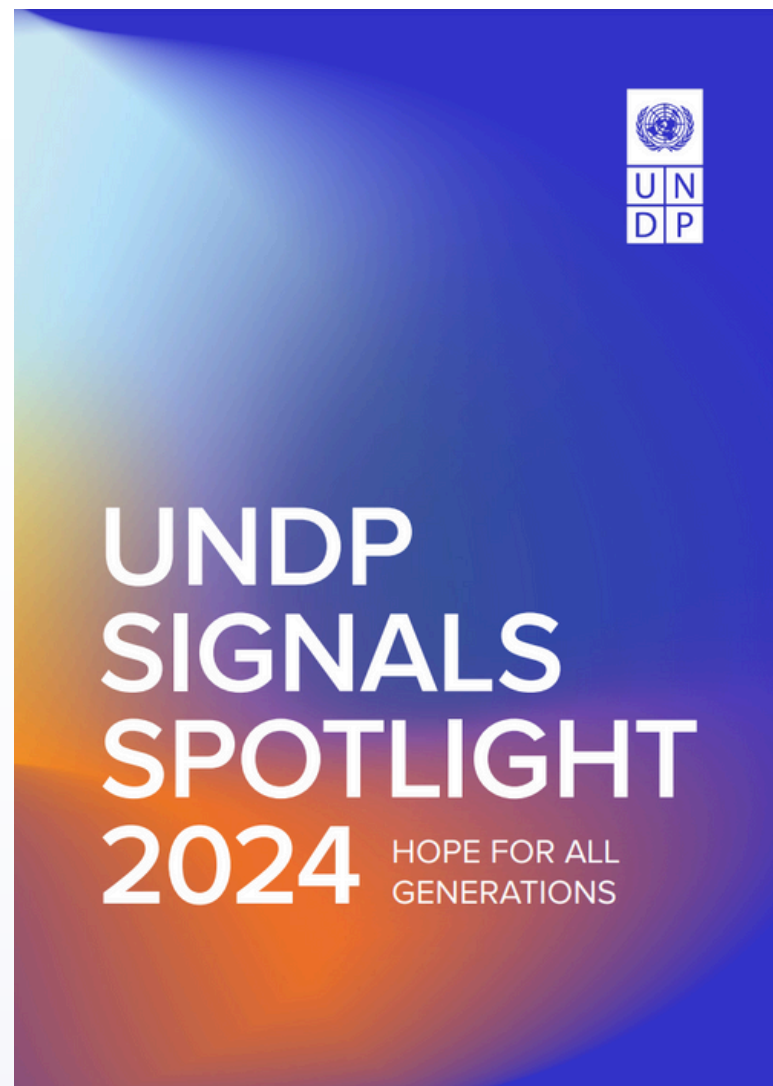
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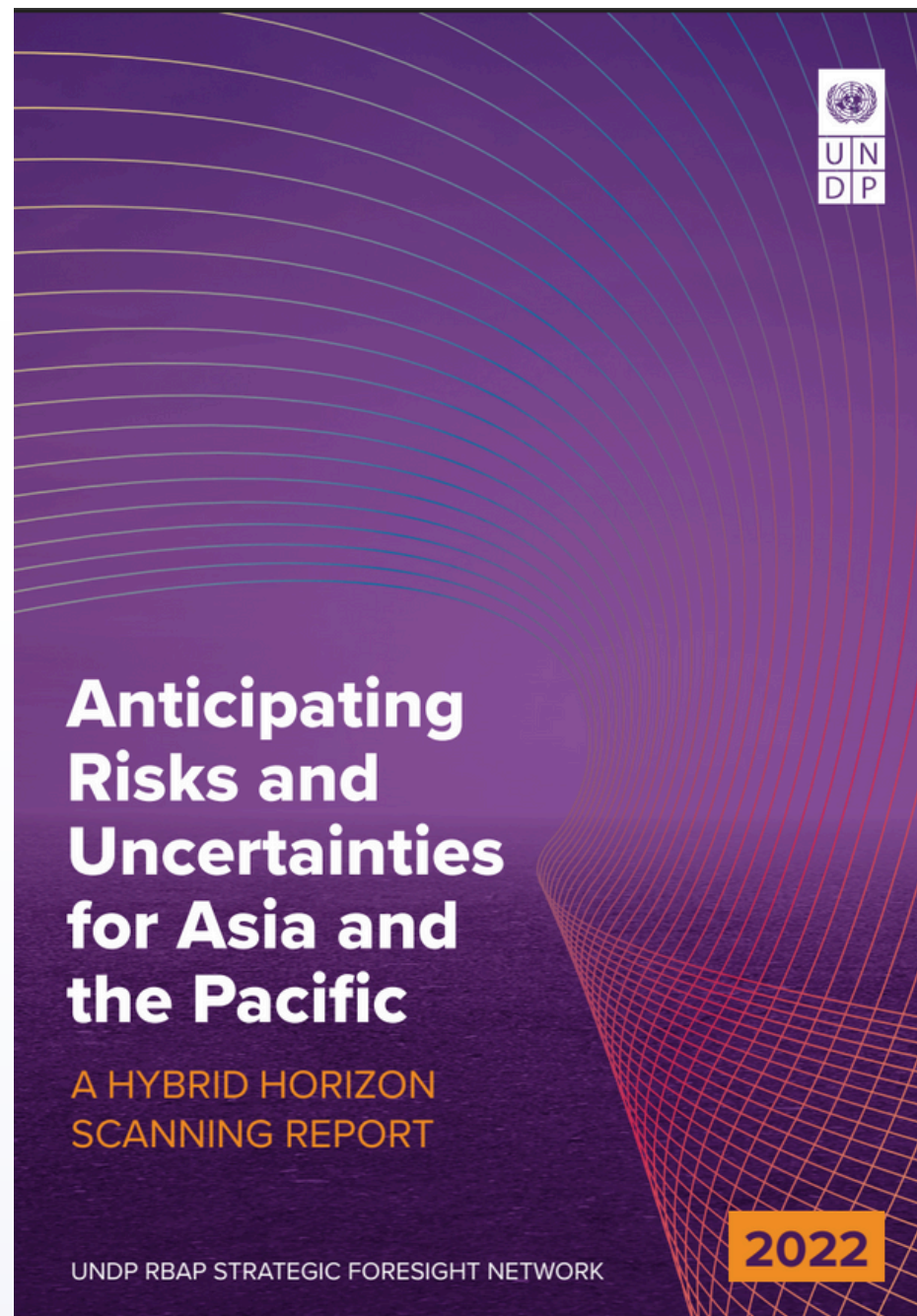
Case Study:

Scanning for the emerging signals and trends that will be significant for development in the next 3 to 10 years.



Case Study:

Anticipating development risks and uncertainties for Asia-Pacific



Where to look for signals?

Primary Sources

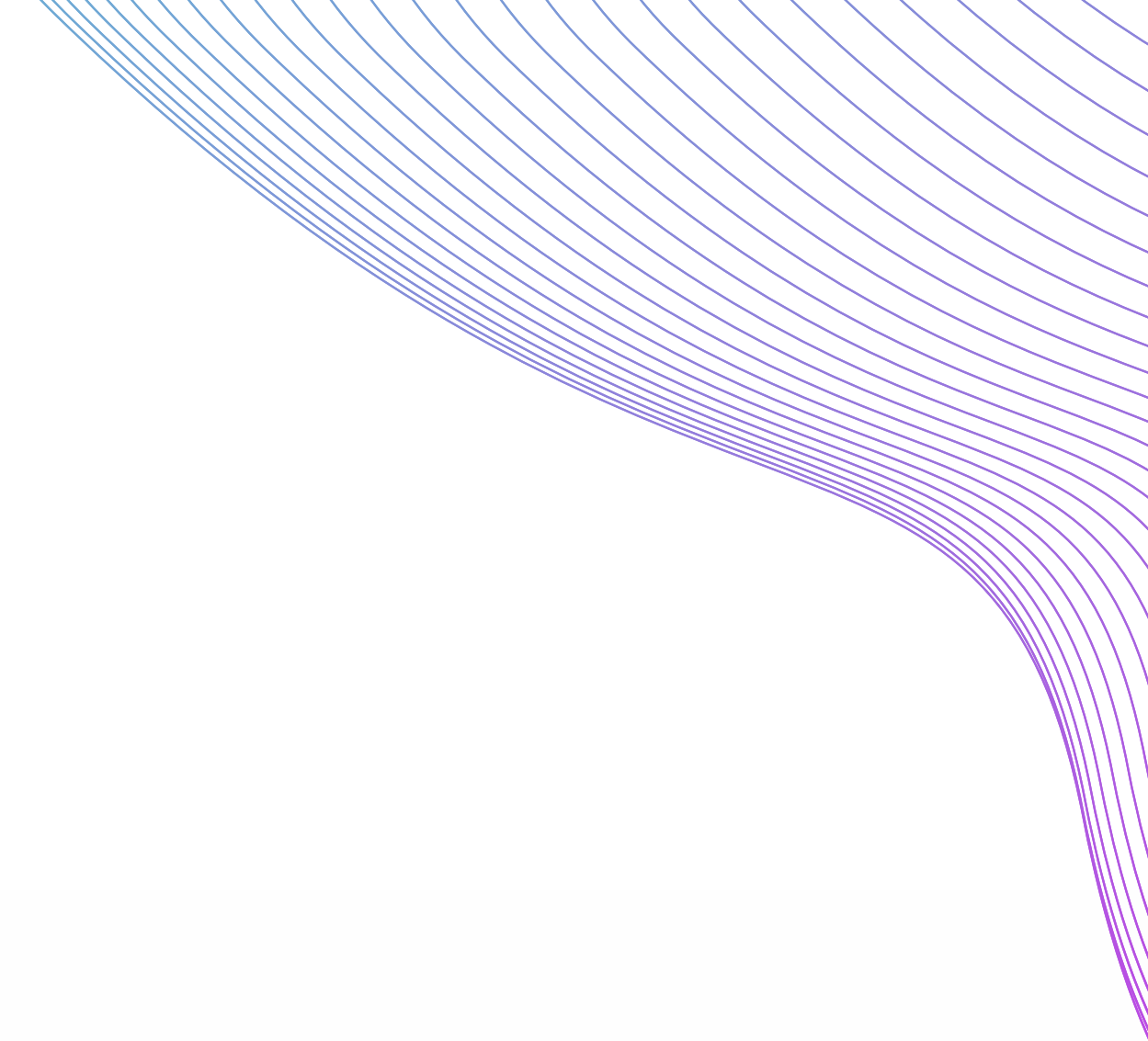
- Expert views and interviews
- Observational research
- Art and Design
- Popular Media (Film, TV, Games)
- Social Media (Instagram)

Secondary Sources

- Professional and academic journals
- Reports and white papers
- Sector news
- Global and national news
- Blogs
- Newsletters

What makes a good signal?

- Can help define a new and emerging narrative
- Can reshape, strengthen, or conflict a known trend
- Clarify and add plausibility to an emerging narrative or trend
- Challenge an existing or emerging assumption, narrative, or trend



**How can we
approach the
identification of
systemic risks?**





Thinking in systems

A system is a set of things interacting in a way that produces something greater than the sum of its parts.

Systems mapping can be used to **identify the relationships, interconnections,** and **assumptions** which exist between elements of a system.

Why think in systems?





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The Iceberg Model

Events

Observable phenomena - what's happening?

Patterns & Trends

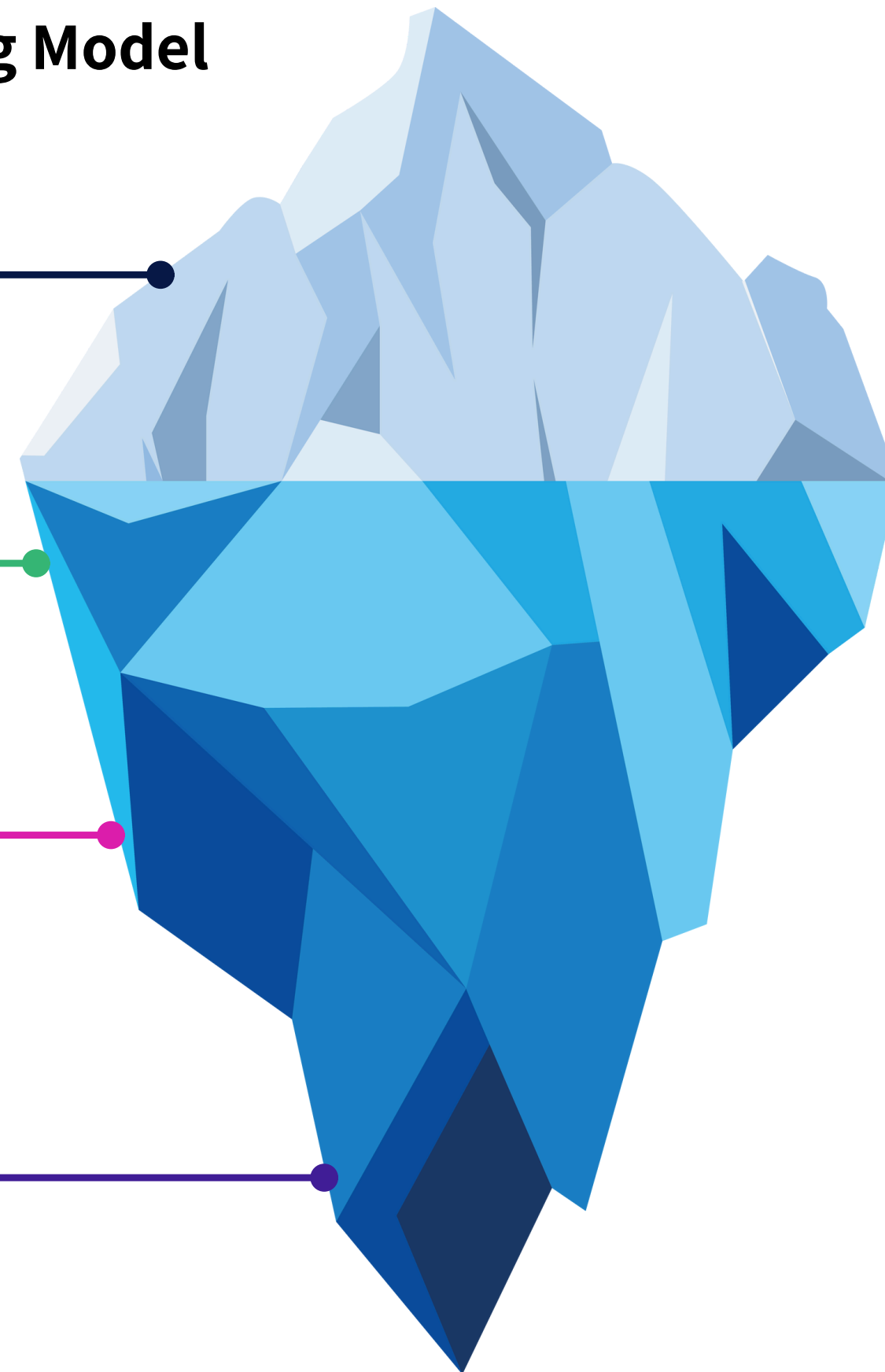
Consistent activity or behaviour - what are the trends over time?

Underlying Structures

Structures that reinforce or encourage parts of the system - what's influenced the patterns?

Mental Models

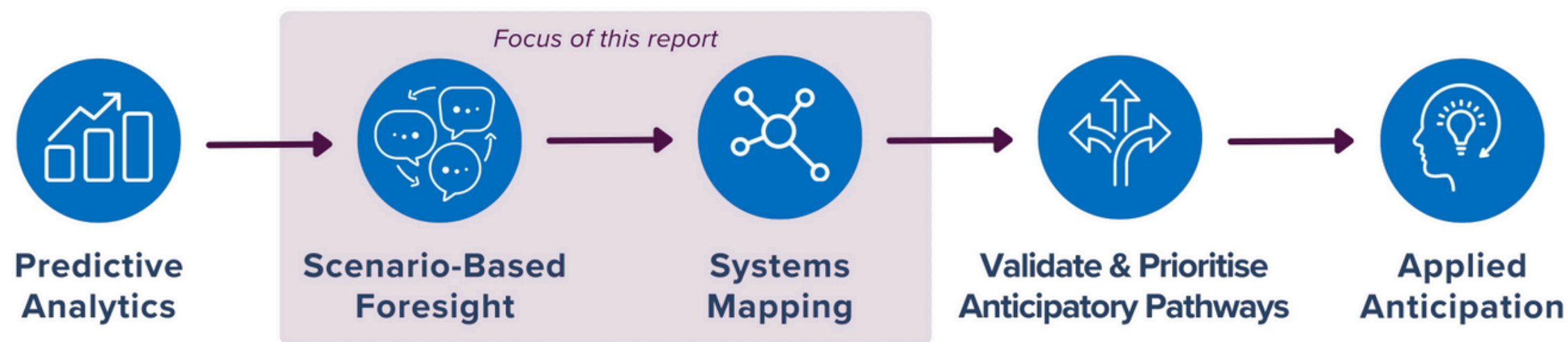
Underlying cultures or beliefs - what keeps the system in place?



Case Study:

Foresight to Anticipate the Impacts of Climate Change on Human Mobility

The UNDP Predictive Analytics, Human Mobility and Urbanization Project combined predictive analytics with qualitative foresight to **anticipate the scale and nature of internal climate change-related human mobility** in two focus countries – Pakistan and Viet Nam – up to 2050.



So what for disaster risk reduction?

Barriers to adaptation

Human mobility is an important adaptive response to, and a key means of recovery from, climate change-related hazards. However, not all people are able to—or wish to—migrate.

Out of the frying pan and into the fire

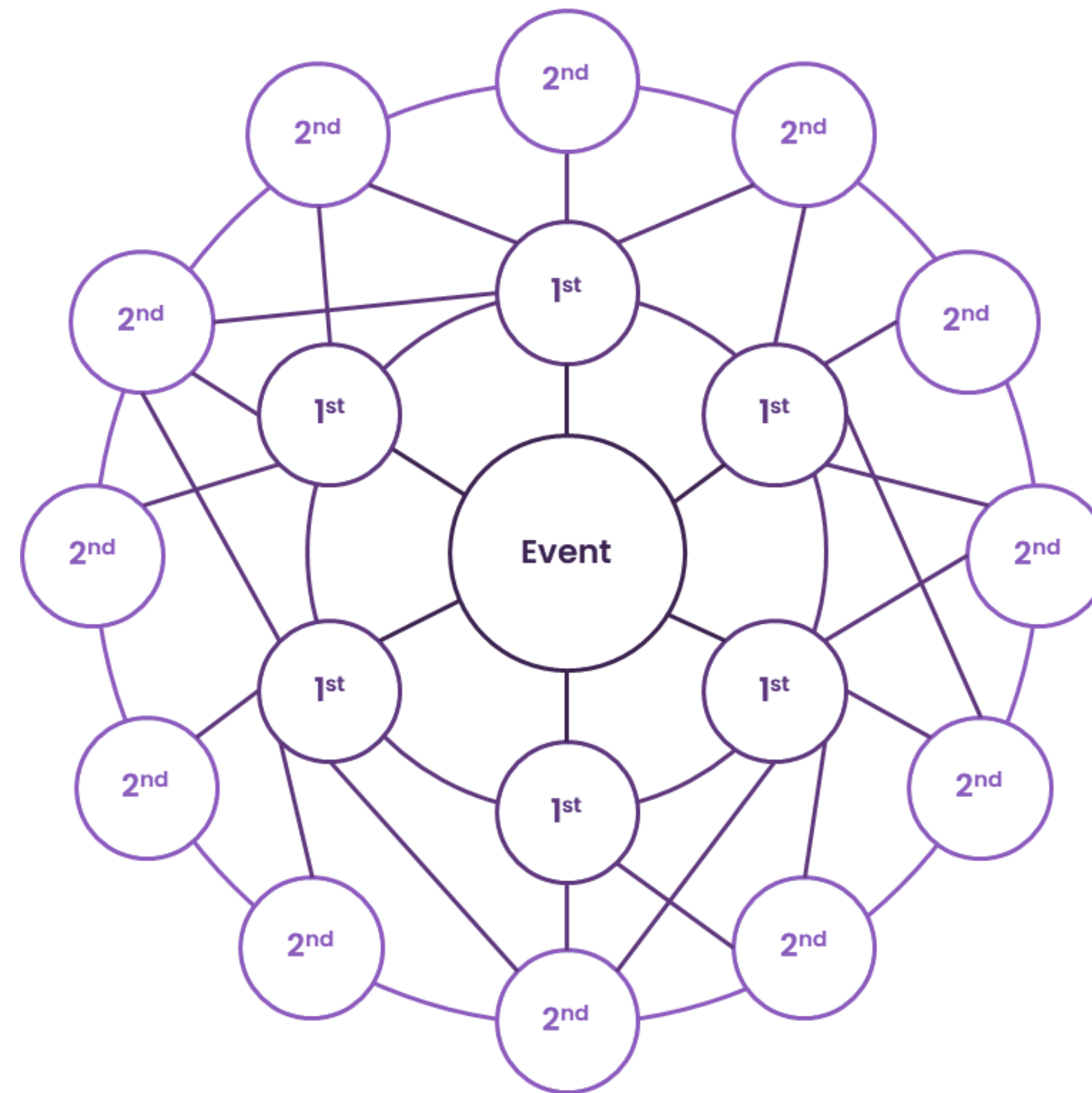
Rapid urbanisation and unplanned development can increase the exposure and vulnerability of city dwellers to climate change-related hazards such as flooding, storms, and extreme heat.

When does displacement become migration?

When combined with rapid urbanisation, climate change can significantly increase the future risk and costs of disaster displacement. This raises questions as to what societies will consider to be a ‘climate migrant’ by 2050.

The Futures Wheel

Use this to think systematically beyond immediate consequences, reveal hidden vulnerabilities and opportunities.



Bow Tie Analysis/ Fault Tree-Event Tree Analysis

Use this to map the causal pathways of the root causes and impacts of events.

You can also use this to identify mitigation measures and spot feedback loops.

