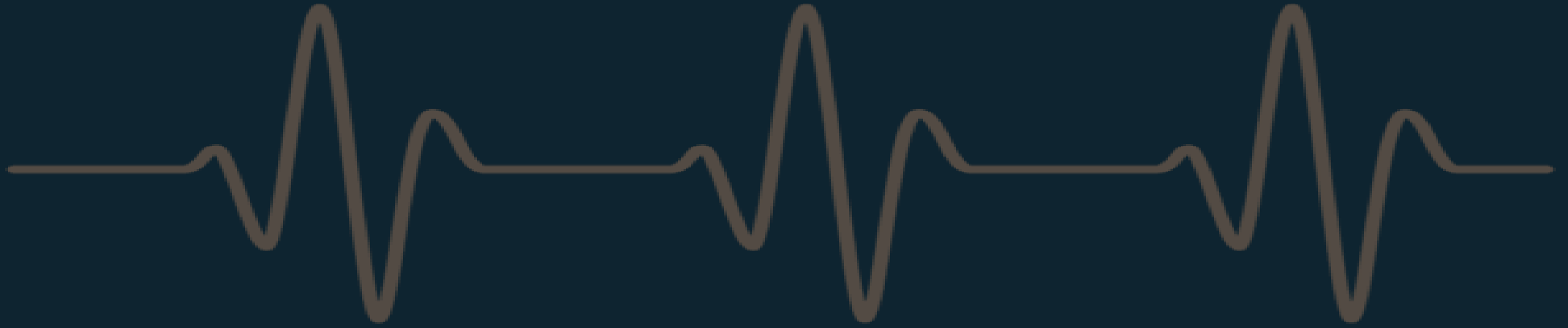
POST-EVENT FORENSICS

Leveraging lessons to take from failure



Climate Risk & Asset Resilience Summit 2026 · 28–30 July 2026 · Sydney

Five recurring failure modes

The pattern the forensic record keeps showing

1

Yesterday's climate

Design standards for a world that no longer exists

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Risk in silos

Compounding & cascading hazards treated as independent

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Warnings issued, recommendations recycled

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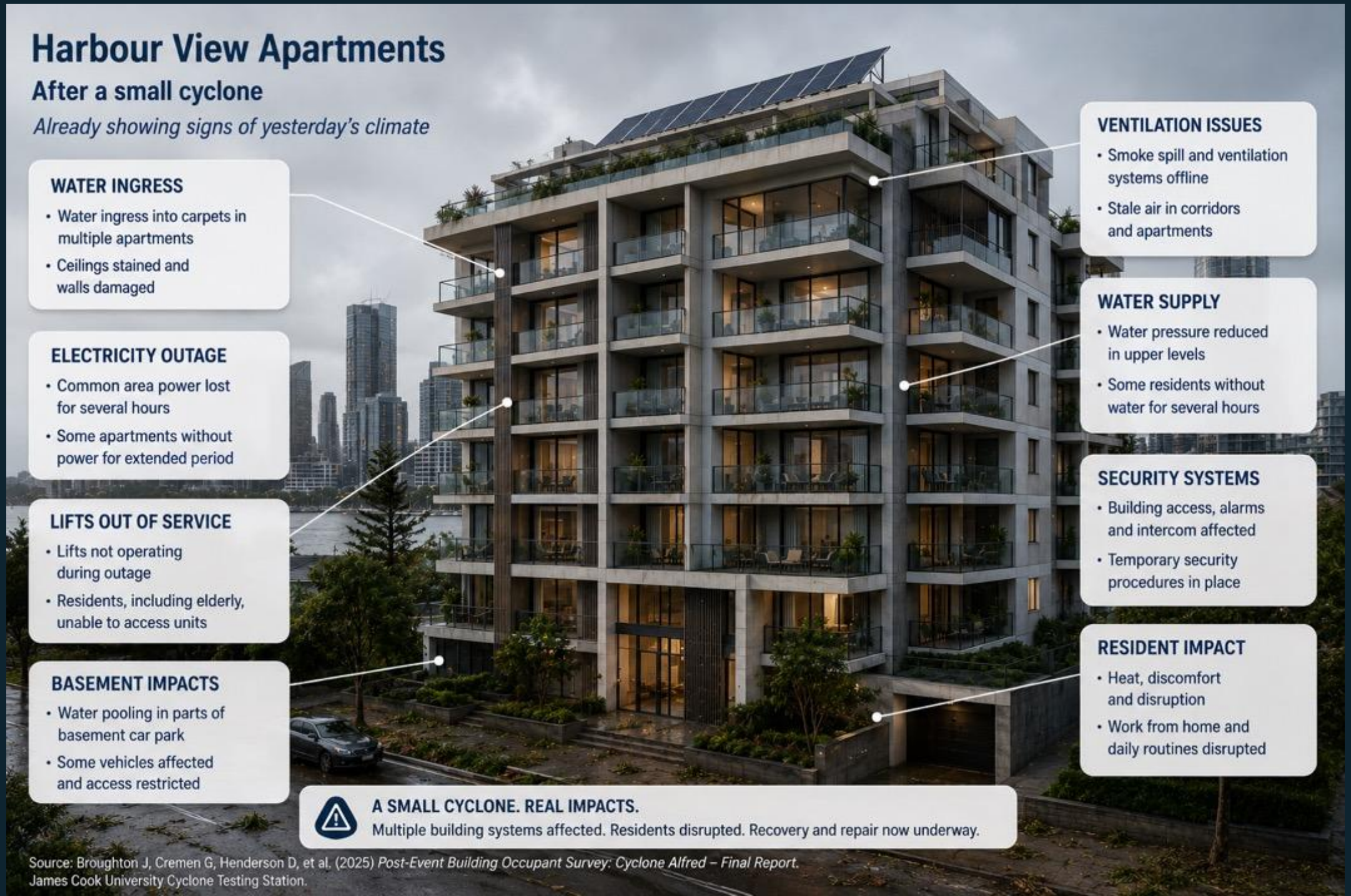
Yesterday's climate

Design standards for a world that no longer exists

Harbour View Apartments

After a small cyclone

Already showing signs of yesterday's climate



WATER INGRESS

- Water ingress into carpets in multiple apartments
- Ceilings stained and walls damaged

ELECTRICITY OUTAGE

- Common area power lost for several hours
- Some apartments without power for extended period

LIFTS OUT OF SERVICE

- Lifts not operating during outage
- Residents, including elderly, unable to access units

BASEMENT IMPACTS

- Water pooling in parts of basement car park
- Some vehicles affected and access restricted

VENTILATION ISSUES

- Smoke spill and ventilation systems offline
- Stale air in corridors and apartments

WATER SUPPLY

- Water pressure reduced in upper levels
- Some residents without water for several hours

SECURITY SYSTEMS

- Building access, alarms and intercom affected
- Temporary security procedures in place

RESIDENT IMPACT

- Heat, discomfort and disruption
- Work from home and daily routines disrupted

A SMALL CYCLONE. REAL IMPACTS.
Multiple building systems affected. Residents disrupted. Recovery and repair now underway.

Source: Broughton J, Cremen G, Henderson D, et al. (2025) *Post-Event Building Occupant Survey: Cyclone Alfred – Final Report.* James Cook University Cyclone Testing Station.

2

Risk in silos

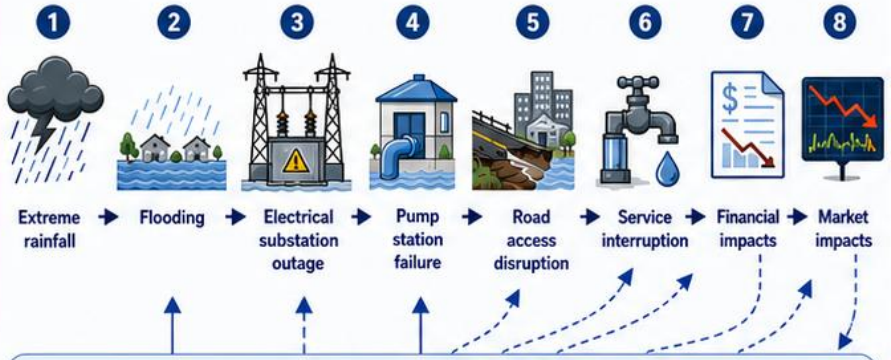
Compounding & cascading hazards treated as independent

Climate Cascading and Compounding Risks in Asset Management

Climate risks do not happen in isolation — surrounding economic, policy and social systems can amplify impacts.

1. Cascading risks

A climate hazard can trigger a chain of interconnected failures that spread from assets to services, finance and markets.



Surrounding systems can worsen the cascade

Economy
Supply chain pressure, tighter finance, inflation, market volatility

Policy and regulation
Planning rules, standards, regulation, insurance settings, recovery decisions

Social conditions
Vulnerable communities, service dependence, inequality, reduced adaptive capacity

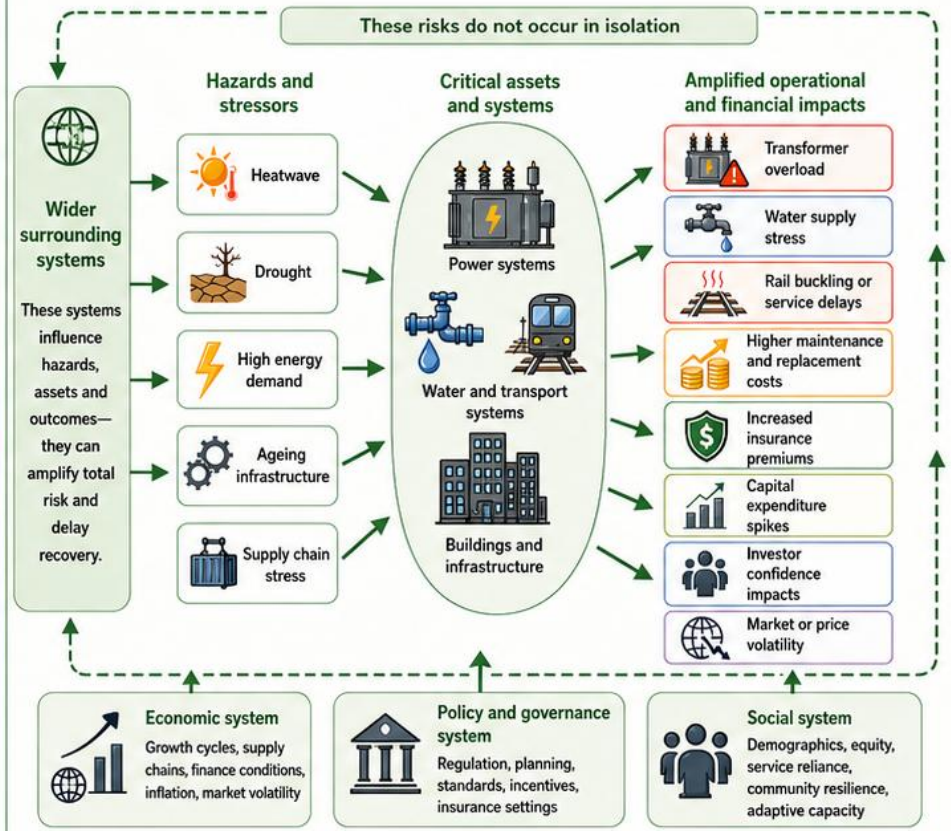
Financial consequences may include:

- Higher insurance costs
- Repair cost escalation
- Asset value decline
- Investment deferral
- Revenue loss
- Credit/ financing pressure
- Market disruption

Key idea: a single climate hazard can trigger interconnected failures, and wider economic, policy and social systems can intensify the cascade.

2. Compounding risks

Multiple hazards and stressors occur together or in sequence, amplifying impacts on critical assets, operations and financial outcomes.



Key idea: compounding risks are amplified not only by multiple hazards, but also by surrounding economic, policy and social systems.

Cascading and compounding climate risks are shaped by wider systems — economic, policy and social factors can amplify impacts, recovery time, investment pressure and market risk.

THE RHINE: ONE RIVER, MANY ASSETS, COUNTLESS DEPENDENCIES

An integrated infrastructure system – exposed to climate-related risk

ASSET COMPLEXITY

WATERWAY ASSETS
- Navigational channel
- Locks & weirs
- Dredging
- Signage & monitoring

TRANSPORT ASSETS
- Inland ports & terminals
- Barges & vessels
- Roads
- Rail infrastructure
- Bridges & tunnels

INDUSTRIAL ASSETS
- Chemical plants
- Refineries
- Manufacturing
- Storage facilities

ENERGY ASSETS
- Power plants
- Fuel transport
- Pipelines
- Grid connections

URBAN & COMMUNITY ASSETS
- Drinking water intake
- Wastewater treatment
- Flood protection
- Communities & services

NAVIGATION
Low water levels reduce draught and payloads

INDUSTRY
Input delays and reduced output affect production

PORTS & LOGISTICS
Reduced barge capacity drives congestion, delays and costs

ENERGY
Power plant cooling limited; fuel deliveries constrained

CHEMICALS & HAZARDOUS MATERIALS
Tight supply chains increase risk exposure

COMMUNITIES
Drinking water, sanitation and services at risk

CONNECTIVITY
Roads, rail and bridges face operational strain

ECOSYSTEM & FLOOD RISK
Low flows impact ecosystems and reduce resilience to extreme events

A SYSTEM, NOT A SINGLE ASSET

The Rhine is a critical artery for Europe's economy and security. Disruption to one part of the system cascades across many sectors and countries.

CLIMATE SIGNAL: 2022 DROUGHT

~40% reduction in barge payload capacity

~200 days of low water levels

>€2B estimated economic impact

Multiple countries and sectors affected

KEY TAKEAWAY

Managing climate risk on the Rhine requires system-wide visibility, cross-sector coordination, and adaptive investment in the assets that keep Europe moving.

2

Risk in silos

Compounding & cascading hazards treated as independent

Harbour View Apartments

Non-silo risks that can emerge

Interconnected impacts across systems

INSURANCE
- Increased risk profile after events
- Higher premiums and excesses
- New conditions: EV charging, water damage, fire safety
- Potential loss of cover for certain perils

FINANCE & LENDING
- Lenders reprice risk or reduce LVRs
- Higher cost of debt for strata schemes
- Future capital works may be required to meet criteria

ELECTRICITY OUTAGES
- More frequent and longer outages during extreme weather
- Lift outages, no lighting, No power to common areas
- Impact on medical equipment, WFH, tenants and amenity

WATER SUPPLY DISRUPTION
- Pressure reductions during heat or outages
- Water ingress after heavy rain or storms
- Impacts on upper levels, amenity and habitability

REGULATION & COMPLIANCE
- New building and fire safety requirements
- Stricter electrical, EV charging and ventilation standards
- Costs to upgrade and achieve compliance

FIRE & EMERGENCY RISK
- EV battery fire concerns in basements
- Fire brigade access and response requirements
- Potential insurers or regulator conditions

RESIDENT BEHAVIOUR & EXPECTATIONS
- More EVs, more charging demand
- Conflicting views on costs and priorities
- Lower satisfaction and community tension

CAPITAL WORKS & COSTS
- Electrical upgrades (transformer, switchboard, cabling)
- Water ingress, façade, balcony and drainage repairs
- Special levies and affordability pressures

SUPPLY CHAIN & CONSTRUCTION
- Higher costs and longer lead times for materials and contractors
- Competition for skilled trades
- Delays in completing critical works

CLIMATE PHYSICAL RISK
- More frequent storms, heatwaves and heavy rainfall
- Flooding, wind damage, heat stress
- Ongoing impact on asset condition and liveability

ASSET VALUE & LIQUIDITY
- Reduced attractiveness to buyers and investors
- Longer sales periods
- Values impacted by risk perception and future capital needs

NON-SILO REALITY: A change in one system creates flow-on effects across many others. Today's decisions shape tomorrow's costs, risks and opportunities.

2

Risk in silos

Compounding & cascading hazards treated as independent

THE PROTECTION PARADOX

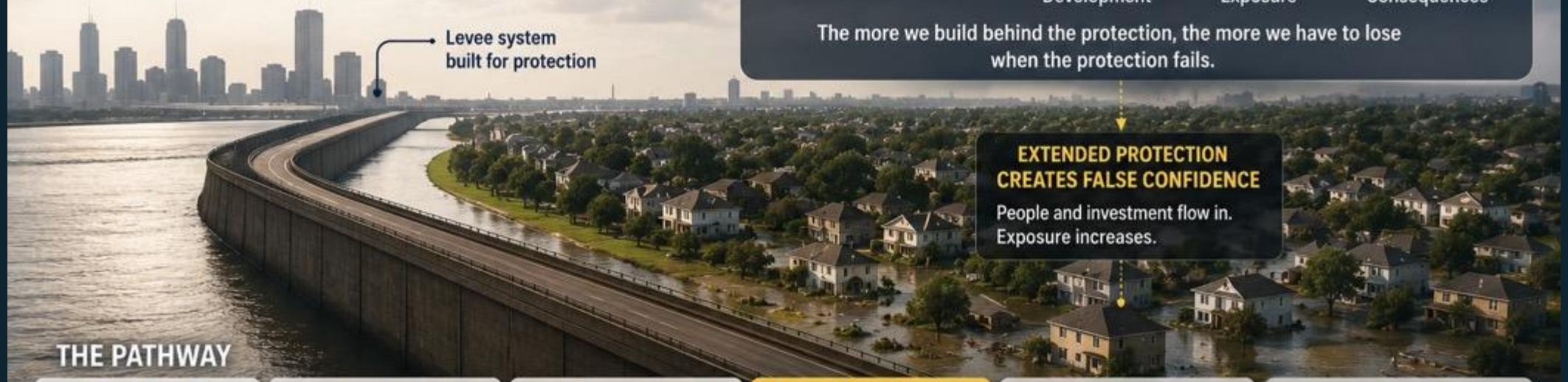
When protection today creates risk tomorrow

New Orleans after Hurricane Katrina

THE PARADOX

Protection → Confidence → More Development → Greater Exposure → Catastrophic Consequences

The more we build behind the protection, the more we have to lose when the protection fails.



EXTENDED PROTECTION CREATES FALSE CONFIDENCE

People and investment flow in.
Exposure increases.

THE PATHWAY

PRE-KATRINA
Prior to 2005

Federal levee investments create a sense of security.

MORE DEVELOPMENT
1990s – 2000s

Population and property values surge behind the levees.

RISING EXPOSURE
2000s

More people, more assets, more critical infrastructure at risk.

PROTECTION FAILURE
August 2005

Levee breaches during Hurricane Katrina. Catastrophic flooding.

CATASTROPHIC LOSS
2005

$125 billion+ in damages. Thousands of lives lost. Insurance crisis.

THE LEVY
2006+

Special assessments and levies fund rebuilding and uplift. Higher costs for residents and businesses.

THE LESSON

Protection reduces risk—until it encourages more exposure.

When the system is overwhelmed, the cost of that exposure is borne by communities through levies, higher taxes and lost opportunity.

TODAY'S IMPLICATION

From flood defenses to fire buffers, from seawalls to climate adaptation—protection must be matched with land-use, governance and financial discipline.

PROTECTING PLACES IS NOT ENOUGH.
WE MUST ALSO PROTECT OUR FUTURE OPTIONS.

3

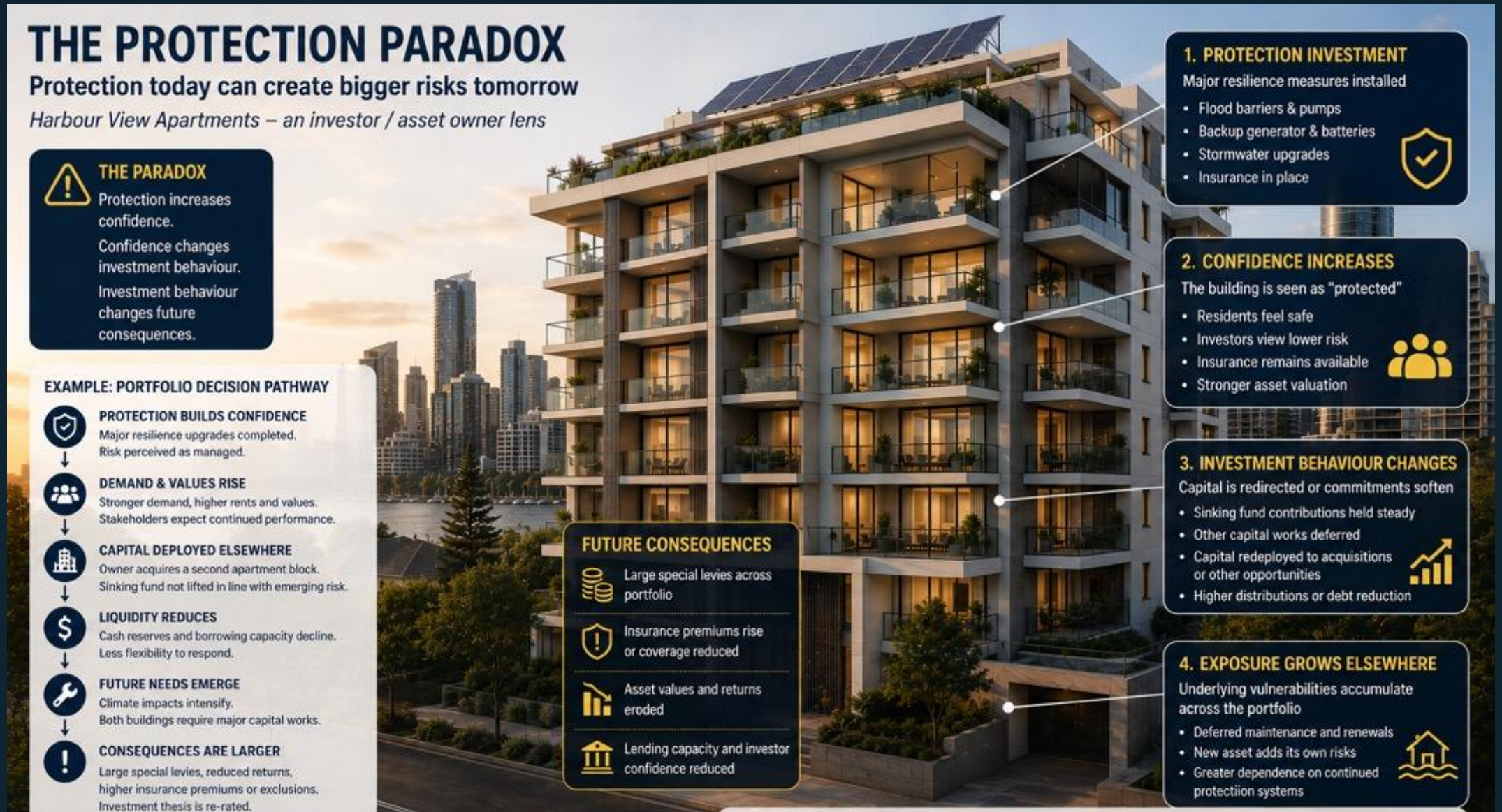
Protection paradox

Adaptation that redistributes and defers risk

THE PROTECTION PARADOX

Protection today can create bigger risks tomorrow

Harbour View Apartments – an investor / asset owner lens



THE PARADOX

Protection increases confidence.

Confidence changes investment behaviour.

Investment behaviour changes future consequences.

EXAMPLE: PORTFOLIO DECISION PATHWAY

PROTECTION BUILDS CONFIDENCE
Major resilience upgrades completed.
Risk perceived as managed.

↓

DEMAND & VALUES RISE
Stronger demand, higher rents and values.
Stakeholders expect continued performance.

↓

CAPITAL DEPLOYED ELSEWHERE
Owner acquires a second apartment block.
Sinking fund not lifted in line with emerging risk.

↓

LIQUIDITY REDUCES
Cash reserves and borrowing capacity decline.
Less flexibility to respond.

↓

FUTURE NEEDS EMERGE
Climate impacts intensify.
Both buildings require major capital works.

↓

CONSEQUENCES ARE LARGER
Large special levies, reduced returns, higher insurance premiums or exclusions.
Investment thesis is re-rated.

1. PROTECTION INVESTMENT

Major resilience measures installed

- Flood barriers & pumps
- Backup generator & batteries
- Stormwater upgrades
- Insurance in place

2. CONFIDENCE INCREASES

The building is seen as "protected"

- Residents feel safe
- Investors view lower risk
- Insurance remains available
- Stronger asset valuation

3. INVESTMENT BEHAVIOUR CHANGES

Capital is redirected or commitments soften

- Sinking fund contributions held steady
- Other capital works deferred
- Capital redeployed to acquisitions or other opportunities
- Higher distributions or debt reduction

4. EXPOSURE GROWS ELSEWHERE

Underlying vulnerabilities accumulate across the portfolio

- Deferred maintenance and renewals
- New asset adds its own risks
- Greater dependence on continued protectiion systems

FUTURE CONSEQUENCES

- Large special levies across portfolio
- Insurance premiums rise or coverage reduced
- Asset values and returns eroded
- Lending capacity and investor confidence reduced

THE LESSON

Protection is essential – but it can create a false sense of security. Confidence can lead to decisions that increase exposure across your whole portfolio. Resilience is not just about today's works – it's about tomorrow's choices.

REAL-WORLD EXAMPLES

NEW ORLEANS (KATRINA)
Levees created confidence. More development behind the levees followed. Consequences were catastrophic.

COASTAL COMMUNITIES
Stronger building codes and sea walls increased property values and encouraged more exposure.

INFRASTRUCTURE PORTFOLIOS
Resilience upgrades on one asset can lead to capital being deployed elsewhere – leaving future vulnerabilities under-funded.

PROTECTION DOESN'T JUST REDUCE RISK – IT CAN ALSO CHANGE INVESTMENT BEHAVIOUR. SOMETIMES THE GREATEST VULNERABILITY IS THE CONFIDENCE CREATED BY THE LAST ADAPTATION.

3

Protection paradox

Adaptation that redistributes and defers risk

FAILURE MODE 4

TRANSITION BLIND SPOT

When climate risks the transition

A net zero asset that doesn't capture climate risk

CARBON OFFSET FOREST PROJECT

Planted to remove carbon and generate high-integrity carbon credits.
On paper – a climate solution.
In reality – exposed to a changing climate.

1 TRANSITION ASSET

Built for a net zero future

- Sequesters carbon and generates carbon credits
- Supports corporate Net Zero and compliance targets
- Attracts investment and long-term off-take agreements
- Insurable and bankable based on historical risk

2 CLIMATE CHANGES

Risk increases over time

- Rising temperatures, more extreme heat
- Longer droughts dry out vegetation
- More extreme fire weather conditions
- Bushfire risk escalates

3 EVENT OCCURS

Climate risk becomes reality

- Bushfire impacts the forest
- Stored carbon is released
- Carbon credit generation interrupted or reversed
- Insurance difficult or unavailable / unaffordable

4 INVESTMENT THESIS CHANGES

Value, viability and confidence decline

- Carbon revenue falls or is lost
- Financiers reassess risk, cost of capital rises
- Asset valuation declines
- Net Zero claims and stakeholder confidence at risk

RESILIENT TODAY, NEW RISKS TOMORROW

The transition can create risks your asset wasn't designed for.

ELECTRICAL CAPACITY LIMITATIONS

- Existing switchboard and infrastructure not designed for high EV load
- Trickle charging required if all cars are on charge

CAPITAL & FINANCIAL IMPACTS

- Significant electrical upgrades required
- Special levy likely
- Competes with other capital priorities

STRATA / BODY CORPORATE CHALLENGES

- Rising demand for EV charging
- Debate over costs, fairness and access
- Complex approvals and decision-making

INSURANCE & RISK CONCERNS

- Insurers scrutinise fire safety and electrical load
- Higher premiums or reduced cover
- Compliance requirements keep evolving

ASSET COMPETITIVENESS AT RISK

- Building perceived as less EV-ready
- Harder to attract and retain residents
- Falls behind new developments

4

Transition blind spot

Net-zero assets that are climate-fragile

5

The learning failure

Warnings issued, recommendations recycled

2018

ENGINEER RECOMMENDS UPGRADING ELECTRICAL CAPACITY

IGNORED

2021

RESIDENTS REQUEST EV CHARGING SOLUTIONS

DEFERRED

2024

NETWORK ADVICE FUTURE CONSTRAINTS IDENTIFIED

DEFERRED

2027

INSURANCE REQUESTS ADDITIONAL FIRE MANAGEMENT MEASURES

PARTIALLY IMPLEMENTED

2030

MAJOR SPECIAL LEVY

- Significant electrical upgrades
- Increased insurance premiums
- Resident dissatisfaction
- Reduced competitiveness

ELECTRICAL CAPACITY NOW A MAJOR CONSTRAINT

Existing switchboard not designed for today's or tomorrow's load

EV CHARGING PRESSURE

High demand from residents but infrastructure unable to support it

INSURANCE IMPACT

Insurer reviewing risk exposure, fire safety and electrical load

RESIDENT TENSION

Trickle charging, limited solutions and rising body corporate fees

MAJOR IMPACT

- Special levy
- Higher insurance premiums
- Reduced property value
- Lost competitiveness

5

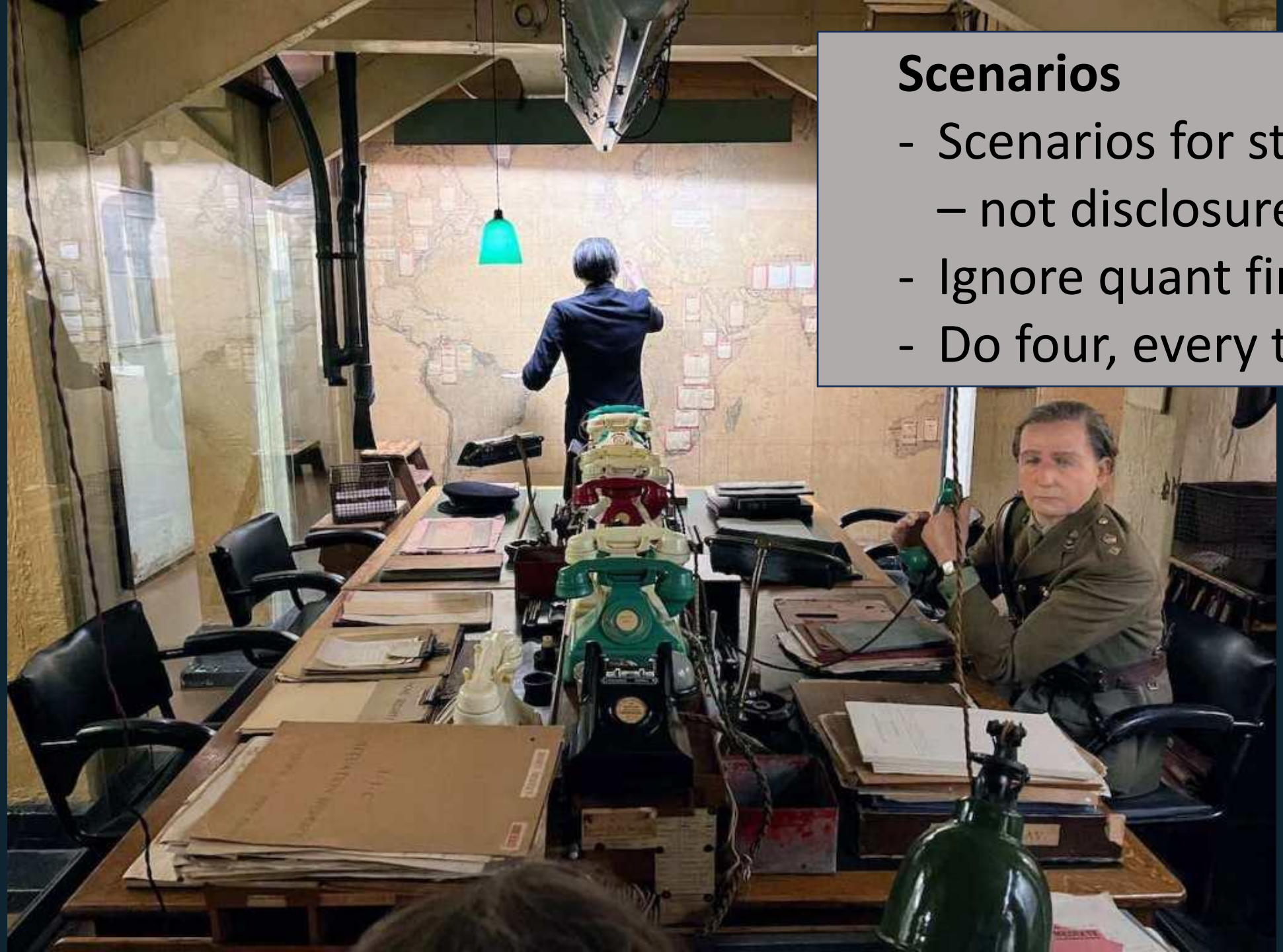
The learning failure

Warnings issued, recommendations recycled


Top-down policy
Bottom-up

Lean in

- Frank conversations
- Evidence
- Governance



Scenarios

- Scenarios for strategy – not disclosures first
- Ignore quant first
- Do four, every time


What side of the courtroom do you want the climate specialist to be on?

Thank you

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