

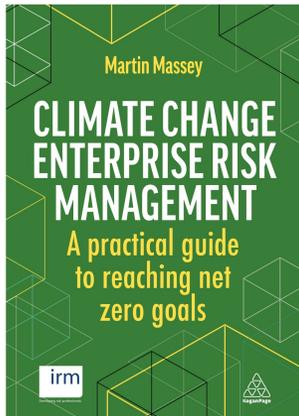


Practical Strategies in Managing Climate-Related Risks

Martin Massey, OneRisk Consulting

Laurent Sabatie, Skyline Partners

Introduction



- Founder and owner of OneRisk Consulting Ltd and Chair of Climate Change Committee at the Institute of Risk Management.
- 30 years experience in Risk Management including Swiss Re, AIG, Aon, Marsh and Willis.
- MBA with a distinction in dissertation on Climate Change.
- CRO in the insurance industry from 2015 – 2020
- In 2022 supporting a number of organisations in their climate strategy and business development including Milliman, Tesco Underwriting, Accelerant Holdings, APS Bank, Riskconnect, Cornish Mutual and Skyline Partners.
- Relevant articles and publications including IRM's Horizon Scanning Guide and Publication of Climate Change Enterprise Risk Management Book in December 2022 with Kogan Page/IRM.
- Member of the Climate Change Reserving Working Party at the Institute and Faculty of Actuaries.



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Agenda for Today

- IRM Climate Change Special Interest Group Activities
- Provide overview of my forthcoming book *“Climate Change Enterprise risk management: A practical guide to reaching net zero goals”*
- Practical strategies in managing climate-related risks through case studies
- Design of climate-related risk transfer solutions through use of parametric/index solutions through case studies.

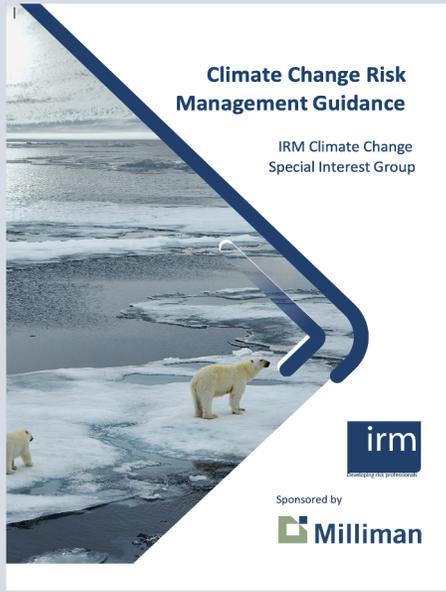


“Climate change is unlike any other environmental problem and any other public policy problem and is underpinned by a combination of four unique issues: global; long-term; potentially irreversible and uncertain.”

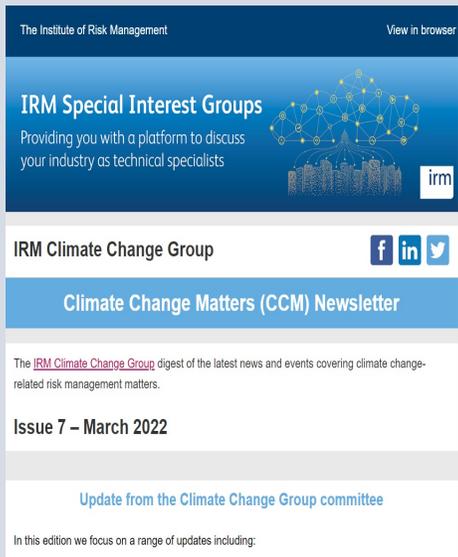
IRM Climate Change SIG Summary of Activities, Newsletter and Webinars Events

Aims and Objectives: -Inspire -Learn -Engage -Research –Collaborate

Purpose: • Research and collate climate change risk management best practices and solutions ; • Develop a strong committee with a wider representation of members across different industry sectors ; • Support IRM’s goals including increasing membership and developing educational training for members.



CC SIG Management Guidance:
Practical guide to enhance the organisation’s framework and risk maturity from identifying to reporting CC risks.



CC SIG Newsletter
“Climate Change Matters”: Centralised knowledge including latest publications and key articles on latest thinking on climate change in Risk Management.



During the session, we will introduce the topic of climate change adaptation and climate change risk assessments, provide example case studies and host an interactive discussion on the topic of climate change risk assessments. Speakers include:
Ellie Murtagh, Climate Adaptation Services Specialist, Sniffer
Martin Massey MIRM, Chair of the IRM’s Climate Change SIG, founder and owner of OneRisk Consulting Ltd

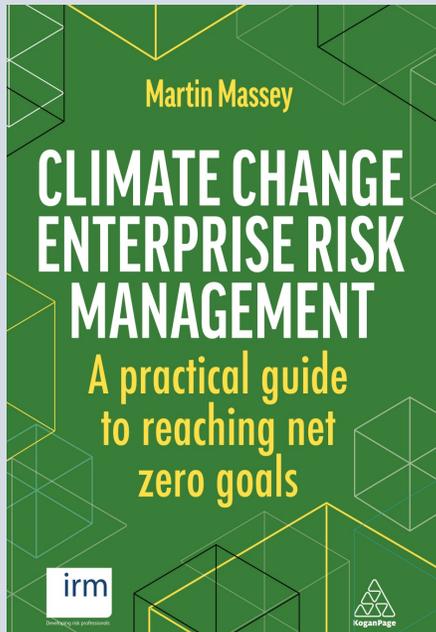


CC SIG Webinars: Overview of the Climate Change adaption and risk assessment through case studies and interactive sessions.

ERM framework for considering climate change risks

The book covers existing best-practice risk management tools and helps to develop and execute a resilient climate change enterprise risk strategy that can be tailored to any organization with this essential guide for risk professionals and business leaders, including case studies.

Practitioners Guide



Content of the book



Embedding Climate Change into an Risk Strategy (Conditions and Outcomes)



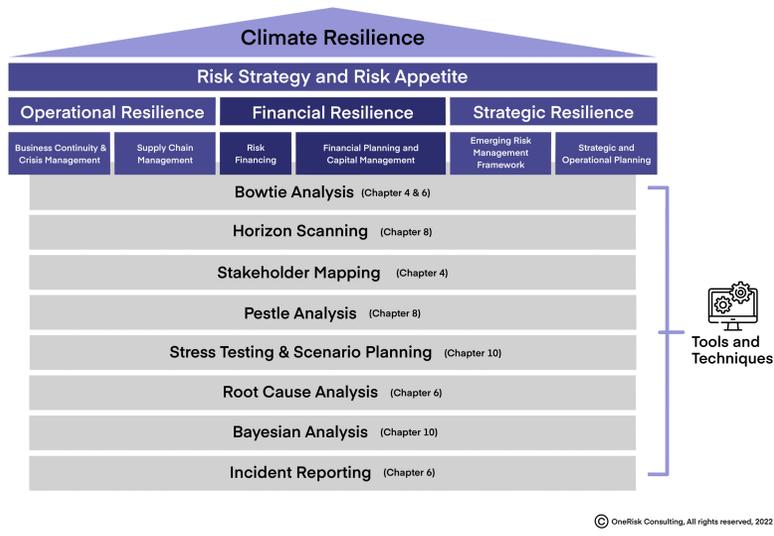
To be published on 3rd December 2022 – Available to pre-order on Amazon ...

“Explains in a very clear and methodical way how to integrate climate risks in to an existing ERM and governance framework.” Alfa Falconi, Director, Enterprise Risk Management, NEOM

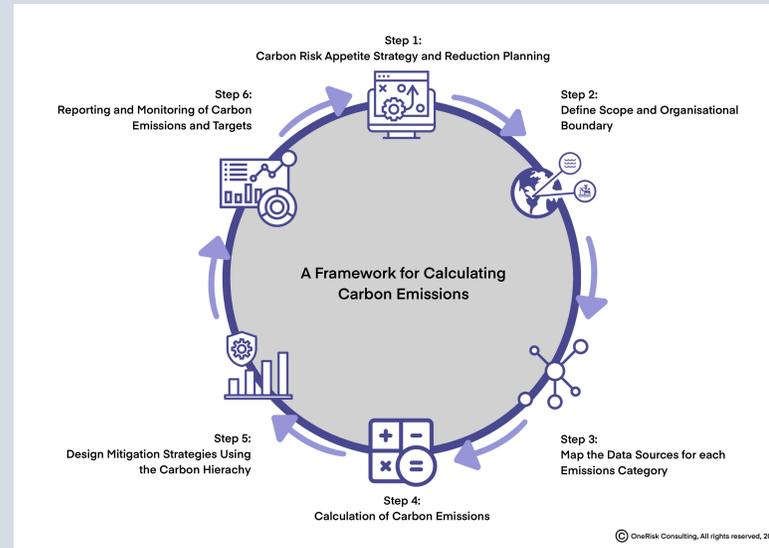
Book Content – Climate Change Risk Frameworks and tools and techniques

The book focuses on existing risk management tools and techniques and explains how they can be tailored for managing climate change through use of industry case studies.

Risk management Tools and Techniques Example - Building Climate Resilience



Climate Change Frameworks Example - Managing Transition Risks



Example Real Life Case Studies Physical Risk Applications

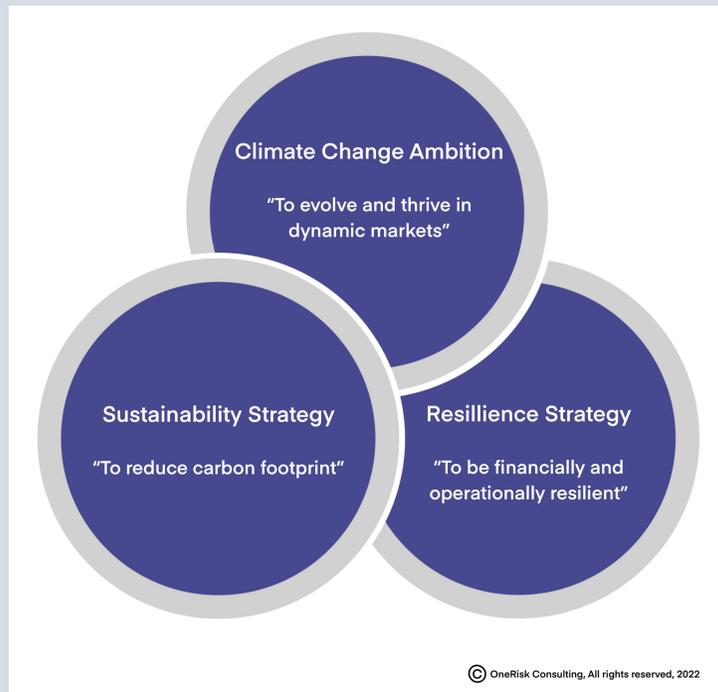
COMPANY	Physical Peril	Application
Acies MGU & Previsico	Flood Risk Management	<ul style="list-style-type: none"> Flood early warning service - embedded within insurance policies
Southern Water	Operational Resilience for future drought event	<ul style="list-style-type: none"> Identify the causes of drought, improve resilience and mitigation strategies.
<i>Skyline Partners</i>	<i>Heat stress (solution for livestock)</i>	<ul style="list-style-type: none"> <i>Development of innovative solutions for dairy farmers from heat stress</i>
<i>Skyline Partners</i>	<i>Hurricane Natural Catastrophe protection for loan defaults in Caribbean</i>	<ul style="list-style-type: none"> <i>Hurricane index insurance protecting against non-repayment of loans</i>
Fathom	Flood Risk Analysis	<ul style="list-style-type: none"> Using the flood hazard data and CAT Model, assess the future flood behaviour
A J Gallagher	Impact of CC on (i) Soil Heave (ii) Storm damage, (iii) Slope failure (iv) overheating/humidity	<ul style="list-style-type: none"> Highlight the importance of each peril from climate change perspective

"A great insight for risk managers needing to navigate the challenges of climate change."
Judith Ellison, Business Development Manager, JBA Risk Management

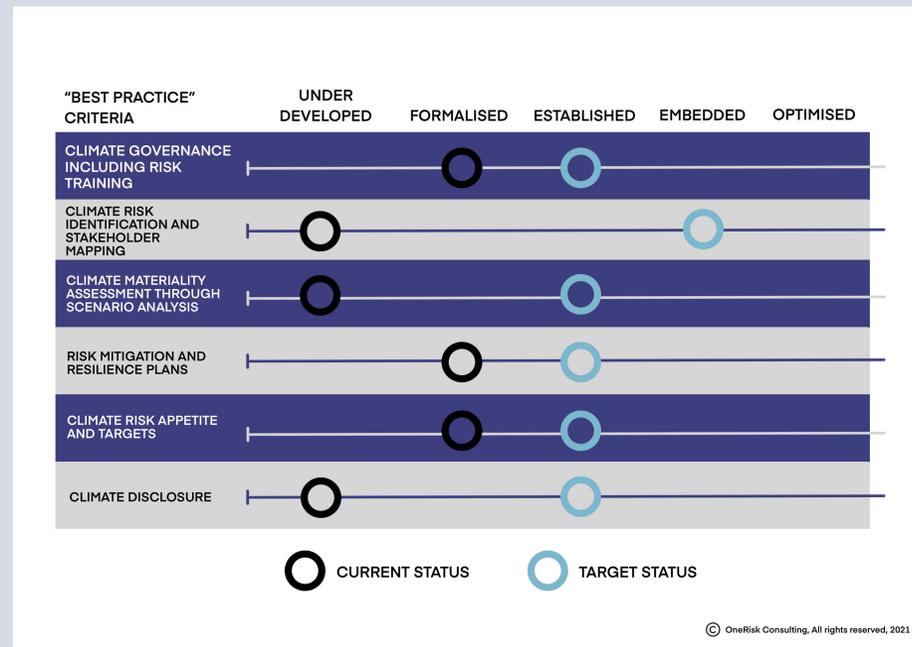
Developing a Climate Risk Strategy

- Does the Board consider the actual and potential impacts of climate-related risks and opportunities on the firm's business strategy, and financial planning?
- Have you built a roadmap for improvements in order to reach the target risk maturity level for a specific criteria?

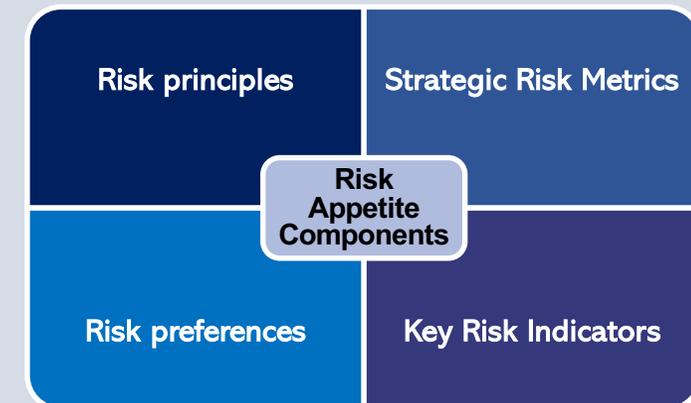
Main dimensions underpinning CC strategy



Climate Change Risk Maturity Model



Risk Appetite Components



The book is readily accessible for those new to risk management but I am sure it will also bring fresh insight to those familiar with the concepts. Derek Thrumble, Head of Analytics, Gallagher Specialty

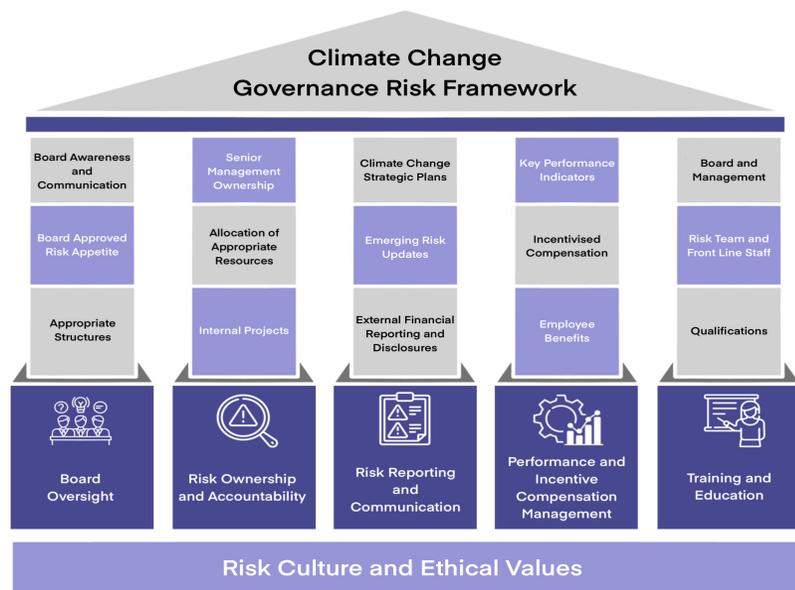
Developing an Effective Climate Governance Framework

KEY QUESTIONS TO ADDRESS

- *How are issues associated with climate change integrated within our board governance (strategic and oversight) responsibilities?*
- *Who is responsible and accountable for this issue within management?*
- *How do we as a board, and senior management ensure that we are staying up to date in this dynamic area?*
- *Are our remuneration structures aligned with our strategic approach to climate change?*

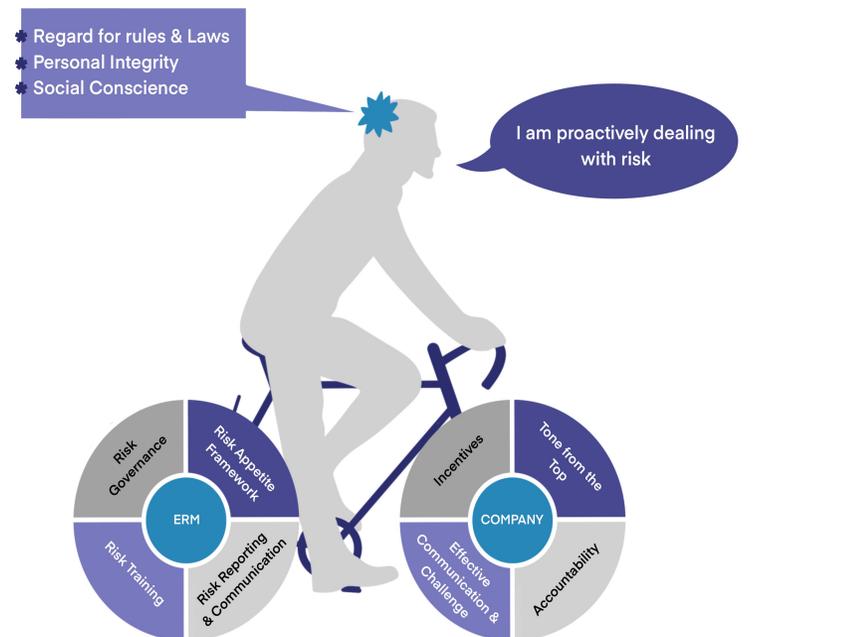
Climate Change Risk Governance Guide – Australian Institute of Company Directors

Climate Change Governance Risk Framework



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Integrated Risk Culture Model



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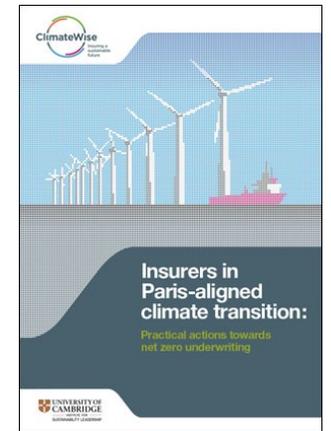
This book equips us superbly to develop a culture that unites everyone's positive efforts around a core consensus on climate risk"

Roger Miles, Head of Faculty, UK Finance, Conduct Leaders Academy

A dramatic image of Earth from space, showing a massive fireball or meteor streaking across the sky, symbolizing climate-related risks. The Earth is partially visible on the left, with a bright, fiery trail of light and smoke extending from the top right towards the center. The background is a dark, deep blue space.

Practical strategies in managing climate-related risks through case studies

Insurance Industry Case Study: Underwriting Portfolio Climate Risk Assessment Tool*



Problem: To help to articulate and deliver practical approaches to net zero underwriting for ClimateWise members as part of a public report exploring its implications for the insurance industry and policy makers.

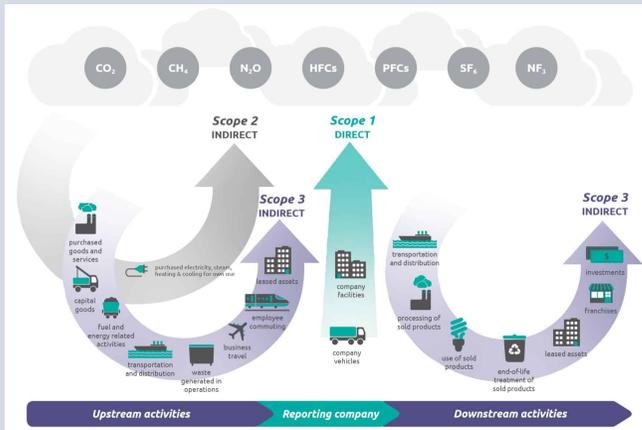
Solution: Design an underwriting portfolio climate risk assessment tool (“the tool”)

Benefits: The overall process and implementation helps act as an Early warning system; helped assess the main drivers and impact across the underwriting business and led a net zero underwriting framework

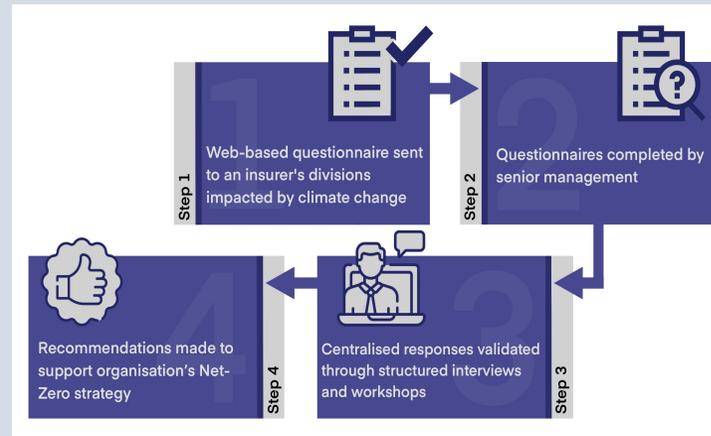
Project Methodology/Process

Project Output – Net Zero Underwriting Framework

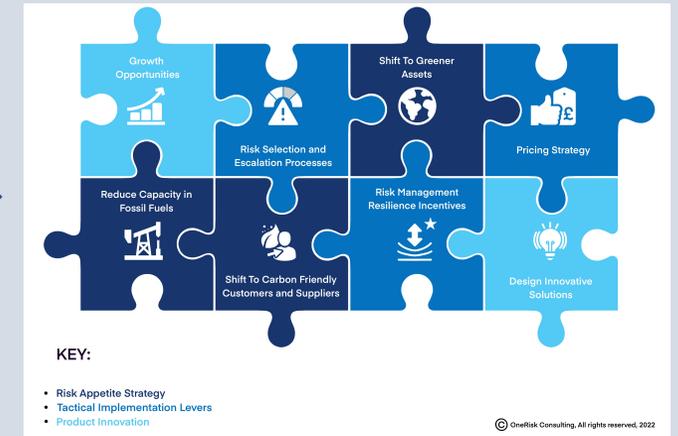
Focus on Scope 3 Emissions



high-level flowchart of the process using web-based questionnaire



Practical approaches for insurance companies to achieve NZU.



* The case study was included in the report that outlines the practical actions towards net zero underwriting outlines the current definition of net zero, exploring its implications for the insurance industry and policy makers. The full report is available to read at this link: <https://lnkd.in/gSN4JXTD>

Case Study: Design of a Strategic Climate Action Plan

Problem: Develop a long-term strategic climate change action plan and roadmap aligned to meeting the PRA requirements

Solution: The project was split into 3 phases: 1. To provide a strategic gap analysis 2. Design of a set of qualitative climate change and 3. Review of prevailing control environment

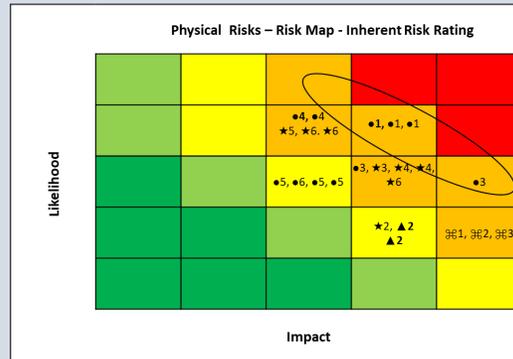
Benefits: The strategic climate change action plan, that was signed off by the board risk committee and helped build consensus amongst a range of stakeholders about how to meet both both regulatory expectation; sustainability and reliance strategies of the company

Project Methodology/Process

Phase 1. Strategic Gap Analysis



Phase 2 Design of qualitative climate scenarios/review of control environment



Aggregate Qualitative Risk Description and Associated Management Action

Extreme Risk	Should be brought to the attention of Board and immediately progressed
Very High Priority	Requires attention of Senior Management including CEO and an action plan developed as a priority
High Risk	Requires action and monitoring by the Risk Owner
Medium Risk	Monitoring the risk by the Risk Champion along with Departmental Manager
Low Risk	Monitoring the risk by the Risk Champion along with Departmental Manager

Climate Scenario Examples

- 1 – Major Flood Event
- 2 – Major Storm Event
- 3 – Droughts leading to increase Subsidence
- 4 – Hot Summer – Heatwave
- 5-6 Other

Time Horizon

- ▲ = 0-3 years
- = 3-10 years
- ★ = +10 years
- ☉ – All time horizons

Project Output

Indicative Action Plan Output

PRA Component	Treatment Initiative	Action Owner	Priority
Governance	Board training	CRO	High
Risk Management	Design of Key Risk Indicators	CRO	Medium
Scenario Analysis	ORSA Update for Stress Tests	Chief Actuary	High
Disclosure	Lower carbon Emission Strategy	CFO	Medium

Case Study: Climate Stress Tests for ORSA reporting

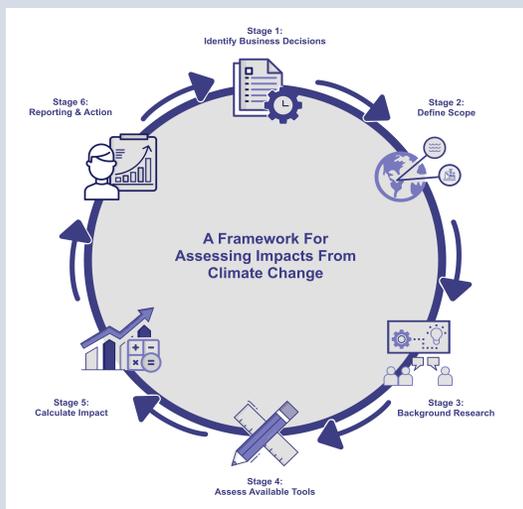
Problem: To develop a robust and re-usable physical risk scenarios aligned to regulatory requirements (PRA; SEC and EIOPA) to support ERM processes specifically the annual ORSA stress and scenario tests and other strategic planning processes.

Solution: The project utilised a best practice six-step process shown below and used Natural Catastrophe modelling outputs that were provided by a leading global reinsurance broker to set the base case for each major peril/geography below.

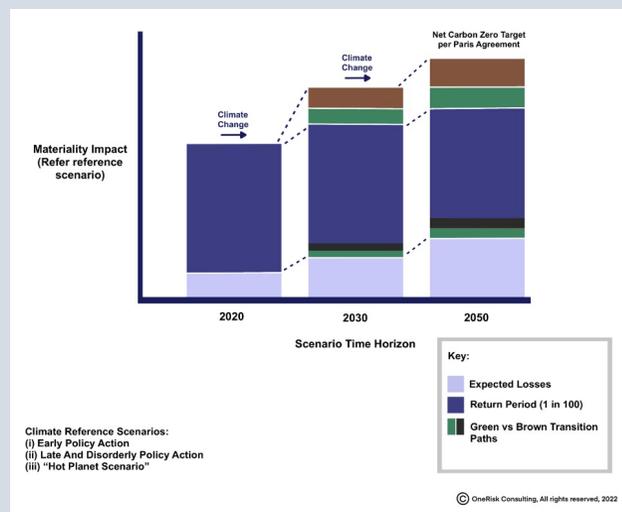
Benefits: To assess the solvency position and the development of risk-mitigation and contingency plans to support future business vulnerabilities.

Project Methodology/Process

1. 6 -Stage scenario methodology framework



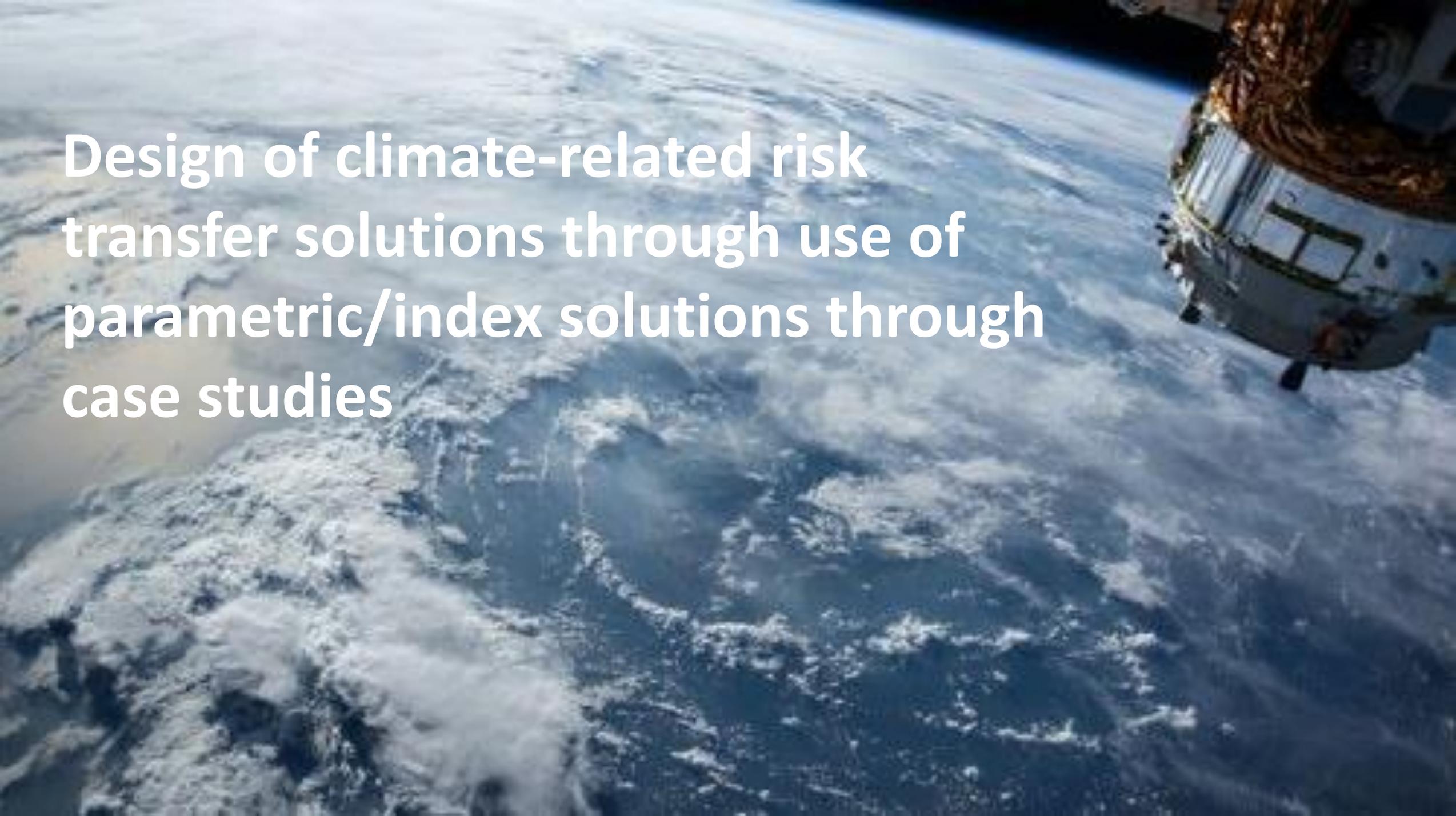
2. Setting the Baseline – Physical Risks Conceptual Framework



Project Output

Illustrative Model Outputs – Gross/Net OEP 3 Losses with alternative return period

Discrete Climate Pathway Scenarios Assumptions*	Description of Global Actions taken to mitigate climate change	Short-term 2022	Medium-term 2030	Long-term 2050
1.5°C - 2°C (by 2100)	Early Policy Action	40/20	45/25	55/30
>2°C (by 2100)	Late and Disorderly Policy Action	40/20	50/30	65/35



**Design of climate-related risk
transfer solutions through use of
parametric/index solutions through
case studies**



- Laurent is a qualified actuary with over 15 years senior management experience in the insurance market, in London and Europe including at Lloyd’s of London.
- Previous roles include: Chief Actuary of ProSight Lloyd's Managing Agency, Syndicate 1110; Head of Capital Model Calibration – AIG (London); and various actuarial roles at AIG and AXA (Paris).
- Laurent co-founded Skyline in 2017 and has played a key role in developing Skyline’s parametric technology platform INSDEX and its analytical capabilities.
- Skyline is a London Insurtech global top 100 company and Lloyd’s Lab Alumni, specializing in geospatial risk intelligence and event driven insurance (parametric or index-based).
- Started late 2017, private equity funded.

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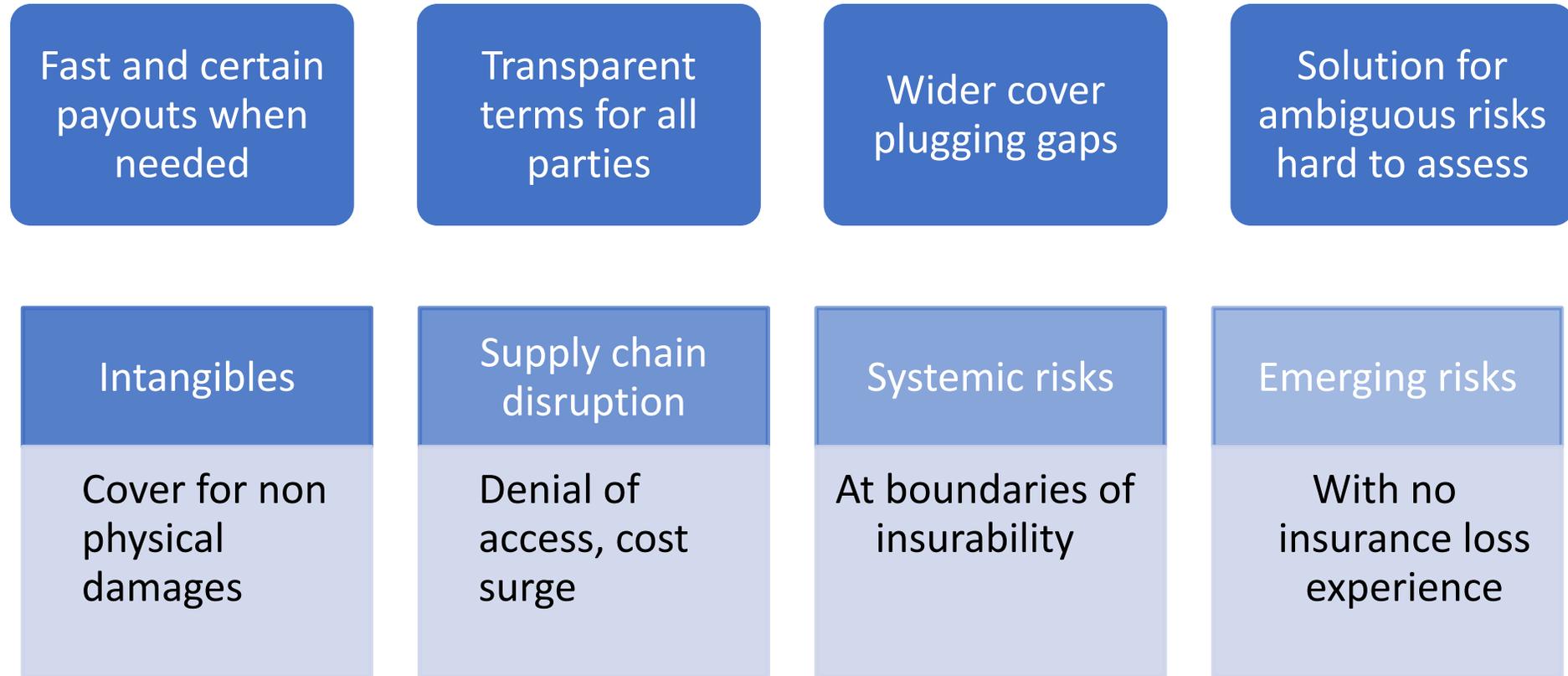


Cohort 4





Insurance which pays a guaranteed predefined amount, when a proxy risk index or parameter triggers some conditions agreed at the outset.





- ESG: Emergency funds / increase resilience
- Cover gaps: non-physical damages/intangibles
- Deductible buy-downs
- Marketing differentiator, calling product
- Embedded insurance / warranty bundle

Any measurable risk

Tropical Cyclones	Earthquakes	Tsunami	Wildfire
Drought	Frost	Flood	Heatwave
Maritime conditions	Agriculture yield	Tourism disruption	Renewables

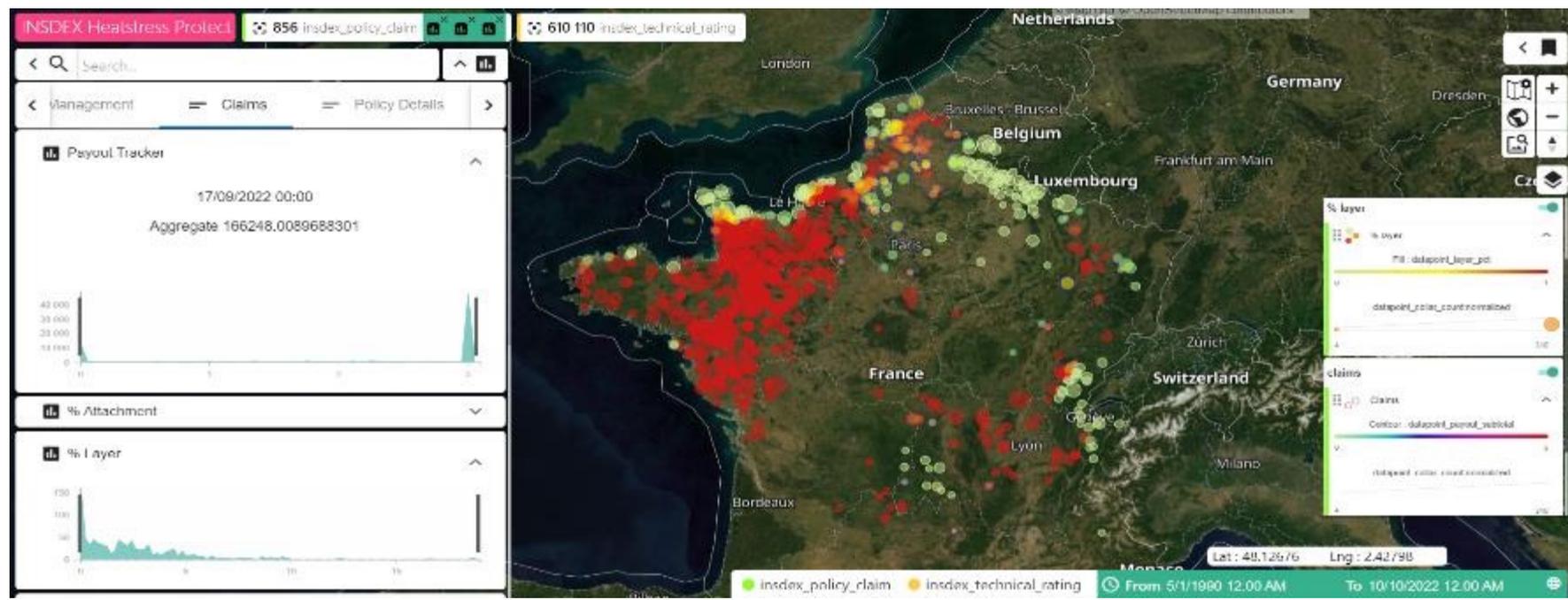
Illustration: Heat Stress



Problem: Due to climate change, increase in frequency and severity of heat stress events drives adverse economic losses to the agriculture industry struggling to adapt and mitigate.

Solution: Use of parametric insurance based on a temperature & Humidity index at location of the farms to provide a protection buffer for these intangible losses at times of need. Portfolio of 75,000 dairy cows are covered in France.

Benefits: 75% of total limit expected to be paid in France following the exceptional heat wave this summer.



Visualization of geo-spatial data

Exposure monitoring

Query policy information

Historical & real-time

Multiple logins



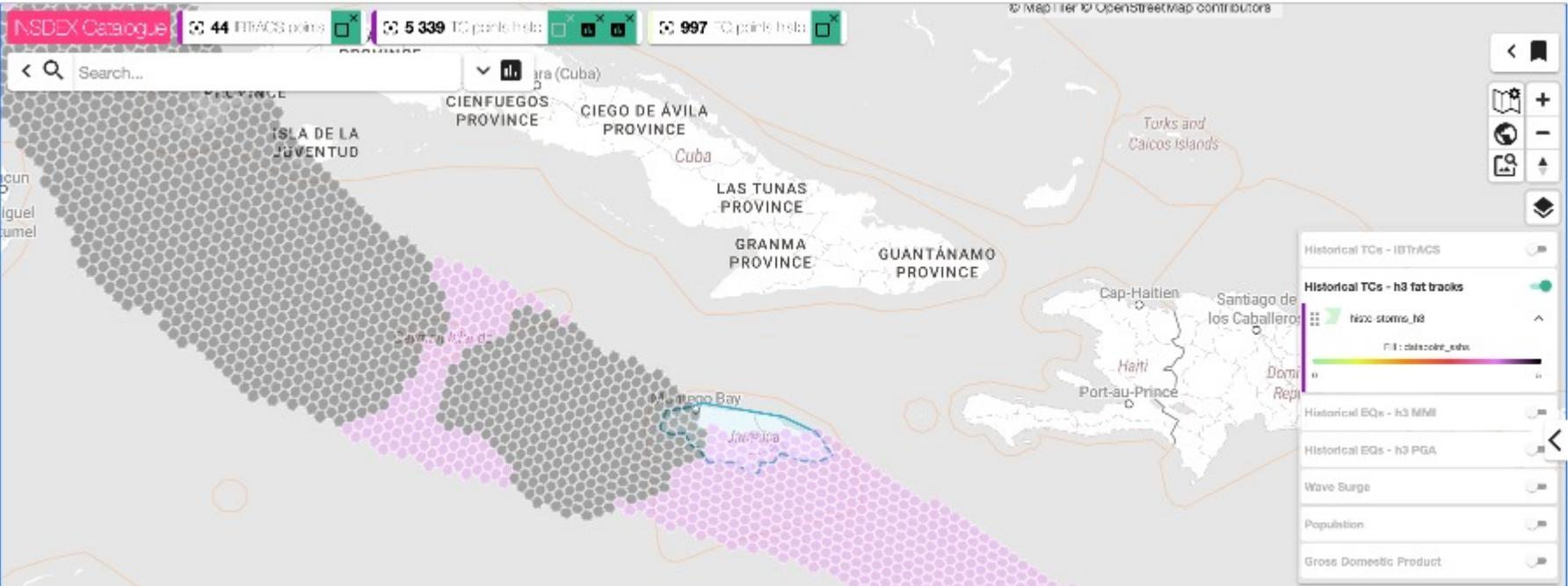
Illustration: Tropical Cyclones



Problem: Higher frequency and severity of hurricanes limiting credit unions ability to provide essential loans to farmers in Jamaica.

Solution: Hurricane index insurance protecting against non-repayment of loans, providing the certainty and confidence to continue to deliver essential financial support at times of need.

Benefits: 100,000 Jamaican farmers are accessing this climate relief via their credit unions in their short term loans needed to fund their essentials ahead of the season. In partnership with Howden and Munich Re.



Robin Levy, Group CEO for JCCUL: “If farmers can’t afford to repay their loans, our ability to remain operational is put at risk. Without loans from credit unions, many farmers in Jamaica simply would not be able to afford to operate. This coverage helps to smooth out that volatility and provides them the confidence to continue to deliver the essential financial support that so many people rely upon to make a living.”





Problem: Bank's risk appetite restricted in terms of growth potential on residential consumption loans due to natural risk aggregates such as flood.
Solution: Provide flood portfolio index risk transfer instrument calibrated on the bank's existing loan portfolio to "freeze" past loans at occurrence of flood events and use the insurance payouts to fund additional support for impacted customers to replace their key appliances.

h3 tiles as common system linking flood risk/event data and policy locations

Resolution chosen to optimise granularity of exposure to flood risk whilst smoothing variation in pay-out between neighbours

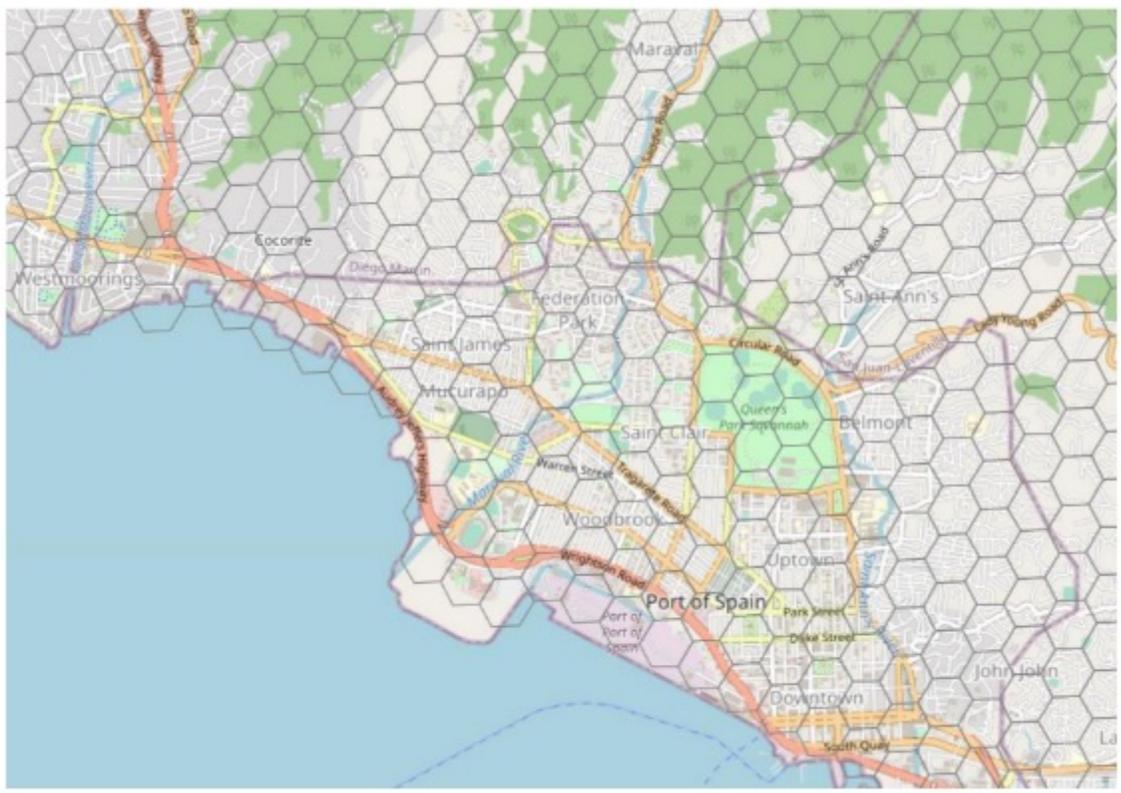


Illustration of h3 tiling scheme over Port of Spain (resolution = 9)

Key Takeaways from Our Session Today

- ✓ Set level of ambition, risk maturity and appetite
- ✓ Develop and maintain a strategic plan with robust risk mitigation strategies across the organization's entire risk profile
- ✓ Design a strong documented governance and associated culture that improves stakeholder integration through regular education and training of staff
- ✓ Integrate Climate Change/ESG into existing ERM framework components through use of stress and scenario analysis
- ✓ Improve the ongoing approach to climate-related financial disclosures
- ✓ Fund your climate adaptation through use of parametric insurance

Thank you and any questions?



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