



ClimateAdapt

Strategies to counter climate risk

Why do I need ClimateAdapt?

Quantify your exposure.

Identify your options.

Lock in resilience.

Globally, governments are introducing climate-related legislation and mandates designed to decarbonize and de-risk large public and private entities from climate change exposure. Many clients will be required to comply with those regulatory changes and mandates. This puts public and private entities under pressure to quantify, track and mitigate their emissions, and manage both their contribution to and their exposure to climate change.

In the US, on March 21, 2022, The Securities and Exchange Commission proposed three rule shifts that would augment the climate-related disclosures already required by public companies. These could come into effect as early as 2023. Under the proposed rules, companies would be required to publicly report on Scope 1, 2 and 3 emissions, addressing both near and long-term financially material risk, and demonstrating a strategic response. These rules would leverage the **Task-Force on Climate Related Financial Disclosures** ("TCFD") framework, and the Greenhouse Gas (GHG) Protocol.

Investors are increasingly aware that climate change presents significant financial risks. They are calling for reliable information about climate risk,s to best gauge business resilience in order to make informed investment decisions.

What is the TCFD framework?

The TCFD framework is investor-led, and addresses four key pillars of climate risk management: governance, strategy, risk management and metrics & targets. The framework is considered international best practice for climate-related financial disclosures and, more generally, for climate risk management and transition planning.

In addition to the SEC's proposed rule change, New Zealand recently introduced a climate-related disclosure act, a climate-related disclosure standard and a disclosure mandate for large listed entities and financial institutions. The International Sustainability Standards Board (ISSB) is expected to publish its IFRS S2 standard later this year. Both standards codify the TCFD and multiple jurisdictions are preparing to introduce climate-related disclosure mandates over the next 12-24 months.

Where **our solution** supports climate related disclosure requirements

Governance

- Identification and designation of key management roles in assessing and climate-related risks and opportunities.
- Knowledge transfer and training of Board members on the key risks and opportunities of climate change

Strategy

- Scenario and strategy development
- Cost benefit analysis, including impact assessment of potential risks and opportunities

Metrics & Targets

- Identification of key data needs, scope, targets and objectives
- Definition of key performance indicators, monitoring strategies and roadmap

Risk Management

- Identification and prioritization of risks and opportunities
- Risk quantification and analysis
- Integration of climate risks in overall risk management strategy
- Development of action plan to mitigate climate-related risks

What is ClimateAdapt?

Comply

ClimateAdapt is designed to support compliance with Climate-related Financial Disclosure (CRD) requirements, as required by the Taskforce for Climate-related Disclosures, the International Sustainability Standards Boards' [draft] Climate Disclosure Protocol and the XRB's Climate Related Disclosure Standard NZ CS1.

Visualise materiality

The ClimateAdapt Quant model performs a robust materiality analysis over your Physical and Transition risks, enabling you to accurately identify the most material climate-related risks presenting for your organisation, and pinpoint the actions you need to take to build in resilience.

ClimateAdapt provides a cascade map, showing the genesis of climate risk and the interlinked and cascading risks for your assets, operations and people, and exposure under different scenarios.

Scenario analysis

ClimateAdapt enables your organisation to establish a current day baseline exposure against your balance sheet, and to model climate risk exposure under multiple SSP-RCP scenarios against future time horizons.

The purpose of providing multiple-scenario analysis is to counter the magnitude of uncertainty that climate risk presents, by enabling organizations to adapt their planning and investment strategies to respond to the intensity and frequency that climate stressors may present to the organizations, over time, under various global warming pathways.

Adaptation option CBA

Having identified and quantified your baseline risk, you are well positioned to identify your adaptation options and opportunities. Once you have identified your options and established your tolerance thresholds, ClimateAdapt enables a CBA of

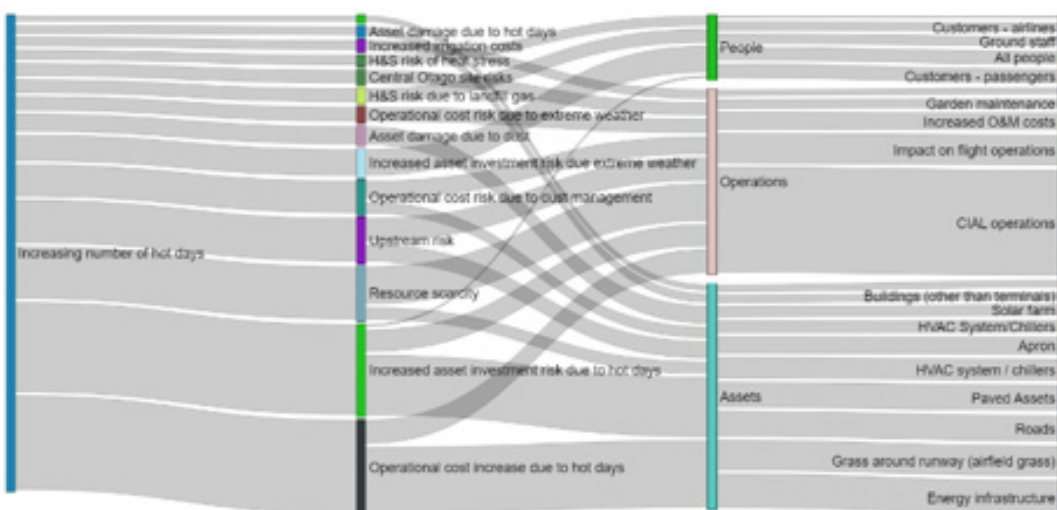
each option to identify the optimal planning and investment strategy for building resilience into your business model.

Dynamic planning

The end product of your cost-benefit analysis of adaptation options is a Dynamic Adaptive Plan. It provides a helicopter view of tolerance threshold exceedance triggers, to inform the timing and budget required for your adaptation options, over time, and under different global warming scenarios.

Report

The science-based outputs of ClimateAdapt can be integrated into your Climate-related Disclosure and included in your Financial Statements, demonstrating to regulators and investors that you have a robust understanding of **the impact of climate risk on the balance sheet**, and **a strategy for strengthening business resilience**.



ClimateAdapt enables development of a dynamic adaptation strategy, to shield your organisation from climate risk cost exposure.

How does it work?

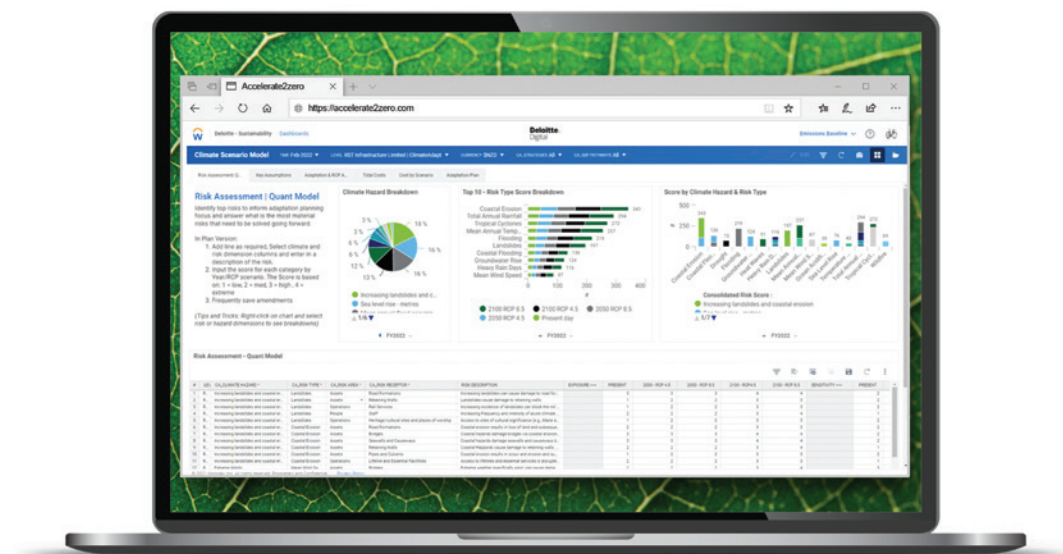


Figure 1

The model takes the outputs of an organisation's climate risk assessment and, via a quant model, conducts a materiality analysis to identify the most material climate risks presenting for the organisation (refer to Fig 1).

Using current and historic data, we take a 20-year average to establish the baseline / current day cost exposure to physical risks at a risk/asset/unit level. We input this data into the ClimateAdapt model to calculate the medium-term and long-term cost exposure to climate risk, under multiple RCP scenarios for the organisation's top 5-10 material risks.

For each risk, we work with you to identify appropriate adaptation options and cost these at present day prices. We also work

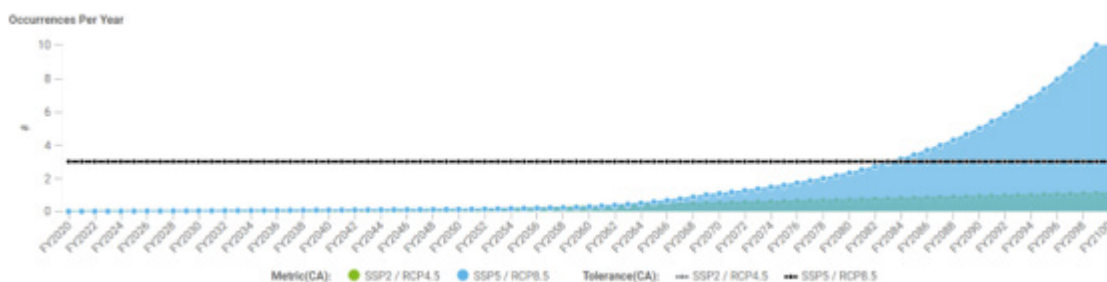
with you to establish your tolerance threshold for each risk (the maximum frequency of occurrences before remediation costs become untenable and action is required i.e. to decommission, reinforce, or reroute/relocate the asset).

Using the baseline cost and tolerance threshold information, ClimateAdapt models adaptation options against multiple global warming scenarios and timelines to pinpoint the timing and scale of investment required under any given scenario. By inputting the tolerance threshold number -i.e. Asphalt flushing and chip seal failure occurs 'x' times per annum, at which point remediation costs become untenable), the model pinpoints which adaption to deploy, at what point in time (ref Figure 2).

Figure 2

Hazard occurrence threshold

When client hazard occurrence is greater than the adaptation strategy maximum threshold.



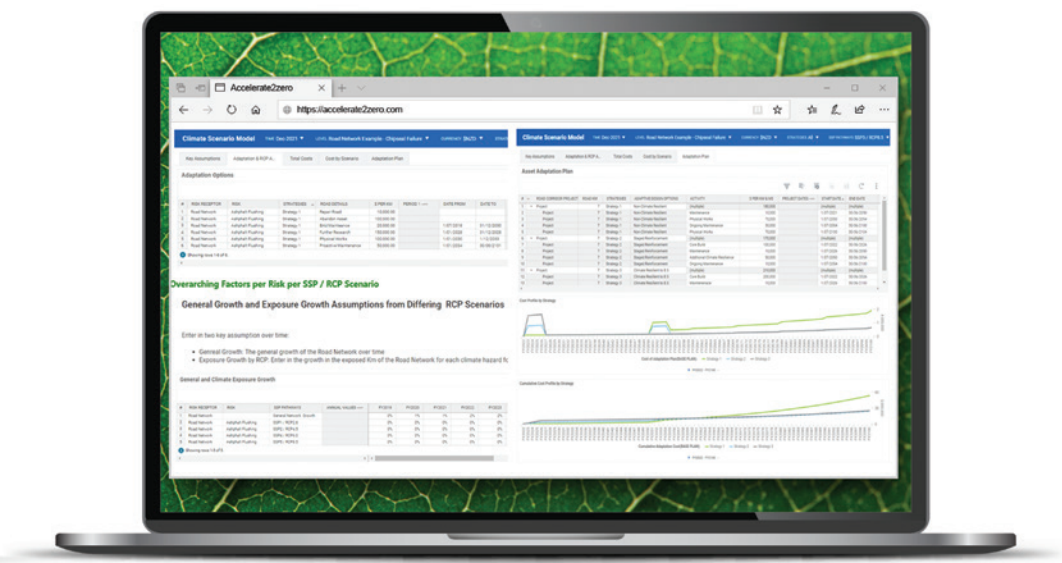


Figure 3

To facilitate a cost-benefit analysis of adaptation options, the model includes a growth factor to account for business growth (FTEs, assets, population) and applies a forecast inflation rate. The model also factors in Deaths and Serious Injury (DSI) costs and economic productivity costs (damage function), as illustrated in Figure 3.

The final output of the model is a DAPP plan, to support a responsive and adaptive planning and investment strategy that build in resilience and shields the organisation from climate risk exposure.

An adaptive plan builds resilience into your core business strategy and counters your exposure to climate risk uncertainty.

What is a DAPP plan?

The Dynamic Adaptive Policy Pathways (DAPP) methodology uses triggers and options to develop a series of decision-making pathways, to inform strategy in the face of uncertainty. Conceived of and applied in the Netherlands, the approach enables organizations to establish trigger points for adjusting and/or executing planning and investment decisions. This enables organizations to anticipate and respond to potential outcomes before costly damage occurs.

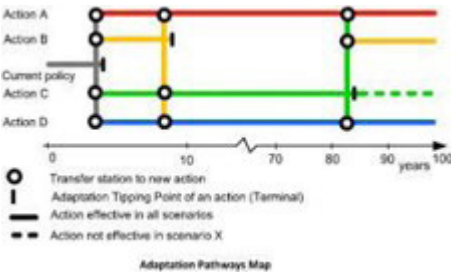
To determine which pathway to follow, the organisation establishes a series of triggers to signal that a tolerance threshold is approaching. For example, as the number of hot days increases, the frequency and intensity of a risk event - i.e. asphalt flushing - increases to a point at which remediation costs become untenable and a tolerance threshold is reached. A trigger is established several years before the threshold is reached, to signal that an investment decision point is approaching and a course of action must be undertaken to avoid reaching the tolerance

threshold. This threshold will present at different points in time under different global warming scenarios.

By exploring different pathways and options early on, and stress testing these against multiple warming scenarios, we can design an adaptive plan that includes a combination of short-term actions and long-term options designed to build in resilience and counter your exposure to climate risk.

The plan is monitored for signals that a decision point is approaching to:

- Implement the next step of a pathway
- Shift to an alternative pathway
- Reassess the objectives of the plan itself



ClimateAdapt outputs

- Materiality analysis of top climate risks presenting for the organisation
- Quantification of exposure to climate risk at the present day and at multiple future time horizons, under multiple warming scenarios
- Cost of adaptation options, over time and under different warming scenarios
- DAPP plan to illustrate optimal investment strategy, in terms the timing and cost of deployment of your adaptation options, under any given global warming scenario.

Our team

Deloitte's differentiator is our people.

The cross-disciplinary nature of our team ensures we bring a comprehensive skill set to deliver optimised ESG solutions, strategies and services tailored to meet your needs.



Andrew Wood

Associate Director

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Andrew's experience spans managing finance transformation programs to a cross-section of industries and organizations. Andrew has developed the Accelerate2zero and ClimateAdapt tools to support organizations to set and achieve science-based emissions targets via the most economically viable pathway; and to quantify exposure to climate risk in financial terms, and identify the most cost efficiency, dynamic adaption pathways



Vanessa Stronach

Senior Consultant

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Vanessa has over 10 year of operational experience in Finance and Performance planning.

Vanessa joined Deloitte in 2021 to be part of the Workday Adaptive Planning team. She has worked on a wide range of Adaptive Planning projects for domestic and international companies and has been instrumental in developing the Accelerate2zero and ClimateAdapt tools.



Rikki Stancich

Director

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Rikki has 18 years of operational experience in sustainability, climate change risk, resilience, CRD Disclosures, sustainable debt, and GHG emissions modelling in the private and public sectors.

She has played a key role in designing the ClimateAdapt and Accelerate2zero solutions.



Stuart Smith

Associate Director, F & P

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Stuart holds 20 years of financial control, budget and forecast modelling experience. He has accountability for delivering bespoke Workday Adaptive Planning projects in New Zealand. Stuart is responsible for fostering and maintaining client relationships across New Zealand and Australia.

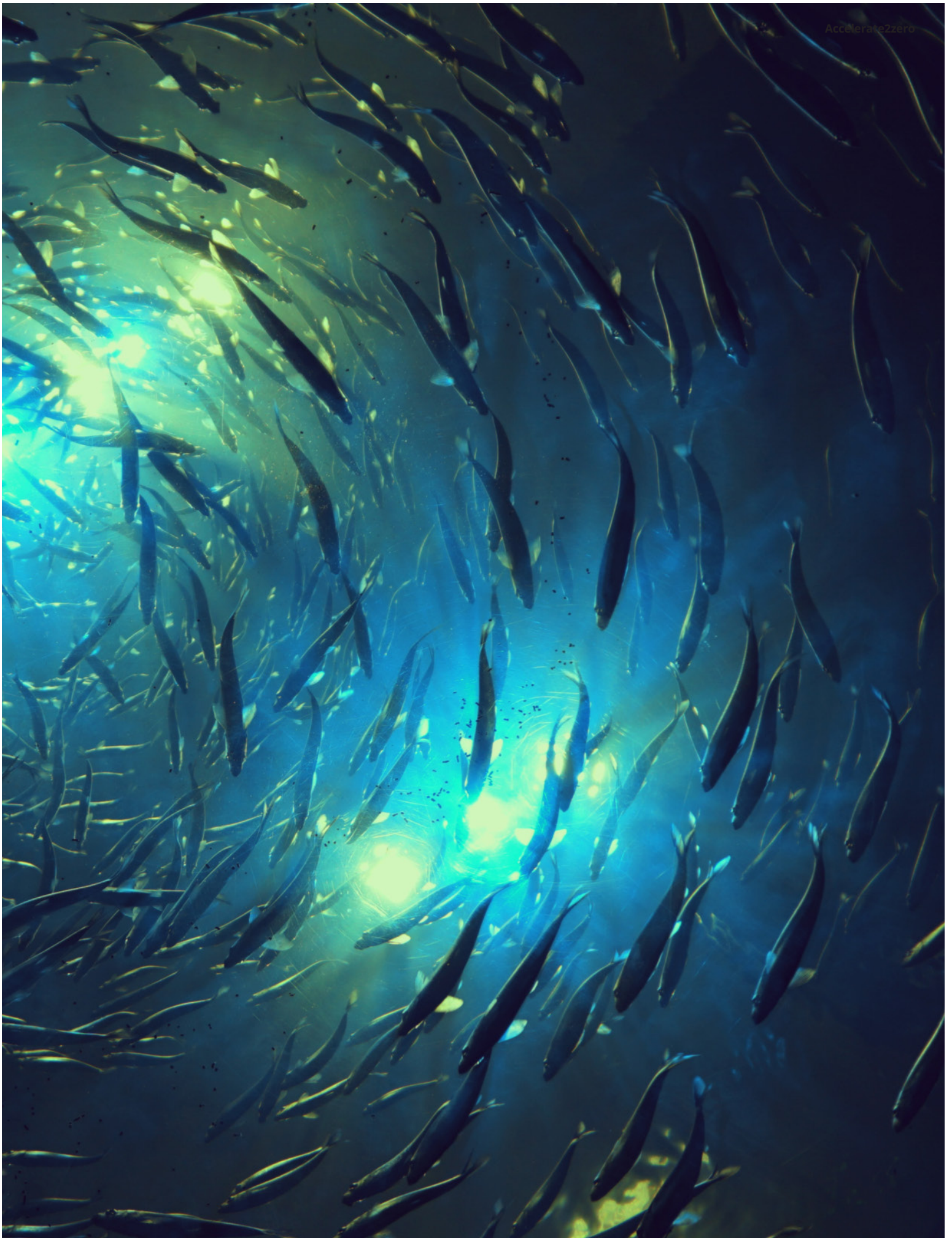


Jana Bartsch

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In her current role as an Alliance Director APJ at Deloitte Australia, she is supporting our Workday alliance's growth and expansion through the delivery of strategic growth initiatives across our Asia Pacific focus markets, and will help with the globalization and GTM of Accelerate2zero.





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