ERM SUSTAINABILITY INSTITUTE

Resilience reframed:

Why interconnected sustainability risks demand a more holistic approach

November 2026



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Introduction:
Building resilience in a chaotic world

The global business environment has become more volatile and more difficult to navigate. Extreme weather, geopolitical conflict, trade disputes, and supply chain disruption are colliding with rapid technological change, shifting regulation, and declining trust in institutions including businesses.

Companies are increasingly confronting multiple pressures at once, with disruption in one part of the operating environment capable of quickly spreading across others. The challenge is no longer simply managing a growing list of risks. It is understanding how they connect.

Sustainability-related risks are an important part of this changing landscape. Climate change, nature loss, human and labor rights, community expectations, and governance can affect the availability and cost of critical resources, disrupt operations and supply chains, delay projects and investment, and ultimately affect financial performance.

However, their significance extends beyond risks conventionally labeled “sustainability”. Sustainability factors interact with and amplify geopolitical, financial, operational, and supply chain risks, creating consequences that cut across the entire business. ERM developed the Holistic Resilience Pulse to assess companies’ readiness to analyze and act on these risks simultaneously. This tool includes a fixed set of questions across seven domains that ERM considers to be core to resilience (see figure 1).

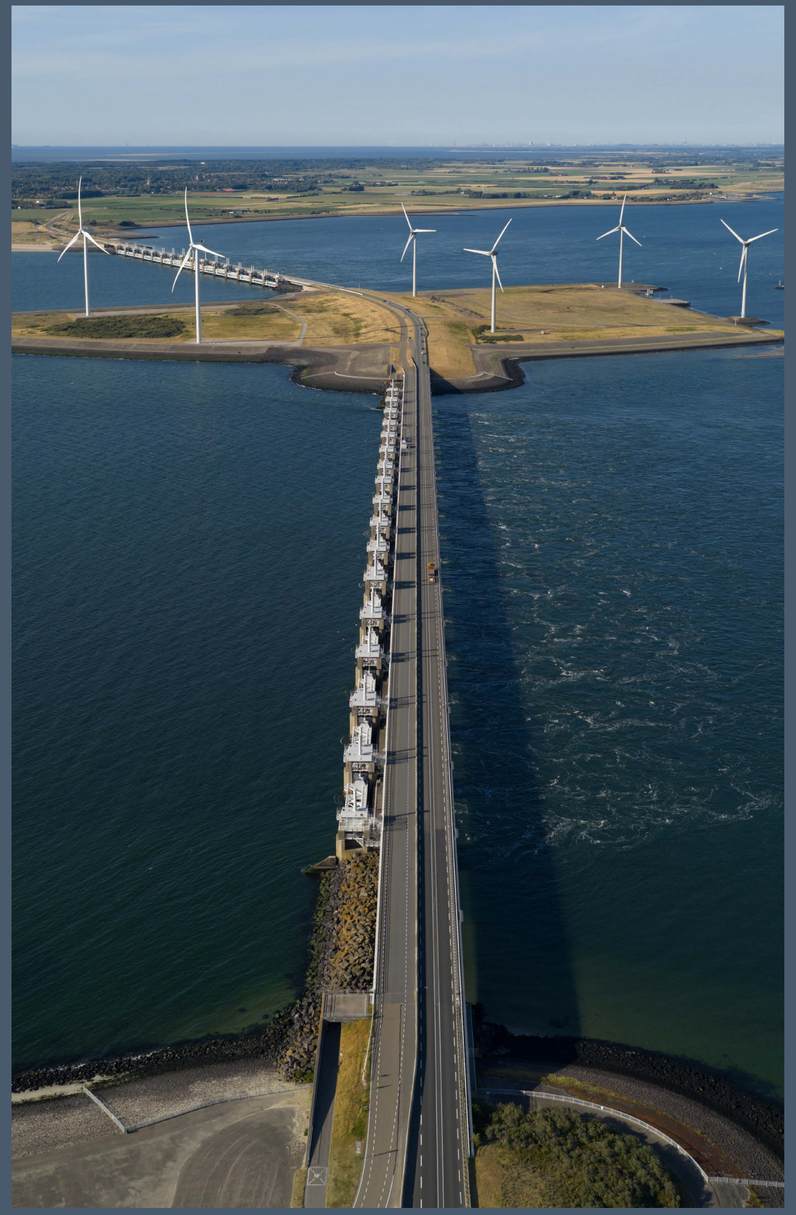
Supported by the Pulse results of a limited set of manufacturing companies, this briefing aims to show how issues in the seven domains interact to create new risks. Consider a water-intensive facility exposed to ongoing drought. Water scarcity may initially appear to be a natural resource-related risk. However, it can also disrupt production, increase costs, intensify resource competition, generate community opposition, and affect insurability or value of the asset.



This briefing is a companion piece to the recent paper from the ERM-convened Council on Sustainability Transformation, **Adaptation and Resilience: How business can thrive in a changing climate**, which explores how companies can adapt to growing physical climate impact.

The paper argues that many climate impacts are now unavoidable and that climate adaptation has become an urgent business priority requiring investment, leadership, and broader systemic change.

READ THE WHITE PAPER



What exactly is holistic resilience?

HOLISTIC RESILIENCE
is an integrated approach to understanding how sustainability-related risks connect with the wider forces affecting a business. It brings climate, nature, supply chain, social license, governance, finance, and geopolitics into a single view, revealing where risks intersect, compound, and cascade.

As this briefing will argue, the most consequential risks emerge at the intersections of the seven domains, as one pressure amplifies another and effects cascade across the business. Yet too many companies still assess climate, nature, supply chain, social, and governance through separate functions, frameworks, and decision-making processes.

Where risks connect, value can be delivered or eroded. The holistic resilience perspective gives leaders a stronger basis for deciding where to act, where to invest, and where action in one area can mitigate multiple risks. And resilience is about more than protecting the business from structural financial damage. Understanding how sustainability-related risks and broader enterprise risks intersect can strengthen operations, improve investment decisions, and reveal opportunities for value creation.

How does the Holistic Resilience Pulse work and how do we use its results?

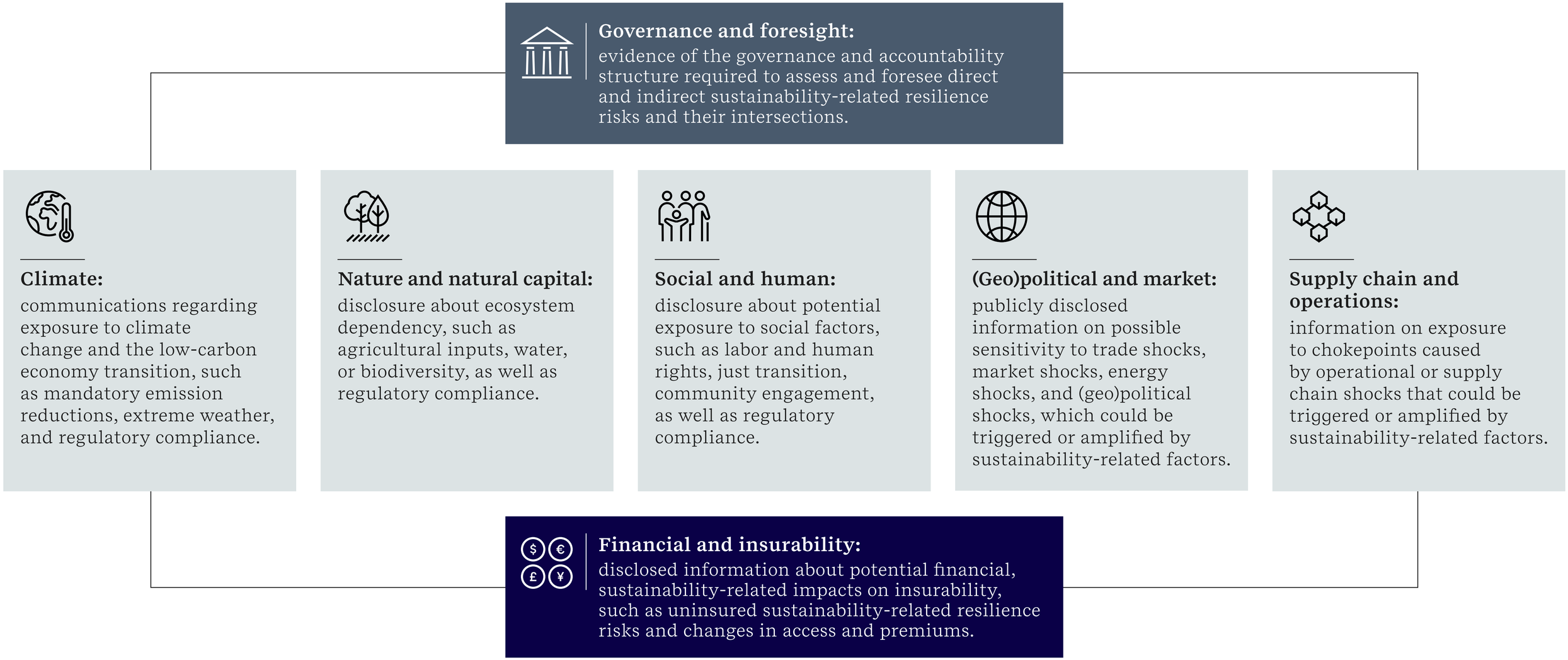
The Holistic Resilience Pulse helps companies test their resilience readiness, identify gaps, and define a path of action to build holistic resilience. Questions across the seven domains fall into two broad categories: the first examines what companies disclose about how they identify and govern risks within each domain; the second examines what they publicly disclose about the actions they are taking in response.

For this briefing, ERM tested the Holistic Resilience Pulse on 18 global manufacturing companies in the aerospace, automotive, food, consumer goods, industrial goods, and luxury goods sectors by reviewing their public disclosures, available in September 2026.

All the companies assessed in this sample have their headquarters in Europe or have significant operations there. Since the briefing only uses publicly available information, unpublished resilience-related policies and actions are not included in the analysis.

Corporate disclosure offers an important window into how companies identify, govern, and act on issues that are critical to resilience. Companies may undertake activities beyond those reported publicly, particularly in areas not subject to mandatory disclosure requirements. Viewed across companies, however, disclosure provides a valuable basis for identifying broader strengths, gaps, and emerging practices.

Figure 1: Holistic Resilience: Seven domains, one balance sheet



FIVE FINDINGS:

What the Holistic Resilience Pulse results tell us about where companies are and where they need to go

What do the scores across seven domains suggest about the resilience maturity of our sample companies? And how representative are the results of our pilot sample for other companies and industries? All manufacturing companies selected for this briefing are large and well-resourced, so the evidence supporting the results is likely a strong representation of broad trends in the sector.

The evidence scale

We rated answers to each question in the Pulse on a scale from 0 to 3, based on the disclosed evidence.

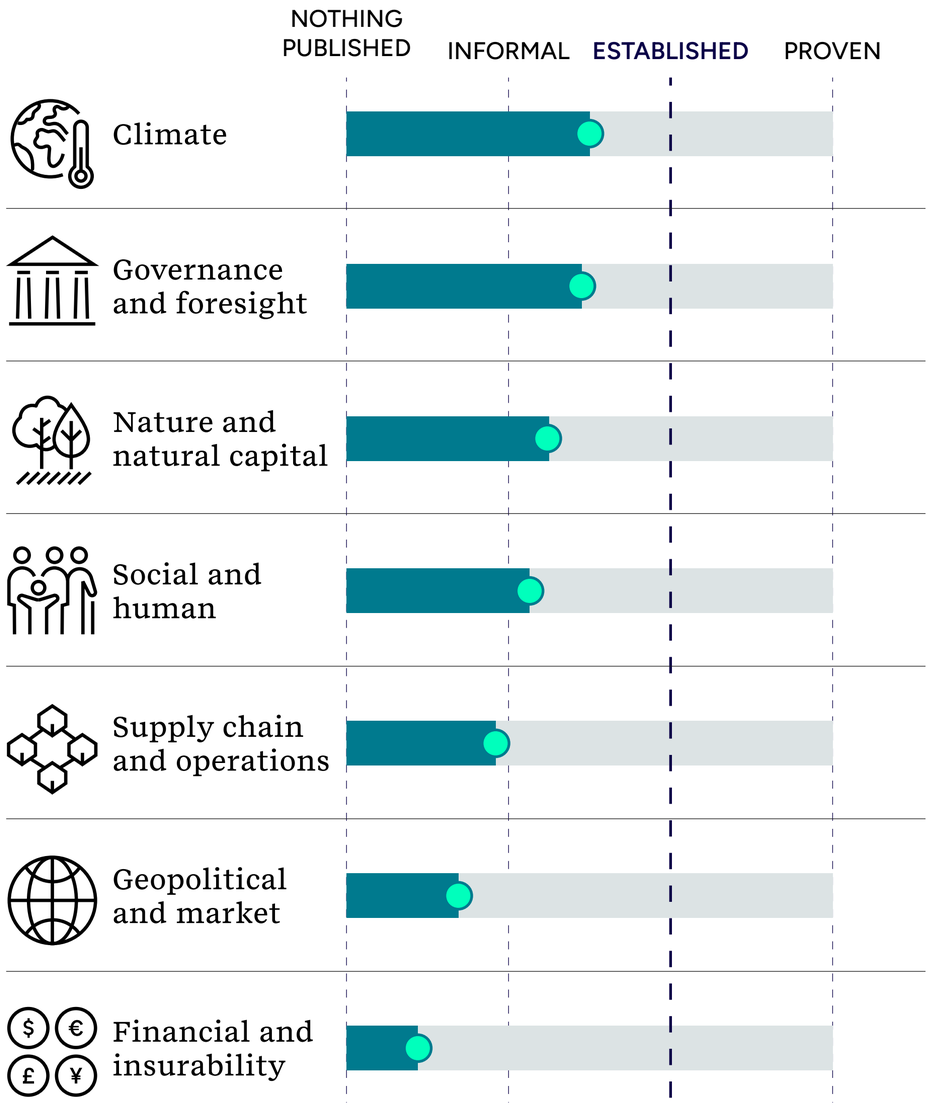
Below is a brief description of the scale values.

0	NOTHING PUBLISHED	We found no public evidence.
1	INFORMAL	Partial evidence: the company says it does something, without showing how far it goes.
2	ESTABLISHED	Substantive disclosed evidence of a defined practice.
3	PROVEN	The practice is tested, verified, quantified, or budgeted against a stated base.

Note: a zero is a finding about disclosure, not practice. A company could manage a risk well and publish nothing about it, although that seems somewhat unlikely. Additionally, investors, lenders, and the public only see what is published, so the maturity of that information is vital to them.

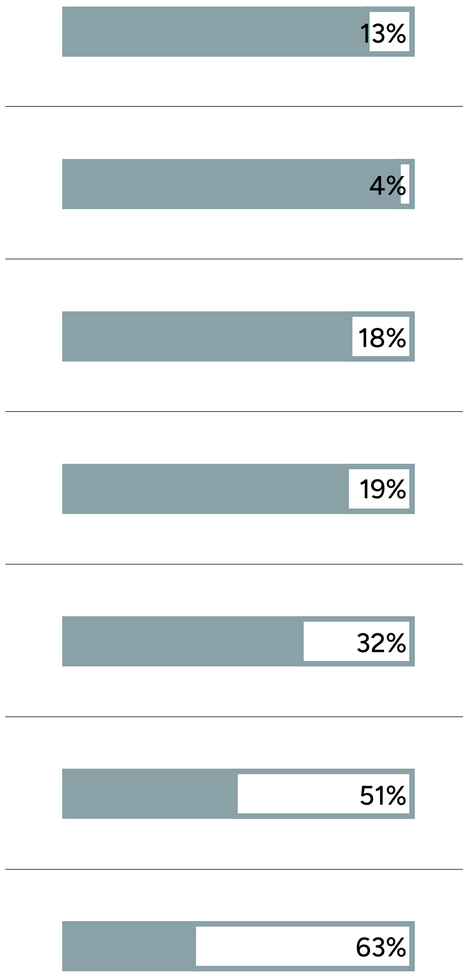
Figure 2: Resilience efforts appear to be unevenly distributed

Average disclosed resilience score



Disclosure gaps point to the biggest blind spots

Share of companies disclosing zero data within this domain



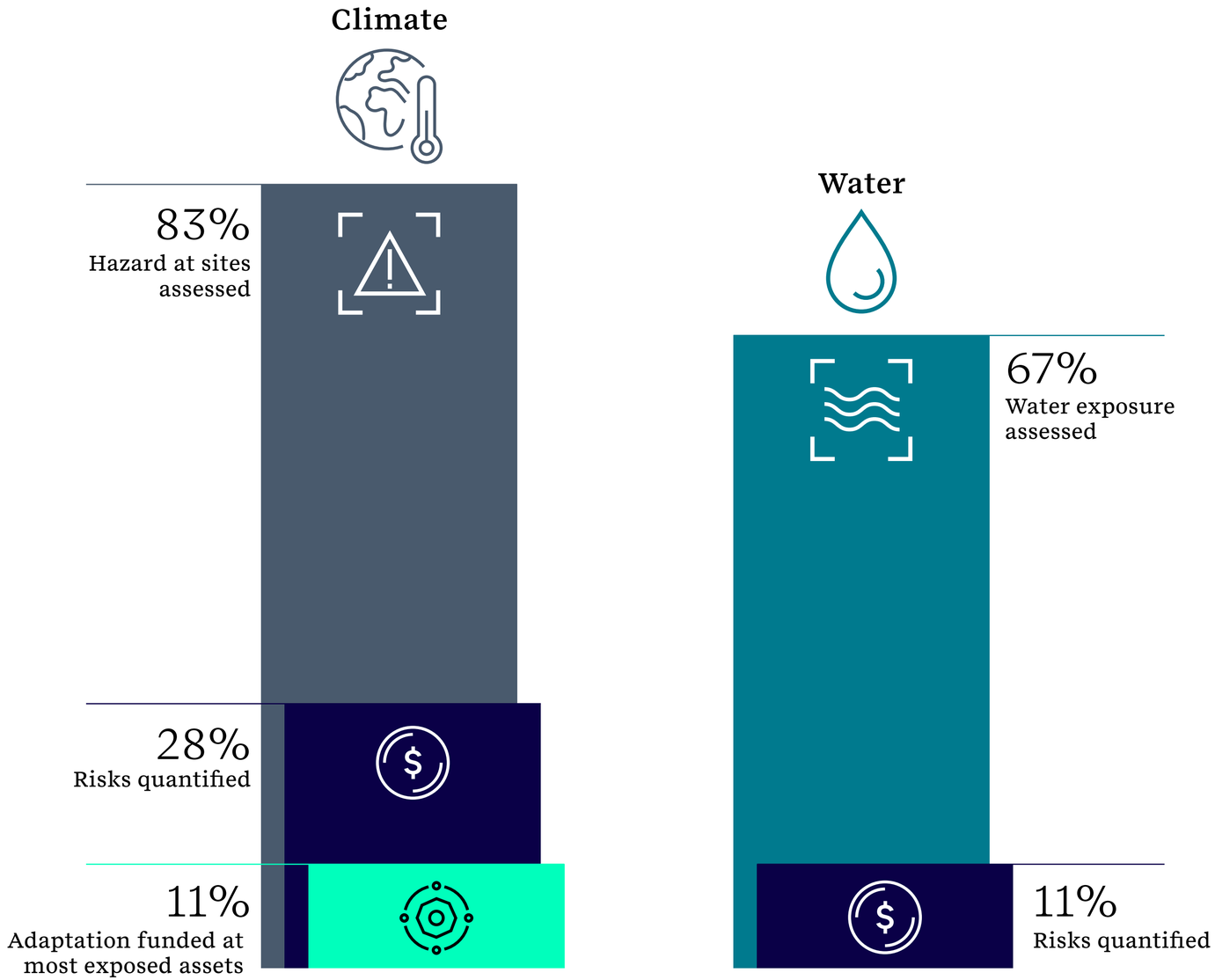
FINDING 1

Public disclosures provide limited evidence that sustainability-related risks are being managed in an integrated way.

- Across the companies assessed, average disclosure scores do not reach the “established” level in any of the seven resilience domains.
- Disclosures are strongest on climate and considerably less developed in areas such as geopolitical and market risk and financial and insurability, pointing to an uneven picture of resilience across the seven domains.
- The disclosures also provide limited evidence that companies are assessing how risks across these domains intersect and compound.

Figure 3: Seen, rarely priced, seldom funded

About 83% of the companies included in the sample assessed climate hazards and 67% had assessments of water-related risk exposure.



FINDING 2

Resilience risks are more often assessed qualitatively than quantified, limiting their usefulness for business decision-making.

- Across the seven domains, disclosures provide substantially more evidence of qualitative risk assessment than financial quantification or preventive action. Climate provides a clear example: 83% of companies in the sample disclose that they have qualitatively assessed climate hazards at their sites, while 28% disclose quantified assessment, and 11% disclose preventive action.
- This gap matters because quantifying potential financial impacts can help translate sustainability-related risks into terms relevant to business decision-making, including the potential value protected or created through action.
- Greater quantification could help companies connect sustainability and resilience initiatives more directly to potential financial impacts and returns, supporting their integration into strategy, capital allocation, and other business decisions.

FINDING 3

Resilience has reached the board agenda, but disclosures provide limited evidence of clear accountability for delivering resilience outcomes.

- For about three-quarters of the companies assessed, disclosures indicate that business resilience is a recurring topic at board level. However, there is limited evidence of clear individual accountability for delivering resilience outcomes, supported by defined objectives, an action plan, or performance measures.
- Board-level attention is an important foundation, but translating oversight into action may require clearer accountability across the organization. While responsibility for different dimensions of resilience tends to be distributed across sustainability, risk, and finance functions, stronger connections between these functions, combined with clear ownership and shared objectives, could help companies manage interconnected risks more consistently.

About **3/4**
of the companies disclose that resilience is a standard board item

0
report that accountability for resilience has been assigned to an individual senior executive

Figure 4: Disclosure on loss exposure remains limited

Share of companies, by step on the evidence scale

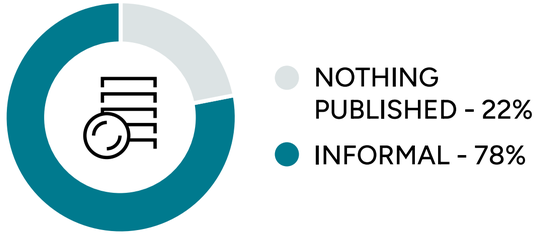
Uninsured loss in event of catastrophe



Confirmed renewals of existing insurance



Available buffers to cover uninsured loss



FINDING 4

Insurability and loss exposure may be overlooked risks that could become barriers to accessing capital.

- None of the assessed companies publishes information on the scope of uninsured losses in case of a severe catastrophe, while over half provide no information on how future-proof access to their existing insurance is.

  Although a substantial majority of companies flag uninsured losses as a financial risk, none provide details on how they financially prepare for it.
- Considering the vital importance of insurability to remain attractive to lenders and investors, and their reliance on public data, the difficulty assessing insurability and loss exposure could raise the cost of capital or block access to financing.

INTERCONNECTED RISKS:

How one flood can impact surgeries all over the US

In 2024, Hurricane Helene hit the North Cove facility of US medical supply manufacturer Baxter International, forcing the flooded plant to close. The event triggered impacts in several domains that a holistic resilience approach would help anticipate and plan for.

Climate

Baxter incurred US$361 million in flood damage due to ruined inventory, production losses, remediation, and other costs. Remediation efforts took 2.5 million hours of labor.

Social and human

Many workers at the plant lived in the affected area. It took three weeks before they were all accounted for. The plant closure also disrupted the supply of IV solutions to hospitals, leading to widespread postponement of surgeries and damage to public health.

Finance and insurability

Baxter's losses were partly offset by US$251 million in insurance recoveries, leaving the company to absorb the rest.

Supply chain and operations

The event revealed substantial supplier concentration. Baxter's facility produced 60% of all IV solutions used in US hospitals, leaving the sector scrambling when supply dried up.

Governance and foresight

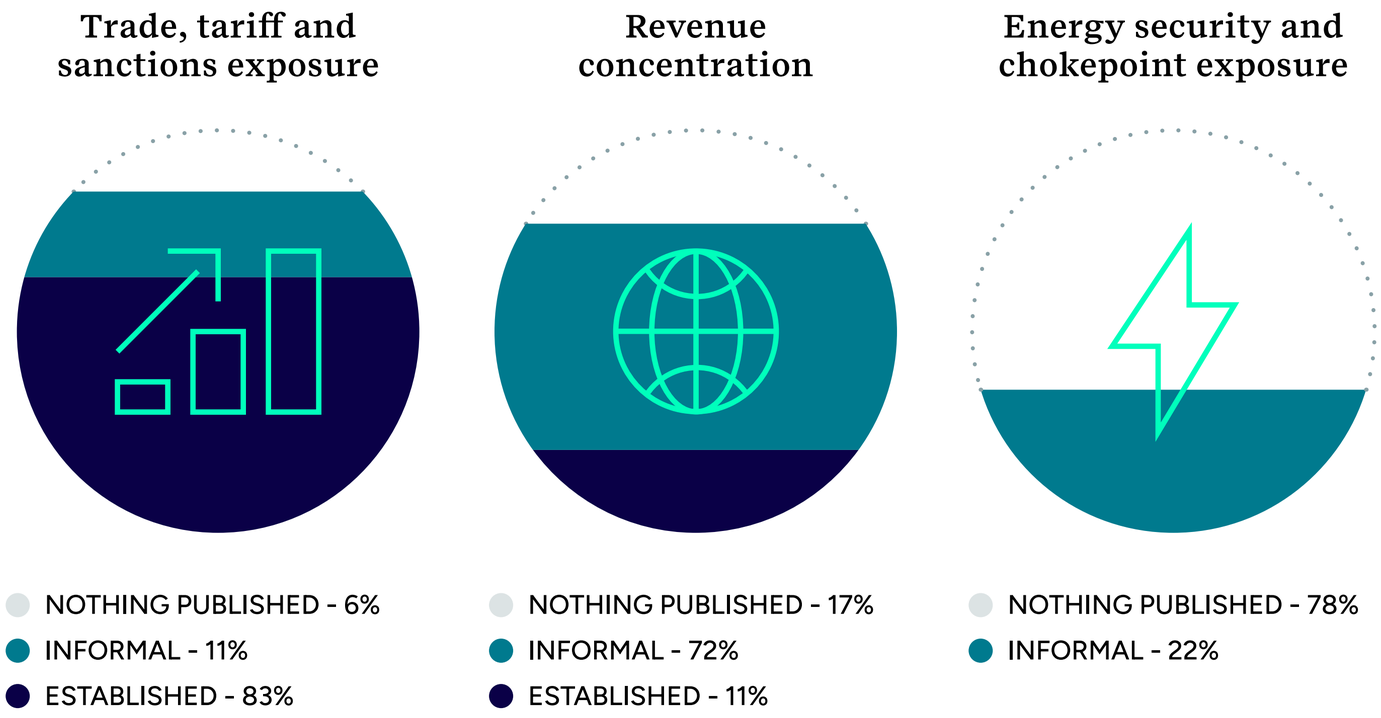
Baxter had anticipated several impacts. It had an evacuation and emergency support plan in place for workers, as well as an emergency plan to redirect sourcing and production to other facilities. IV solution shipments resumed after three weeks.

Hospitals were caught off guard despite being aware of the supply choke point. The 2024 disruption led to a shift in how IV solutions are conserved and administered.



Figure 5: Disclosure about exposure to trade and energy shocks is limited

Share of companies, by step on the evidence scale



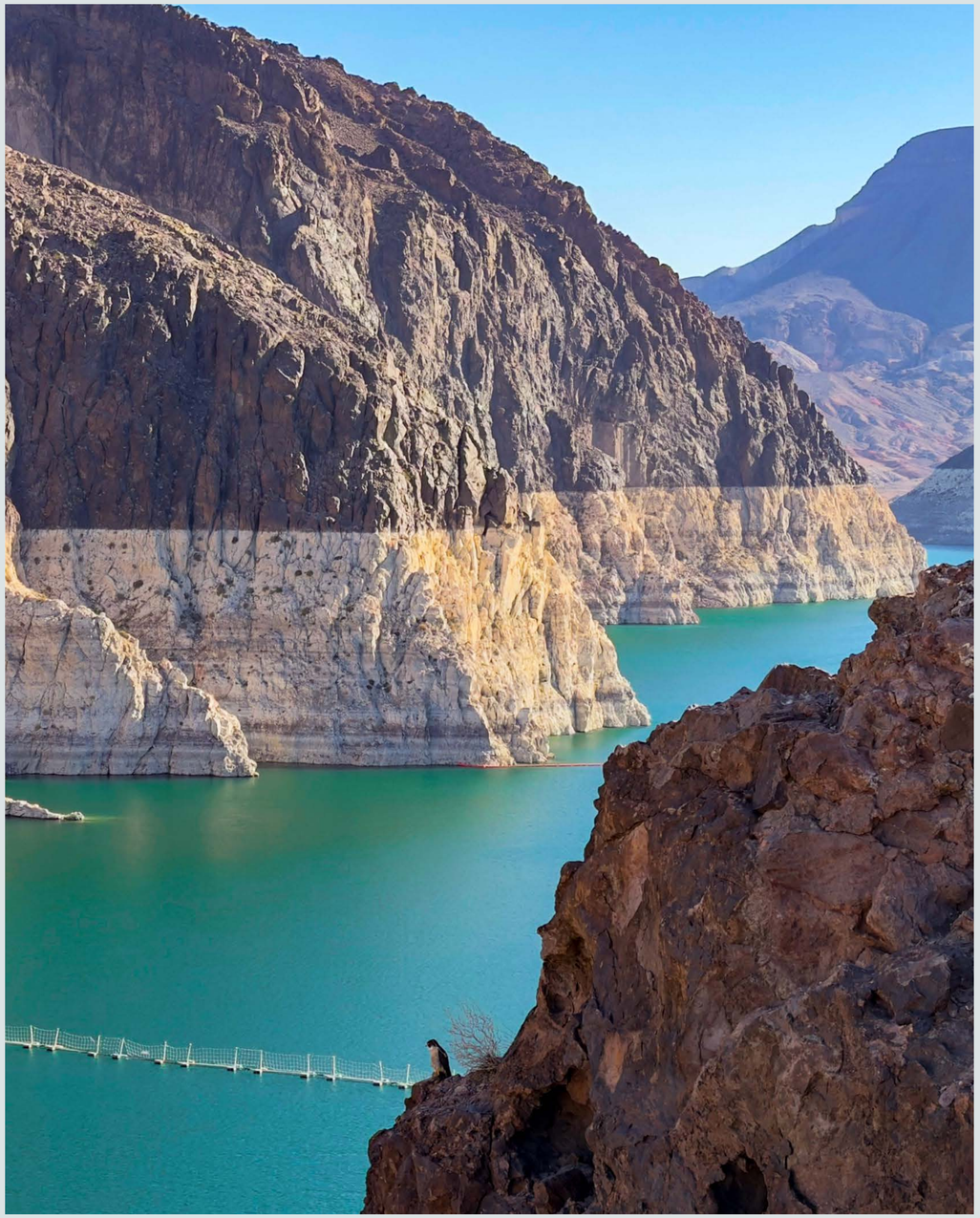
FINDING 5

Disclosed impact assessments of external shocks such as trade-related disruptions and energy supply seem to fall short for an increasingly shock-prone future.

- Although most companies quantify how revenue is distributed across markets and customers, they disclose only qualitative assessments of how trade-related shocks might affect their costs, access to resources, and revenue.

  For energy, perhaps the most crucial production input, the majority provides no information on their exposure to energy supply shocks and what alternatives they have in place when one occurs.

- The results suggest that many companies may need to step up their efforts to quantify impacts of trade-related shocks to increase their resilience. The urgency of quantifying the impact of potential shocks as a foundation for action is not limited to trade-related but also to climate-related, supply chain-related, and geopolitical shocks, and the various ways all four interact.



INTERCONNECTED RISKS:

How anxiety about water ended a brewery project

In 2020, Constellation Brands halted its Mexicali beer brewery project in Baja California, Mexico, after the federal government voided the permits it issued a few years earlier and ordered an end to construction. A combination of resource constraints, community anxiety, and political unpredictability overwhelmed a project that seemed on solid ground.

Climate and natural resources:
Farmers in dry Baja California depend on the Colorado River and the Mexicali Valley Aquifer for water. Water rights overextend both sources. Still, the federal water agency reported that the small amount of water assigned to the brewery posed no threat to farming.

Social and human
Despite having secured permits and the support of local, state, and federal authorities, the brewery project ignited fierce and year-long protests by farmers, activists, and residents, who feared the Mexicali brewery would create water shortages.

(Geo)political and markets:
As protests drew national attention, the Mexican President demanded a local referendum: 75% voted against the brewery, although just 3.5% of local residents voted.

Finance and insurability:
The no-vote forced Constellation to end the Mexicali brewery already under construction. In 2022, the company wrote off US$665 million.

Governance and foresight
Constellation took all the right formal steps to get the project approved, but appears to have underestimated local anxiety about water, and the value of community engagement.

After Constellation chose not to fight the decision, the Mexican government assisted the company in finding a new location for the brewery and supported the permitting process.

A new brewery in Veracruz will start production in 2027. This time, a strategy of community investment has prevented resistance and underpinned Constellation's license to operate.

Conclusion: How can your company build holistic resilience?

In an increasingly unpredictable business environment, taking a holistic approach to resilience is becoming more important, but also more complex. Companies need to understand how climate, nature, geopolitical, financial and social issues affect business performance both directly and indirectly.

Holistic resilience in action

For a mining and metals company, ERM assessed climate-related risks and opportunities across its closure sites, and identified and quantified actions that could help increase resilience across climate, nature, and social dimensions.

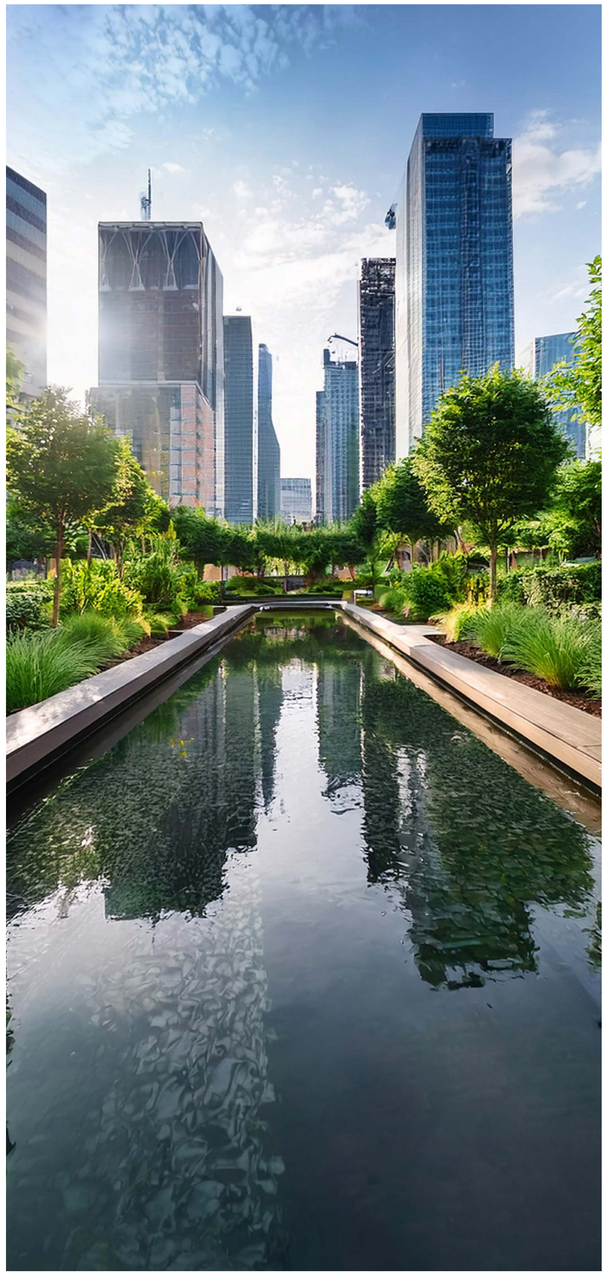
The assessment revealed opportunities to improve closure outcomes and create value through nature, community, and operational co-benefits.

As a next step, ERM recommended piloting an integrated assessment of interconnected sustainability issues, focused on a priority topic or site. This could help the company prioritize investments, strengthen closure planning, and embed resilience into operational and capital allocation decisions.

Our analysis of public disclosures from a selected group of manufacturing companies suggests that this holistic perspective is not yet consistently reflected in how companies communicate their approaches to resilience. Disclosures frequently address risks individually, with limited consideration of their interconnected nature. The approaches described also seem largely qualitative, providing limited insight into how companies quantify exposures, assess interdependencies, or prioritize action.

Public disclosures do not necessarily provide a complete picture of how companies consider these risks in practice. Nevertheless, the analysis points to potential gaps that merit attention. Where interconnected sustainability-related risks are not assessed together, companies may have less visibility into how shocks could compound and cascade, making it harder to anticipate their potential operational and financial consequences.

Governance is an important part of this picture. The disclosures we reviewed suggest that responsibility for different dimensions of resilience can be distributed across board and management structures. Sustainability committees at the board or management level may focus primarily on climate, nature, social issues, and regulatory compliance, while risk and audit committees address geopolitical, trade, supply chain, and other enterprise risks. Strengthening connections between these areas can help companies approach resilience as an integrated business challenge.



Three initial steps can help companies move toward a more holistic approach:

1 Quantify sustainability risks to prioritize action and demonstrate business value.

- Move beyond primarily qualitative assessments by quantifying the potential financial and operational implications of interconnected sustainability-related risks, including impacts on revenues, costs, assets, cash flows, enterprise value, and cost of capital.
- Quantification can help identify where sustainability issues amplify other exposures, prioritize interventions based on potential business impact, and inform strategy, capital allocation, operational expenditure, and business continuity. Using CFO-grade quantification will catalyze the shift to an approach that is driven by return on investment and value creation.
- A common set of metrics can also provide sustainability, risk, finance, and other functions with a shared basis for decision-making.

2 Strengthen integration and accountability at the governance level.

- Map responsibility for resilience-related risks across management and the board to identify gaps, overlaps, and missing connections, and clarify accountability for interconnected risks and linked actions.
- Companies can build on existing governance structures by broadening consideration of how climate, nature, social, supply chain, and geopolitical issues influence wider business exposures and strengthening information flows between sustainability, risk and audit, and finance committees.
- This approach can help position sustainability-related risks within overall business resilience and strategy rather than treating them as a separate category.

3 Build the operational foundations for holistic resilience.

- Bring together sustainability, risk, finance, operations, supply chain, and other relevant functions to develop a shared understanding of how sustainability-related events can create, transmit, or amplify risks across the business.
- Identify the organizational, data, and analytical barriers that reinforce siloed approaches, and use lived business experience to understand where stronger collaboration could help mitigate material impacts or identify opportunities.
- Embedding these insights into strategy and action planning, risk assessment, investment, and business continuity can move holistic resilience from an analytical exercise into day-to-day decision-making.

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The ERM Sustainability Institute

The ERM Sustainability Institute is ERM's primary platform for thought leadership on sustainability. The purpose of the Institute is to define, accelerate, and scale sustainability performance by developing actionable insight for business. We provide an independent and authoritative voice to decode complexities. The Institute identifies innovative solutions to global sustainability challenges built on ERM's experience, expertise, and commitment to transformational change.

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HOW WE USED AI

ERM used AI tools to support the development and application of the Holistic Resilience Pulse. ERM remains responsible for the methodology, quality assurance, analysis, and conclusions.

DESIGNING THE HOLISTIC RESILIENCE PULSE

ERM defined the seven domains and what good practice looks like within each. AI tools then helped turn this framework into a fixed set of questions, each with a four-step evidence ladder, drawing on a curated library of published research, standards, and regulations.

Automated checks tested the wording to help ensure that each step of an evidence ladder could be interpreted consistently. ERM experts reviewed and challenged the questions over several rounds before the assessment framework was fixed. This paper uses version 8.0.0.

ASSESSING THE COMPANIES

AI agents reviewed each company's own publicly available documents, as available in September 2026. The assessment was deliberately divided into two separate steps:

- One AI agent identified relevant evidence and cited the page or section where it appeared but was not permitted to score it.
- A second AI agent scored each question using only the cited evidence but was not permitted to conduct further searches.

Where the initial review covered only part of a company's documents, the documents were reviewed again in full. Domain averages and the figures presented in this paper were calculated by script from the recorded answers, rather than entered manually.

Separating evidence gathering from scoring was designed to prevent an overall impression of a company from influencing its individual scores.

ERM OVERSIGHT AND QUALITY ASSURANCE

ERM spot-checked selected citations to assess whether the sources supported the evidence they were linked to and checked the calculation of the final scores. ERM also retained responsibility for defining and reviewing the assessment methodology.

UNDERSTANDING THE RESULTS

The assessment reflects the evidence identified in companies' published information. A score of zero means that no published evidence was found for that question, not that the company does nothing in that area.

AI can miss evidence, particularly in long documents. We therefore tested how much this could affect the findings. Reducing every low-confidence score by one step did not change the direction of any finding, although two figures fell by approximately half.