BAIN & COMPANY

The Visionary CEO's Guide to Sustainability 2026

Navigating Divergence

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Navigating Divergence

Sustainability has entered an age of divergence.

Over the past decade, $17 trillion has been invested in sustainable technologies—$4 trillion more than expected. But progress has been radically uneven. Only a handful of key green technologies have met or exceeded expectations. Most have fallen short.

Look beneath prevailing narratives, and surprises emerge. Consumer concern about sustainability is climbing. AI's environmental impact, consumer reaction, and corporate priorities are increasingly out of step. Following one of the hottest summers on record in many countries, climate risks are intensifying, and insurance and supplier diversification address only part of companies' exposure.

CEOs must understand where change is happening, where it is stalling, and why. They can neither retreat nor assume technology will solve every problem.

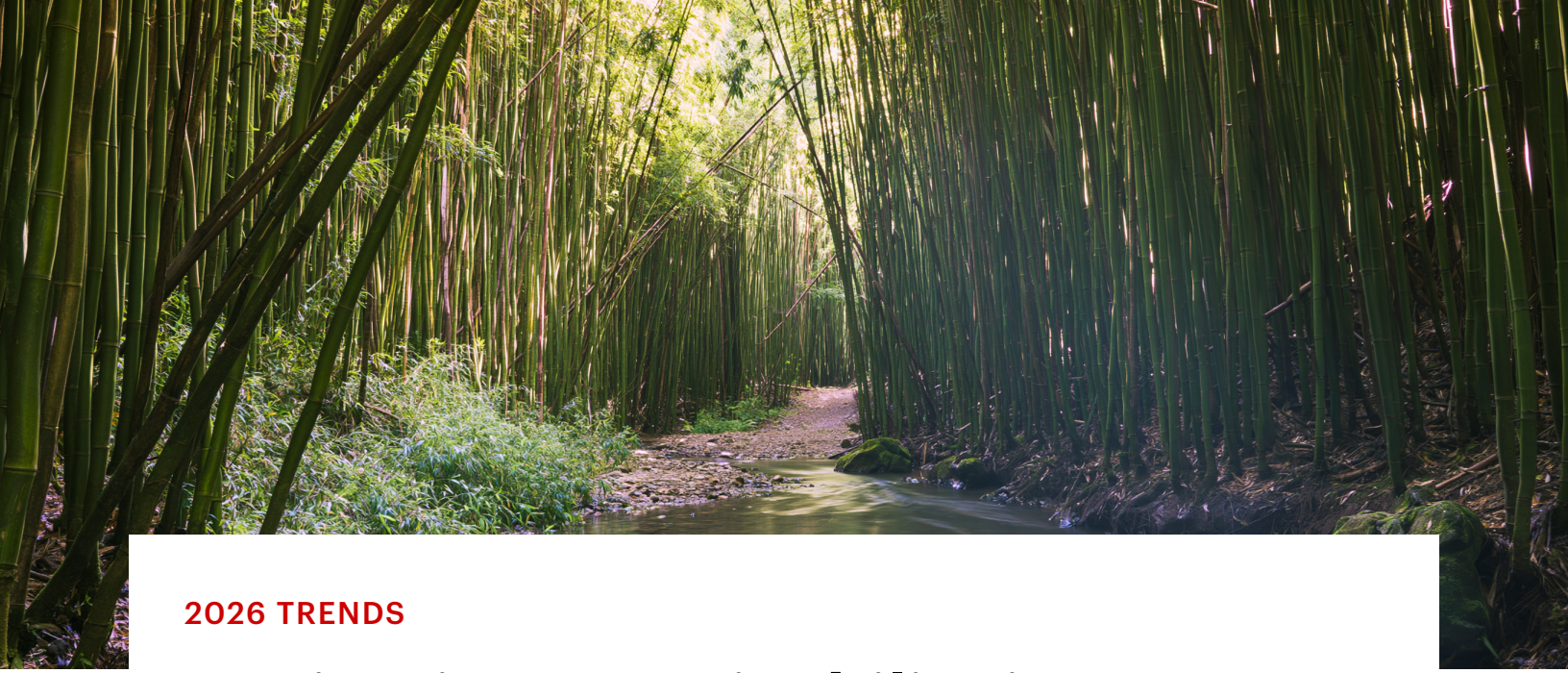
In this year's Visionary CEO's Guide to Sustainability, Bain experts uncover what is changing and offer practical perspectives to help leaders build conviction and act.

Competitive advantage will come from concentrating capital where leaders believe opportunity will emerge faster than the market expects—not from investing broadly or pulling back.

Jean-Charles van den Branden
Global Head of Sustainability

François Faelli
Global Head of Capabilities

2026 Trends



2026 TRENDS

Navigating Sustainability in an Age of Divergence

The next decade's winners will be the companies that best manage sustainability's divergence.

By Jean-Charles van den Branden, François Faelli, John Blasberg, Harry Morrison, Dominik Utama, Martha Moreau, and Jan Budde

At a Glance

- In 2025, investments in sustainability reached a record $2.4 trillion, proving that the prevailing narrative of retreat is wrong.
- There have, however, been significant disappointments: Of the 37 top sustainable technologies, only 3 strongly exceeded forecasts, and most missed by a wide margin.
- For those that fell short, one of three "gates"—technology, behavior, or policy—didn't open.
- Today, the speed of change is bifurcating, and sustainability winners are using that market divergence as competitive advantage.

Last year, we identified a "do-say gap"—a widening distance between what companies actually do to build more sustainable businesses and products and what they say about it publicly. They were quietly doing a lot, and that continues.

Now, a far more consequential divergence has emerged in sustainability transitions across industries. Investments and technologies that lower carbon and support the transition to a more sustainable economic ecosystem are moving forward at different paces. The next decade will bring even greater divergence.

Three strategic realities of this divergence provide a practical framework for CEOs as they navigate the next decade:

1. **Transitions have diverged.** CEOs must understand why and how past investments fell short of the desired results, and why winning investments paid off.

2. **Conviction beats certainty.** CEOs must identify the technologies relevant to their business and then build strong conviction on the speed at which those technologies will develop and the "gates" that must open for them to scale. This will be the foundation for investment decisions.

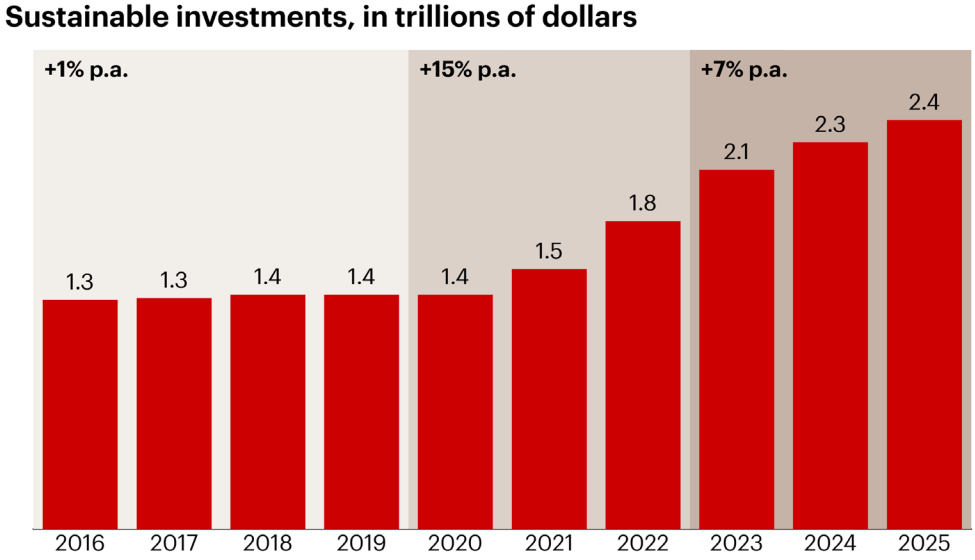
3. **Shape, monitor, or avoid.** The companies that place the best-informed bets will use their conviction to turn a moment of divergence into a source of competitive advantage.

1. Transitions have diverged

The narrative that sustainability is in retreat is wrong. Over the last 10 years, roughly $17 trillion has been invested by private companies and governments in sustainable technologies globally. That's approximately $4 trillion ahead of the pace expected in 2015.

Investment accelerated fastest—15% per annum—from 2020 to 2023, hit a record $2.4 trillion in 2025, and is now growing at about 7% *(see Figure 1)*.

Figure 1: $17 trillion has been invested in sustainability over the past decade



Sources: IEA; CPI; Bain analysis

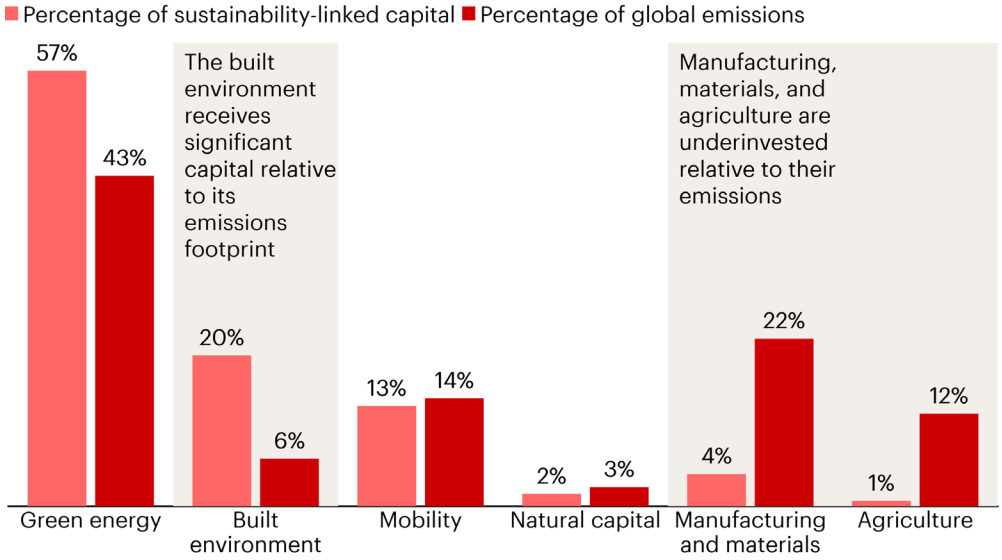
Those investments have concentrated, however. Over the past decade, nearly 90% of sustainable capital flowed into three sectors with proven economics and falling cost curves: green energy, buildings, and mobility *(see Figure 2)*. Green energy alone absorbed 57% of total investment.

At the same time, important sectors with less clear economics received little investment. Agriculture, land use, and manufacturing and materials, which together account for roughly 37% of global greenhouse gas emissions, attracted less than 10% of investment. This imbalance is increasingly risky. As climate change disrupts agricultural production, for example, investment in the food transition is quickly becoming not just a sustainability imperative but a matter of food security.

The returns on capital have been sharply uneven. Vast amounts of money were invested in things like alternative proteins, hydrogen fuel cells, and battery champions, which so far have offered minimal or negative returns. On the other hand, with recently rising fossil fuel prices, renewable energy—which received the highest investments—has offered strong returns.

Environmental returns have been uneven too. In Europe, roughly $1.8 trillion invested in green energy helped cut energy sector emissions by 42% over the decade—a fantastic decarbonization success. But $450 billion invested in green mobility over the same period has produced a 1% net increase in mobility emissions so far.

Figure 2: Energy and buildings have been especially well funded, while investment in other sources of emissions has lagged



Sources: IEA World Energy Investment; CPI Global Landscape of Climate Finance; WRI Climate Watch; Bain analysis

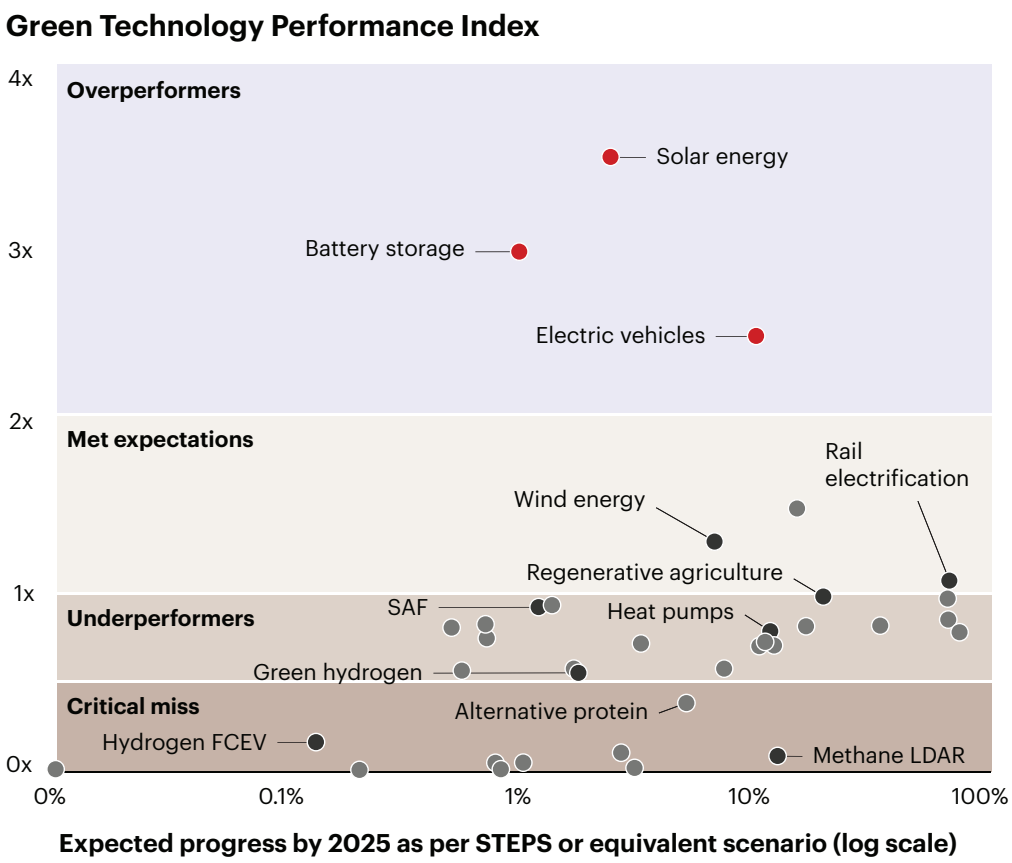
Clearly, the transitions toward low-carbon and sustainable business have radically diverged. The past decade saw a small group of technologies—including solar, batteries, and EVs— shatter forecasts, while a long tail of underperformers mostly missed their projections, according to Bain's Green Technology Performance Index, which tracks actual 2025 deployment levels against projections for 37 technologies *(see Figure 3)*.

Three critical gates: Technology, policy, behavior

What held back the technologies that didn't perform?

For the most part, the vision wasn't wrong. The issue was that one of three critical gates didn't open. Climate transitions depend on technology, behavior, and policy, as identified by the IPCC. When one or more of these three falter, technologies struggle to reach positive economics and scale. One shut gate is enough to derail expectations.

Figure 3: The vast majority of technologies have fallen short of 2015 expectations



Notes: Expected progress refers to the percentage of addressable market or similar metric as per STEPS or equivalent scenario; CCUS-DAC is direct air capture; FCEV is fuel cell electric vehicle; SZEF is sustainable zero-emission fuel; SAF is sustainable aviation fuel; BEE is building energy efficiency; LADR is leak detection and repair; GF is green fertilizer; EEF is enhanced efficiency fertilizers; STEPS is the IEA Stated Policies Scenario
Sources: Bain Green Technology Performance Index (IEA WEO scenarios; IEA technology trackers; BloombergNEF; Bain analysis)

Technology. A number of technologies have so far simply failed to scale economically. An insufficient supply of critical low-cost green hydrogen has made it impossible for manufacturers to produce affordable green steel at industrial scale. This has also hindered green ammonia and many zero-emission fuels. The disappointing performance of one technology—green hydrogen—has blocked entire transitions. In other cases, a technology just hasn't been able to compete against alternatives. Battery electric vehicles have established such a decisive advantage on cost, infrastructure, and consumer adoption that hydrogen fuel cell vehicles remain niche.

Policy. Government support has sometimes been a necessary accelerator. In Scandinavia, where policy support was durable and strong enough to create genuine demand, heat pumps have become the leading form of heating. In most other markets, policy has been too fragmented and weak to create this kind of scale.

Behavior. Even a strong technology supported by policy will stall if users won't adopt it. Landlords often hesitate to pay for energy efficiency renovations because tenants—not landlords—receive most of the energy savings. Alternative proteins haven't found a taste, texture, and price attractive to a sufficient number of consumers.

Diagnosing which of the three gates is blocking progress is an important step. That will determine whether continued investment is rational, advocacy makes sense, or the company should exit. It's the foundation on which CEOs can build conviction in future investment.

Even a strong technology supported by policy will stall if users won't adopt it.

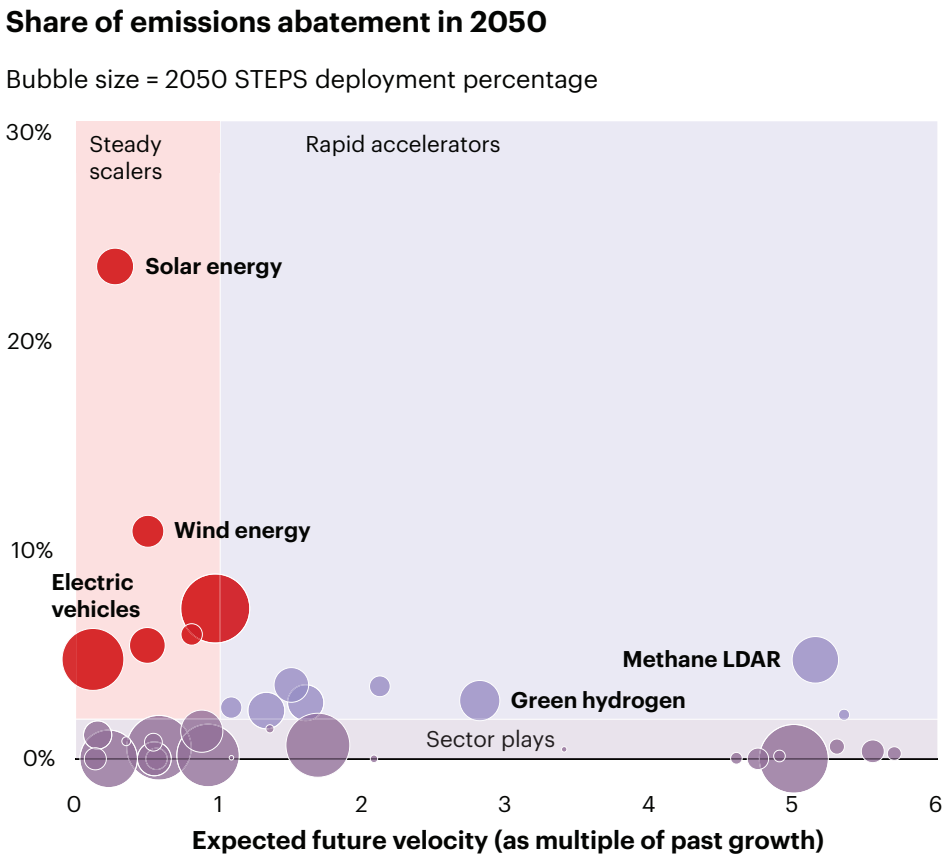
2. Conviction beats certainty

If companies and governments continue to invest in sustainability transitions at today's pace, and that capital is well allocated, total funding in the next decade could surpass what is required according to the IEA's 2.5°C scenario.

Since sustainable technologies mature at different speeds, policy evolves unevenly, and customer adoption varies, CEOs need a clear map of the technologies driving the transitions that matter most to their business. Reading the transition map correctly starts with understanding whether a given technology is relevant to your business and value chain, the speed at which it will develop, and the gates that must be open for it to scale. That will help build conviction about where and when to allocate capital.

Figure 4 provides one view of this map.

Figure 4: A map of the future velocity and abatement potential of key technologies



Note: STEPS is IEA Stated Policies Scenario
Sources: IEA WEO scenarios; IEA technology trackers; Intersect Divergent Pathways 2050; Bain analysis

"Steady scalers" represents technologies—including solar, wind, and battery electric vehicles—that will continue their growth and be essential for decarbonization. For this group, regional trajectories may differ, but long-term direction is increasingly clear.

"Rapid accelerators" are technologies that could accelerate rapidly once key gates open. Green hydrogen, for example, has substantial long-term abatement potential but currently remains constrained by technology. A breakthrough in electrolyzer technology (such as capillary-fed electrolysis) together with access to cheap renewable electricity could unlock competitively priced green hydrogen. This, in turn, would enable a step change in green steel, fertilizers, shipping fuels, and other downstream applications, potentially disrupting whole sectors such as industrials, agriculture, and transport. For methane leak detection and repair (LDAR)—which is primarily constrained not by technology but by policy—stronger, consistently enforced regulation, particularly in the most polluting regions, would help it scale.

The "sector plays," such as building energy efficiency or vertical farming, won't reshape a broad swath of industries but could fundamentally alter competition within their respective sectors.

The CEO's challenge is not to predict the future with certainty. It is to read the map, build conviction, prepare for different future scenarios, and take investment positions accordingly.

3. Shape, monitor, or avoid

For much of the last decade, when it came to sustainability, breadth of investment signaled commitment. Divergence challenges that logic. Competitive advantage now comes not from a broad portfolio but from concentrating capital in those transitions that matter most to your business and where you have conviction that critical gates will open sooner than the market expects.

For every relevant technology, leading companies make an explicit strategic choice based on the transition map. They invest to shape key transitions, monitor technologies that may become important, and avoid altogether those technologies that are unlikely to impact them.

The CEO's challenge is not to predict the future with certainty, but to read the map, build conviction, prepare for different future scenarios, and take investment positions accordingly.

Shape your transition. Where companies choose to lead, the greatest returns will come from investing with conviction before consensus forms. Leaders deploy capital where they believe technology, policy, or customer behavior will move faster than the broader market expects and then actively work to accelerate those shifts. Consider the active role Maersk is taking in green shipping. The company launched the world's first methanol-capable container vessel in 2023 and collaborates with suppliers and ecosystem partners to address the limited availability of green fuels, one of shipping's biggest bottlenecks. Rather than waiting for the market to mature, Maersk is helping create it.

Transitions rarely unfold exactly as expected. Costs can fall dramatically faster than forecast. Policy can reverse within a single election cycle. Customer preferences can shift rapidly, and competing technologies can emerge unexpectedly. Adaptability is important. Given continued uncertainty about fuel prices, availability, and regulation, Maersk buys dual-fuel ships that can operate with both conventional marine fuel and a lower-carbon alternative such as liquified natural gas (LNG) or methanol.

Monitor the transition. Some technologies are less relevant, or it may be unclear how quickly critical gates will open for them. Rather than commit significant capital prematurely, leading companies

continuously monitor developments and prepare to move quickly once conviction strengthens. A dairy company unsure how quickly consumers will embrace plant-based dairy would monitor developments regularly and have plans in place to act when the market becomes attractive.

Avoid the transition. Building conviction also means knowing when not to invest. Many automakers stopped investing in fuel cell electric vehicles after it became clear that battery EVs were cheaper, had better infrastructure, and were preferred by consumers. When conviction shifted, capital followed.

Looking forward

The companies that outperform will not invest across every sustainability opportunity. They will continuously update their view of the important transitions, strengthen conviction faster than competitors, allocate capital with greater discipline, and adapt as conditions change.

Ten years after the Paris Agreement, one of the most ambitious economic transformations ever attempted has shown us both what is possible and how difficult transition is. Seventeen trillion dollars of investment helped avoid the worst-case warming scenario, yet progress has not been sufficient and has unfolded unevenly.

There is no place for blind optimism in sustainability. Neither is it correct to assume that entire transitions are stalling. Visionary pragmatists recognize this age of divergence for what it is: not a sign of failure but an opportunity to place the right bets for the future.

2026 TRENDS

For Consumers, Sustainability Isn't Gone, But It Is Changing

Bain's fourth annual study shows a new "do-say" gap: Consumers aren't talking as much about sustainability, but their actions are benefiting the planet.

By Leah Johns, Magali Deryckere, John Blasberg, Harry Morrison, Jean-Charles van den Branden, and Sheena Garg

At a Glance

- Bain's global study of 7,500 consumers finds 85% are concerned about sustainability, up from 79% last year.
- Sixty-eight percent struggle to identify the lower carbon of two options, but AI and product information apps are making that easier.
- New interpretations of health and a growing focus on resilience have consumers living more sustainably.
- Even consumers who say they don't care about sustainability are adopting more sustainable habits.

Each of the past four years, Bain has asked thousands of consumers in countries across the globe about their attitudes and behaviors regarding environmental sustainability. This year's findings paint a picture that challenges conventional wisdom in important ways.

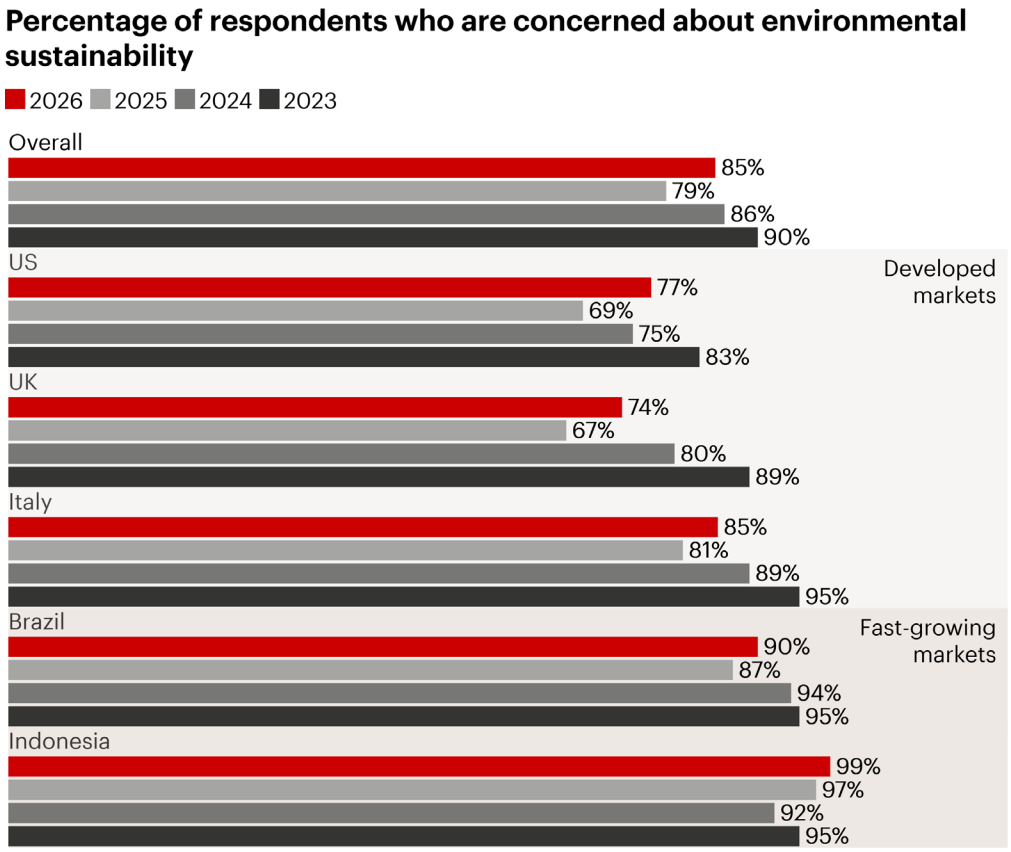
- **Concern about sustainability is climbing, driven by consumers' own experiences with extreme weather.** For the first time in three years, environmental concern is on the rise *(see Figure 1)*.

This year, 85% of people said they worry about environmental sustainability, up from 79% last year. The primary cause continues to be extreme weather events, often the floods, heat waves, and wildfires that consumers see with their own eyes *(see Figure 2)*. Worry about extreme weather events, particularly in one's own country, is higher today than it was four years ago.

- **People are living more sustainably, but their primary motivation is often something other than the environment.** This is a consumer version of the "do-say" gap we identified in companies last year: People act sustainably but often don't describe their actions as sustainable. Consumers limit meat and avoid microplastics, for example, because doing so is perceived to be healthier. They limit home energy use because it saves money. Different motivations are leading to the same direction of travel.

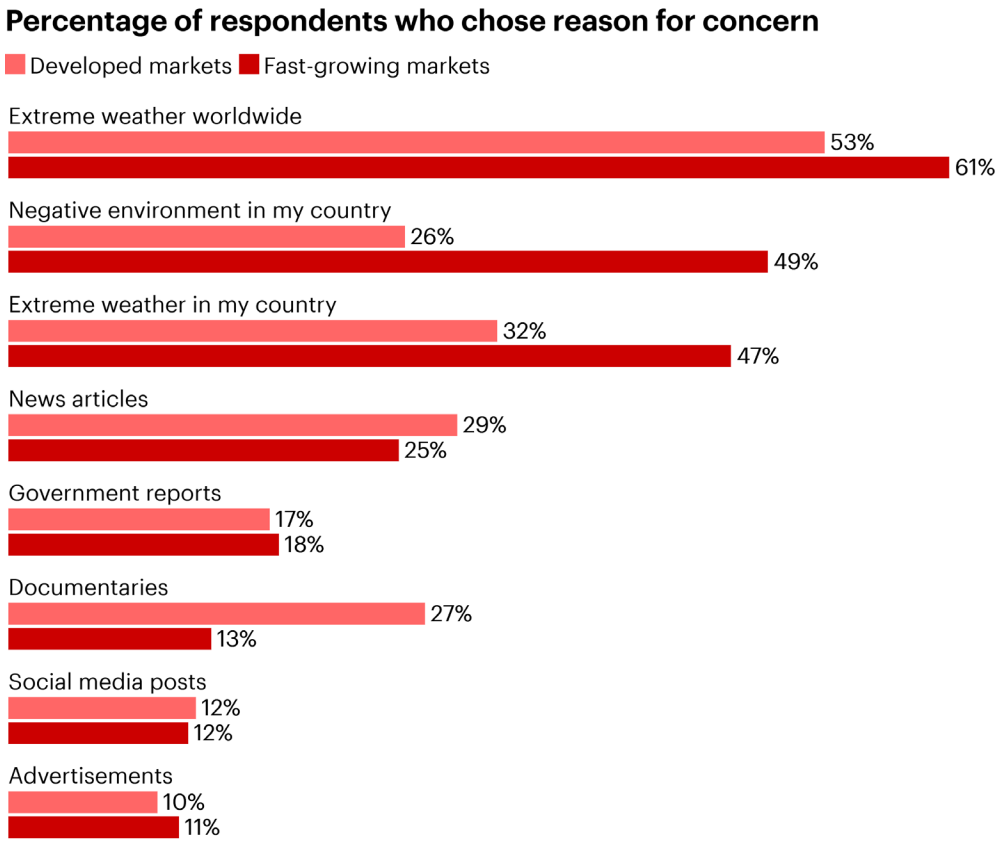
- **Two evolving forces—health and resilience—are changing the way consumers engage with sustainability.** The definition of sustainability has broadened in consumers' minds beyond

Figure 1: Globally, 85% of people are concerned about environmental sustainability, a jump from last year; the number is far higher in fast-growing markets



Note: Reflects respondents who are somewhat, very, or extremely concerned (3,4, or 5 out of 5 levels of concern)
Sources: Bain Consumer Lab ESG Survey 2026 (n=7,499 across US, UK, Italy, Brazil, and Indonesia); Bain Consumer Lab ESG Survey 2025 (n=14,206 across US, UK, Brazil, Italy, China, Indonesia, UAE, and Saudi Arabia); Bain Consumer Lab ESG Survey 2024 (n=21,612 across US, UK, Netherlands, India, Brazil, Germany, France, Italy, Japan, China, Indonesia, Spain, and Portugal); Bain Consumer Lab ESG Survey 2023 (n=23,374 across US, Brazil, UK, Netherlands, Germany, France, Italy, India, China, Japan, and Indonesia)

Figure 2: Nearly two-thirds of consumers say their concern about sustainability has intensified. Here's what's causing that:



Notes: Excludes respondents who answered "I do not believe in climate change"; respondents could choose up to three answers; the top eight answers are shown
Source: Bain Consumer Lab ESG Survey 2026 (n=7,499 across US, UK, Italy, Brazil, and Indonesia)

"environmentally friendly" to include things they think of as healthy, such as how "natural" a product is. Health continues to be a top purchasing criterion across categories as its definition expands to converge with sustainability. Consumers prioritize resilience by doing things such as buying local to ensure availability of goods. These two powerful motivations for sustainable action will only accelerate.

- **The context in which consumers decide has fundamentally changed.** AI tools and product information apps are the new intermediaries. What used to require reading a label, running a Google search, or just guessing, is now available in seconds in a format that's easy to understand. Consumers get a specific answer to a particular question at the very moment of purchase decision. It's a profound structural change to the way transparent product information reaches the consumer.

By doing what is good for them, consumers have (inadvertently) found convergence between their needs and sustainability more broadly. This creates an opportunity for companies to meet the consumer where they are, at key decision points, by leading with the criteria that are actually changing behavior.

Concern about the environment is climbing, especially in fast-growing markets

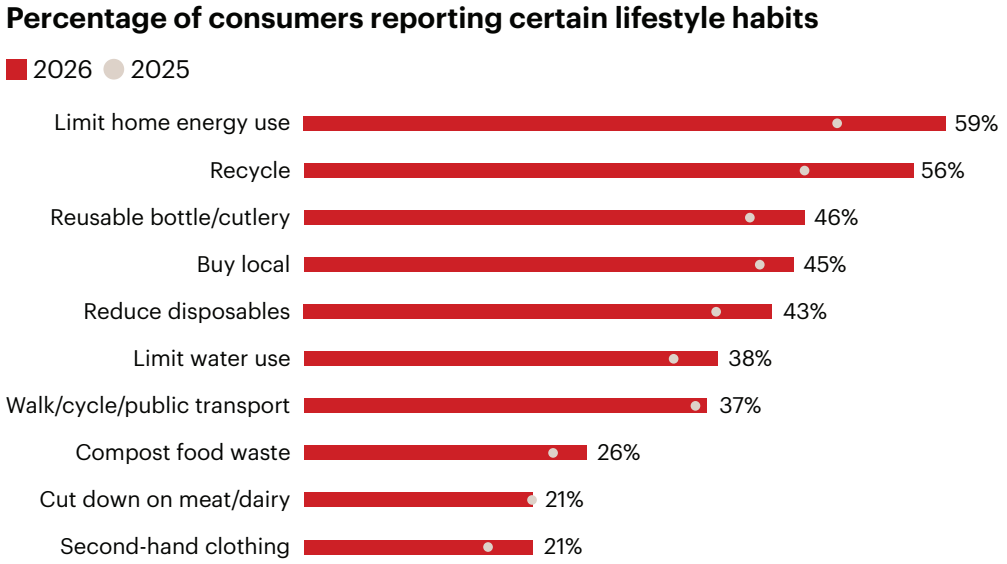
Extreme weather events remain consumers' top environmental worry. Overall, 65% of respondents say their concern about environmental sustainability has intensified over the past two years. Consumers in fast-growing markets, which are more directly affected by extreme weather, remain significantly more concerned than those in developed markets (95% vs. 79%, respectively). They are particularly concerned about extreme weather events and negative environmental issues where they live, such as floods and wildfires they can see.

People of all ages are highly concerned about environmental sustainability. While younger generations remain relatively more worried (92% of Gen Z say they are concerned), a surprisingly large percentage of boomers (77%) are also concerned.

Everyone's living more sustainably, even skeptics

Consumers are quietly building sustainability into their daily routines *(see Figure 3)*. Sustainable habits continue to consistently increase year over year across all categories. Eighty-three percent of respondents have adopted three or more sustainable lifestyle habits, up from 73% in 2023. The top habits happen to be practical, mainstream, and growing: 59% of people limit home energy use; 56% recycle. Eighty-one percent believe their individual actions have a meaningful impact on environmental sustainability.

Figure 3: Consumers have adopted many sustainable behaviors that offer compelling benefits beyond helping the environment



Notes: "None of the above" and "other," accounting for 1.6% and 0.57%, respectively, have not been shown; respondents could select all that apply; only top 10 habits are shown
Sources: Bain Consumer Lab ESG Survey 2026 (n=7,499 across US, UK, Italy, Brazil, and Indonesia); Bain Consumer Lab ESG Survey 2025 (n=14,206 across US, UK, Brazil, Italy, China, Indonesia, UAE, and Saudi Arabia)

When asked why they adopt specific sustainable habits, in half the cases the primary reason is something other than the environment, such as affordability, health, personal preference, or convenience. But even when environmental sustainability is not the main motivation, respondents see it as an additional benefit, and it serves to reinforce continued usage.

It's particularly striking that sustainable habits are growing even among those who say they don't care about sustainability. In 2023, 35% of such consumers had three or more sustainable lifestyle habits. That jumped to nearly 50% this year.

Health and resilience are reshaping how consumers engage with sustainability today

Health remains the top purchase criterion for most consumers, above environmental sustainability, price, and brand—something we have seen for multiple years *(see Figure 4)*. What's changing is that consumers' interpretation of health is moving closer to sustainability as they focus on attributes such as "natural," "clean," and "free of PFAS additives and pesticides." When asked what they associate sustainable fresh food with, respondents' top answers were "natural ingredients," "healthy," and "organic."

This commitment to health extends to a willingness to pay more. Consumers report they are willing to pay 18% more for a product with sustainability benefits. They will pay an even greater premium—24%—for something that offers both health and sustainability benefits.

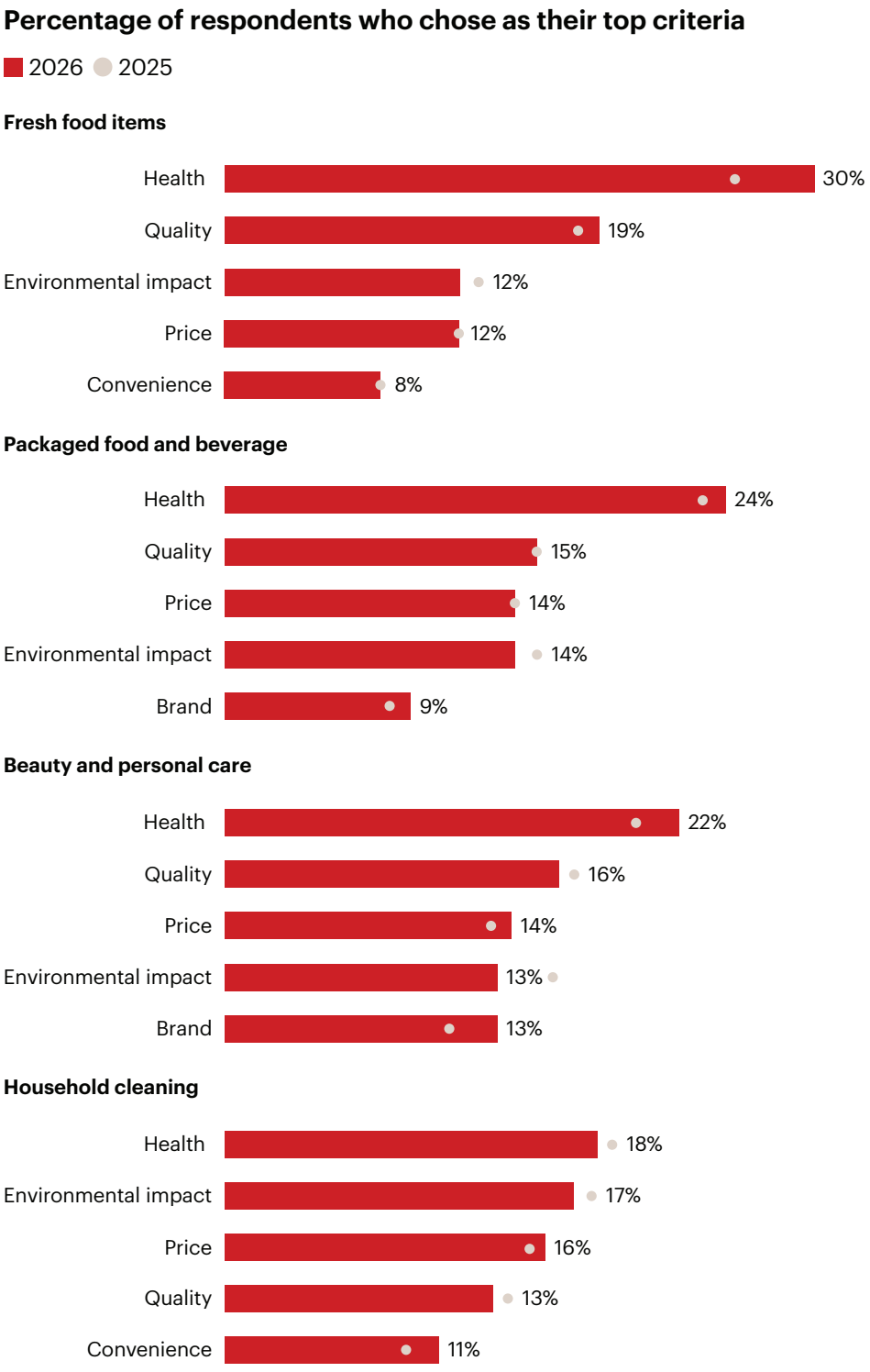
With sustainability and health converging in the consumer's mind, brands that are healthier by design, with natural ingredients, fewer chemicals, and less processing, all benefit. The companies investing in this overlap are building products that genuinely meet both needs. Consider the health properties Danone is emphasizing, or how start-ups like Wild, a deodorant brand bought by Unilever, go beyond simply claiming sustainability to describe their goods as paraben- and phthalate-free. Companies making sure to accurately communicate these benefits, in line with upcoming European labeling regulation, will have flagged to consumers important value offered by their product.

Those that don't clearly communicate will find consumers applying their own stringent health filter. People are actively avoiding specific substances *(see Figure 5)*. Seventy-two percent of survey respondents say that today they change what they buy based on PFAS, BPA, or microplastics—substances many consumers would not have heard of a few years ago.

The second force reshaping consumer behavior is a heightened focus on resilience. When the world feels uncertain, consumers want products that feel dependable and that are locally available. This extends to wanting to ensure local businesses survive.

Affordability is an important aspect as well. The price of gasoline and energy and the cost of living generally are global respondents' two greatest concerns. This year's run-up in energy prices has sparked a surge in demand for solar panels in Europe.

Figure 4: Health remains consumers' top purchasing criterion, while environmental impact has declined



Notes: Only the top five answers are shown out of nine; respondents could rank up to four criteria
Sources: Bain Consumer Lab ESG Survey 2026 (n=7,499 across US, UK, Italy, Brazil, and Indonesia); Bain Consumer Lab ESG Survey 2025 (n=14,206 across US, UK, Brazil, Italy, China, Indonesia, UAE, and Saudi Arabia)

"Buying local" has been among the top five lifestyle habits the past two years. More than half of respondents shop locally more than they did before. Asked why, their top reasons were supporting and developing the business infrastructure where they live and ensuring security of supply. Twenty-three percent also listed safety and reliability given global uncertainty.

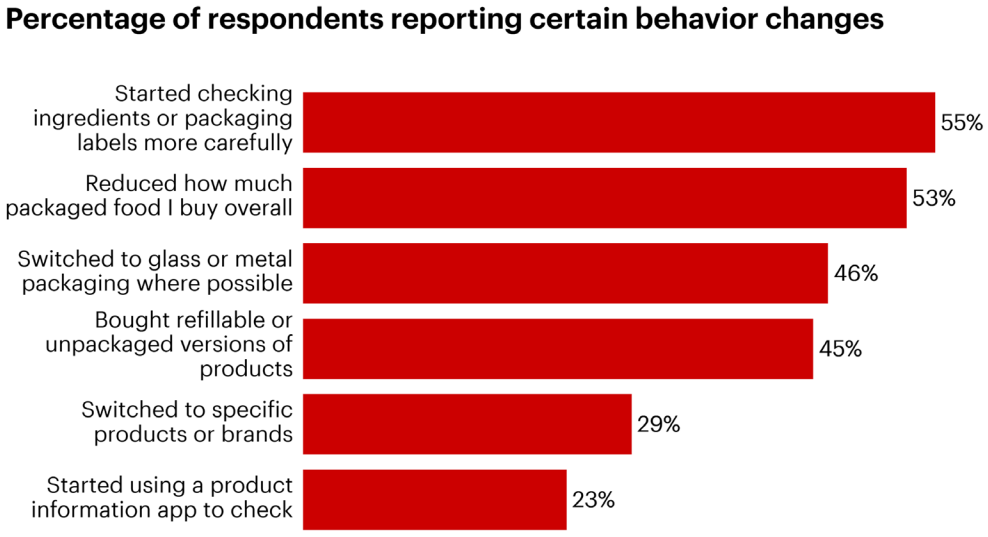
For a consumer anxious about tariffs and energy costs, buying local is a hedge. "Local" signals freshness, safety, economic solidarity, and supply chain independence all at once. In consumers' minds, local is also seen as healthier, possibly stemming from the connection between freshness and nutrition. Buying local delivers on both motivations at once.

AI is making it easier for individual consumers to find what they want and is altering purchase behavior

Health and resilience, like every other product attribute, are now filtered through a new mediator: AI. AI tools and product information apps are what consumers increasingly turn to with their questions about what's healthy or sustainable. That's where they discover, research, and compare products, and that means brands no longer fully control the answer. It's a structural shift in how all product information—including health, resilience, and sustainability—translates into purchases, often at the moment of choice.

This revolution is especially important for sustainability because most consumers struggle to correctly identify what is and what isn't sustainable. Our study shows that, on average, 68% of consumers don't

Figure 5: Health concerns over PFAS, BPA, and microplastics are changing consumer behavior



Notes: Respondents who selected the option "Major reason I've changed" or "One of the several reasons I've changed" when asked if they have actively changed what they buy because of concerns about PFAS, BPA, and microplastics in packaging or products; respondents could select all that apply
Source: Bain Consumer Lab ESG Survey 2026 (n= 7,499 across US, UK, Italy, Brazil, and Indonesia)

know or get it wrong when asked to choose the lower-carbon option between pairs of food products and packaging options. There are many reasons for this, including confusing labels and often-opaque brand communication, but the fact remains that consumers genuinely struggle to make sustainable choices, and they know it *(see Figure 6)*.

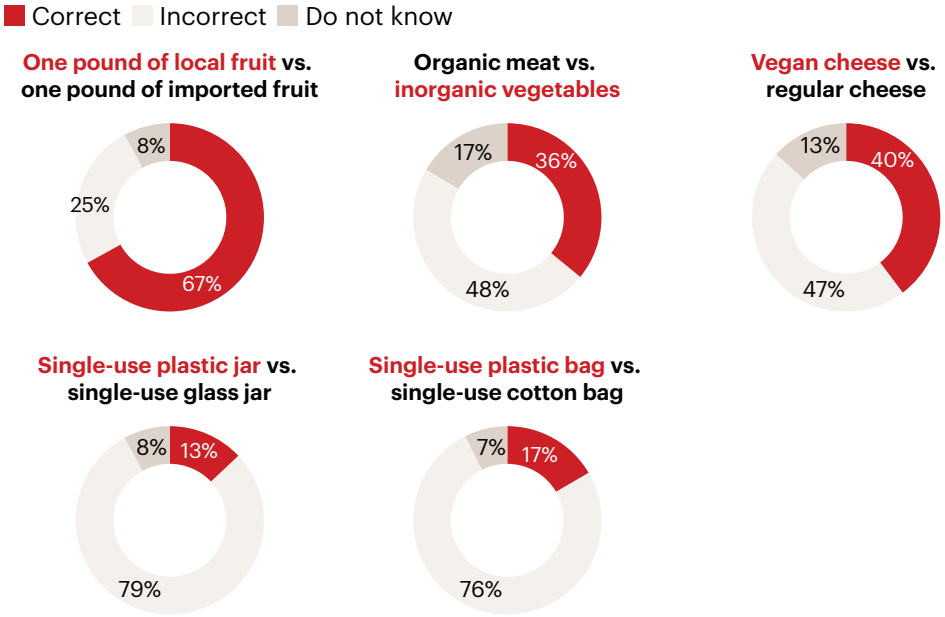
If in the past a consumer had to rely on packaging claims or some guesswork, today they ask AI and get an answer in seconds. Which of my options is healthiest for my child? Which contains fewer additives? Which is more nutritious?

Research by Bain Consumer Lab has found that 30% of people globally use AI daily. Forty-three percent are replacing search engines with chatbots some, if not all, of the time. Three-quarters of Europeans and Americans use Gen AI in their personal life, and 60% of searches in those markets now end without a click-through to another website. Consumers are increasingly getting what they need from the AI summary itself.

Sustainability and health questions are a growing share of this trend *(see Figure 7)*. Nearly half (48%) of consumers who use AI say they have used it in the past 12 months to help them live more sustainably. In the context of shopping, 43% use AI to determine the healthier product, followed by 38% who use it to recommend eco-friendly products.

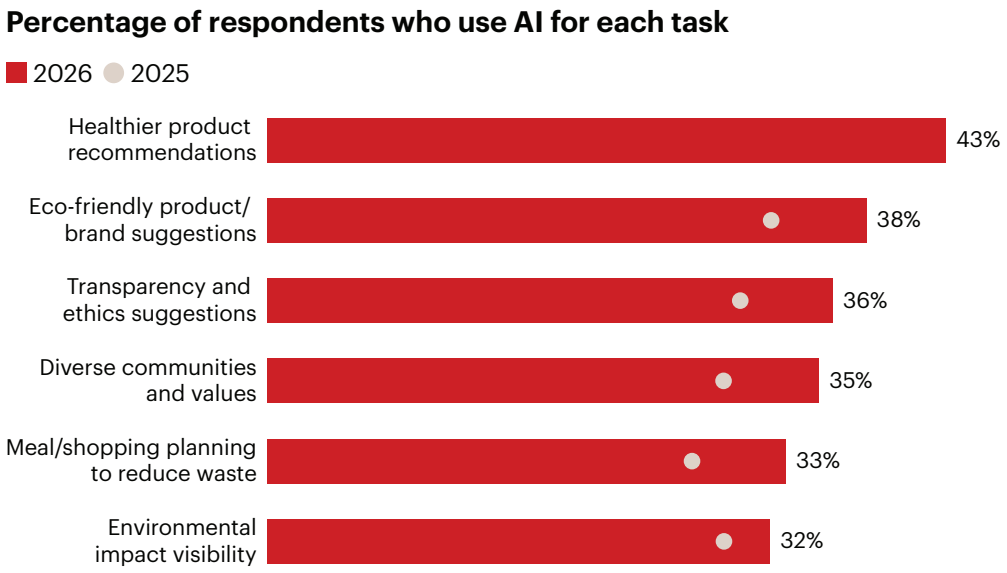
Figure 6: Consumers find it hard to gauge a product's carbon footprint

On average, 68% of consumers don't know the choice with the lower carbon footprint when given 5 pairs of products to choose from



Note: Totals may not equal 100% due to rounding
Source: Bain Consumer Lab ESG Survey 2026 (n=7,499 across US, UK, Italy, Brazil, and Indonesia)

Figure 7: Sustainability-related information that users ask AI for



Notes: "Healthier product recommendations" added in 2026; respondents could select all that apply
Sources: Bain Consumer Lab ESG Survey 2026 (n=7,499 across US, UK, Italy, Brazil, and Indonesia); Bain Consumer Lab ESG Survey 2025 (n=14,206 across US, UK, Brazil, Italy, China, Indonesia, UAE, and Saudi Arabia)

Today, 41% of consumers use product information apps such as Yuka, Open Food Facts, and Bobby Approved, which will increasingly deploy AI to evaluate products on sustainability criteria. With the scan of a barcode or quick photo of the product, users can instantly access an analysis of a product's health and environmental impact. Seventy-nine percent of users say these apps have changed their purchases. Retailers and consumer goods companies are paying attention. After being flagged by app Yuka and in response to its own customer research, Walmart committed to "one of the largest private brand reformulations in retail history": removing artificial dyes and 30 other additives by 2027.

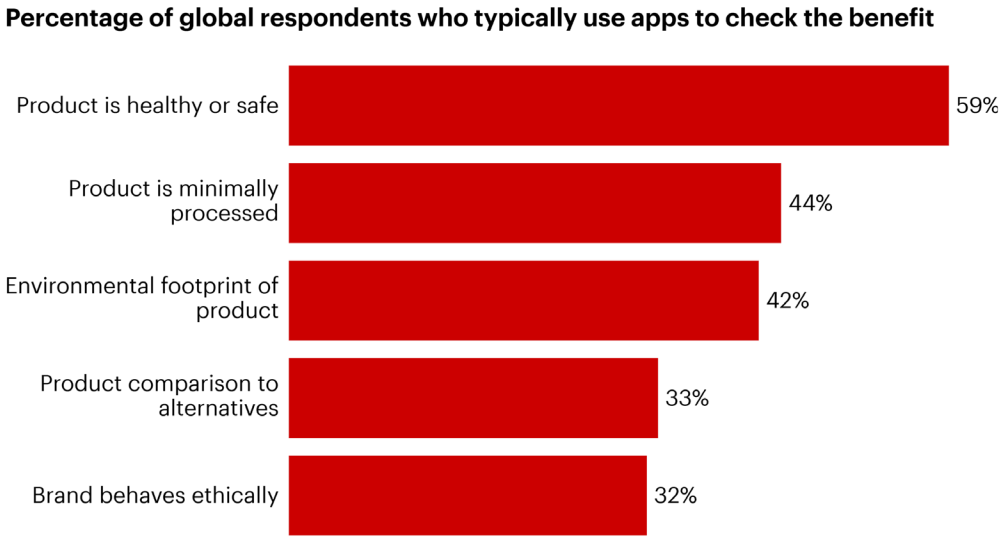
When consumers use these platforms, they most commonly check whether a product is healthy or safe (59%), whether it's minimally processed (44%), and its environmental footprint (42%) *(see Figure 8)*.

Packaging still matters. Labels and certifications remain the No. 1 way consumers judge sustainability in store, but packaging now must speak to two audiences: the consumer in the aisle and the AI on their phone. Companies often design communication at a corporate level without linking it to brand or product information. That is one reason it is not always picked up by AI. Companies must clearly communicate relevant product information, or risk AI elevating information from sources beyond their influence.

The "so what" for CEOs and brands

1. **Sell the AND, not sustainability alone.** Wherever possible, lead your message with health and resilience, since those are attributes consumers base decisions on. Create products where these benefits reinforce one another. Prioritize sustainability investments that strengthen your brand and

Figure 8: Consumers use product information apps to check health, safety, and other sustainability benefits



Notes: Respondents selecting "I am not familiar with these types of apps" or "Nothing specific" are excluded; respondents could select all that apply
Source: Bain Consumer Lab ESG Survey 2026 (n=7,499 across US, UK, Italy, Brazil, and Indonesia)

your product's health and resilience. A food company that supports farmers who use regenerative agriculture would be a good example of a corporate action that can also boost the healthiness and resilience of its products. A winning product will meet the consumer's needs first and foremost AND also meet the needs of the planet.

2. **AI is going to do a lot of your talking for you.** The conversation with consumers has changed, and how companies can influence it has too. Companies must adapt to a world in which consumers increasingly rely on AI conversations, not company-created content, to explore and evaluate products. These conversations are specific to what that customer wants or needs and create a new level of transparency by surfacing answers that can be hard to find. Packaging still communicates at the shelf, but AI has become an authority with increasing influence. Rather than communicate about sustainability at the corporate level, companies should offer transparent data and communication about their products and brands. Information, claims, and disclosures must be legible by both humans and machines. The way Nestlé talks about its decision to use regeneratively grown wheat in Kit Kat illustrates the direction in which brands should be moving.

3. **Be rapid and agile in response to consumers' evolving needs.** The speed and simplicity with which you gain insights into your consumers has changed too. Just as AI is making it easier for your consumers to understand your product, new data-driven tools are making it easier for you to better understand your consumer. Stress testing value propositions with synthetic customers can identify what consumers need, respond to, and reject much earlier in the product and marketing cycle, saving time and money.

2026 TRENDS

The Energy Transition Runs Through Asia

What happens in China, India, Indonesia, and South Korea will shape important decisions and opportunities for companies globally.

By Dominik Utama, Brian Murphy, Yang Liu, James Nixon, and Tiiram Sunderland

At a Glance

- China, India, Indonesia, and South Korea are each following an energy transition path unique to their assets and priorities.
- China and India account for 46% of the swing in 2040 carbon emissions across Bain's energy scenarios.
- Asia isn't just driving demand for energy transition; it's driving disruption, competition, supply, and investment.
- For many companies, the biggest risk isn't making the wrong bet on Asia—it's failing to make a considered bet at all.

In a post-globalization world, energy can only be understood in the context of population growth, economic development, and geopolitics. Those forces sit at the heart of Bain's 2026 Global Energy and Materials Outlook, which uses Intersect℠ to model three plausible scenarios for the global energy system through 2040. Across those scenarios—based on various geopolitical, trade, capital cost, technology, and policy assumptions—global warming is forecast to range from 2.1 to 2.9 degrees Celsius by the end of the century.

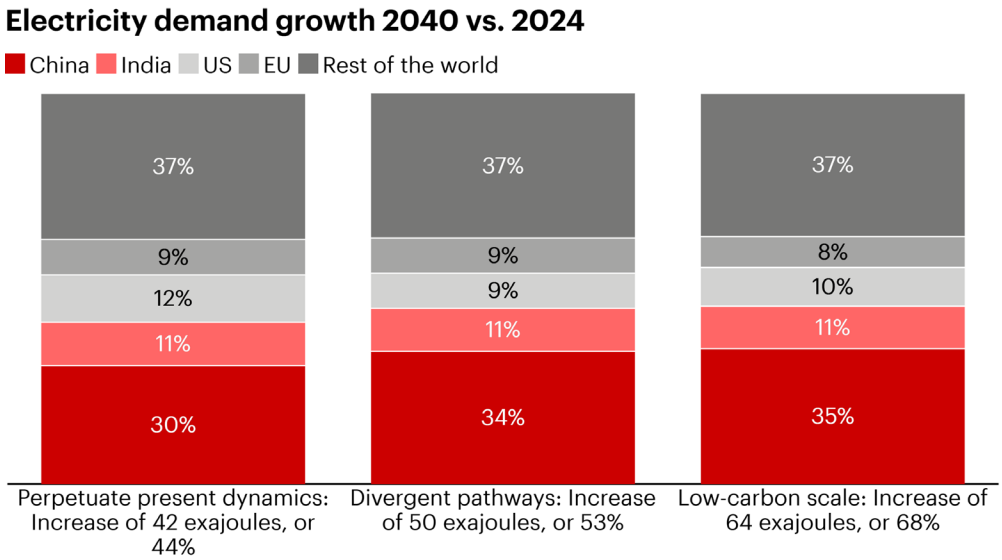
While these scenarios are shaped by choices made around the world, Asia will play an outsized role. China and India alone account for 46% of the swing in 2040 carbon emissions between the first and third scenarios, compared with 18% for the US and EU combined. Asia's impact is anchored in its expected share of electricity demand growth. In all but one scenario, China and India's electricity demand outstrips that of any other nation *(see Figure 1)*. The trajectory of the global transition will depend in large part on how that demand is met.

The three scenarios include:

- one in which present dynamics perpetuate;
- one in which energy and industrial policies diverge further across regions, with uneven effects on trade, energy security, and the scaling of low-carbon technologies; and
- a third "low-carbon scale" characterized by greater global alignment on trade, significant investment in low-carbon technologies, progress in removing bottlenecks such as grid constraints, and financing and policy environments that support investment at that scale.

At the same time, Asia has been the driving force behind the scaling of the most prominent low-carbon technologies. Solar energy, battery storage, and electric vehicles—the three clean technologies that have exceeded expectations by the widest margins and that underpin the transition, as highlighted in

Figure 1: Electricity demand grows in all three future scenarios, with China and India among the key contributors



Notes: 2024 electricity final consumption is 95 exajoules; electricity demand shown is total final consumption (TFC), calculated as total energy supply minus net transformation, losses, and statistical differences
Source: Bain Intersect Energy Scenarios

"Navigating Sustainability in an Age of Divergence"—all scaled predominantly through Asian, specifically Chinese, manufacturing, deployment, and, increasingly, innovation.

Four reasons to pay attention to Asia

For business leaders, whether based in Asia or not, the region commands attention across four key themes.

1. **Disruption.** Innovations in energy technology are some of the most disruptive forces reshaping global industry. The companies scaling these technologies and increasingly developing the next wave (green molecules, for example) are overwhelmingly Asian. If you are tracking the wrong companies or the wrong markets, you will not see the disruption coming. This could be a drop in the cost of these technologies as they scale in Asia that is so steep it makes rival options uncompetitive.

2. **Competition.** Building on their deep manufacturing expertise and increasingly homegrown innovation, companies in Asia are decarbonizing a cross-section of industries including energy, transportation, manufacturing, and robotics. Industry-leading Chinese and Korean companies include CATL and LG Energy Solution in batteries and BYD and Hyundai in electric vehicles, including fuel cell EVs. Whatever your industry, leaders of local companies and multinational corporations alike must prepare for increasing competition from Asia.

3. **Supply chains.** Asia has long been the world's foremost manufacturing hub and equipment provider, but when it comes to supplying energy transition technologies, its significance is particularly dramatic. In the global battery supply chain, for example, Asia, led by China, accounts for three-quarters of the processing and refining of key critical minerals and dominates battery cell manufacturing. Understanding Asia and managing supply chain risks is ever more important in an era of increasingly complex geopolitics.

4. **Investment.** The scale of the investment required by the transition and development ambitions of Asia is monumental. The region is already the largest single destination for energy transition investment, attracting $947 billion in 2025, according to the IEA. India alone will require hundreds of billions of dollars to meet the sixfold increase in renewable generation forecast in our divergent pathways scenario—a significant opportunity for global investors.

Four countries, four stories

Asia is not a single story, of course. Each country is navigating trade-offs between a trilemma of energy security, affordability, and decarbonization while nurturing ambitions to capture economic opportunities presented by the industries and supply chains central to these transitions. Their choices will shape energy markets, supply chains, competitive dynamics, and investment opportunities.

Nor is Asia the only story. North America, Europe, and the rest of the world all matter to the energy transition. But Asia is the most likely to drive change and opportunity in the next decade and a half.

This article will examine four markets—China, India, Indonesia, and South Korea—showing how differently the transition is unfolding in each, and what those differences mean for companies seeking to capture opportunities and manage risk.

China: Transition as economic strategy

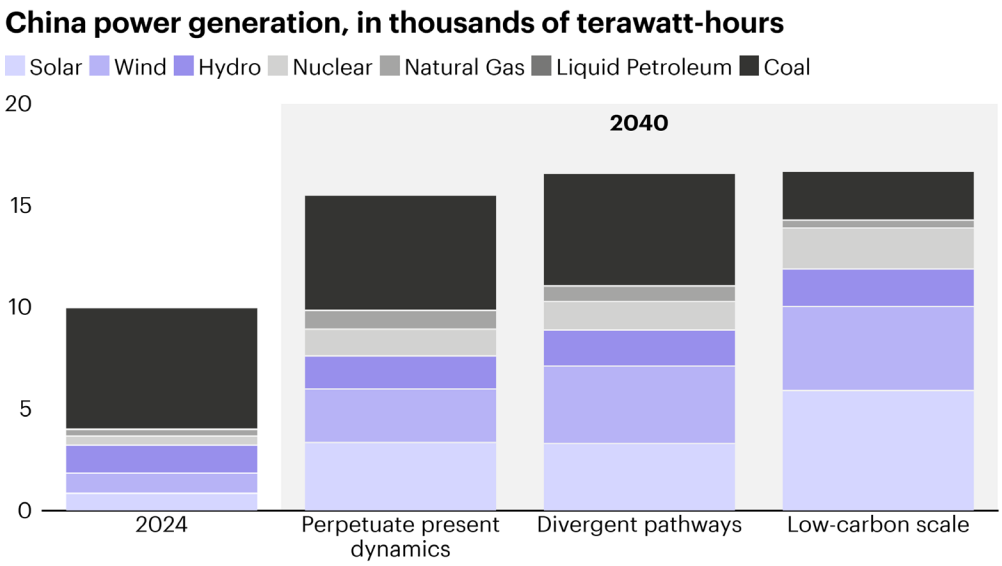
The world's largest emitter and deployer of clean energy, China has an economic and industrial strategy for transition technologies that helps develop new engines of growth while laying the foundation for a domestic energy mix that is increasingly secure, cheap, and clean.

Coal has provided China energy security as it scales up renewables and has helped it weather recent energy disruptions better than most. In our divergent pathways scenario, coal drops from 58% to about a third of power generation, while renewables increase from a third to more than half *(see Figure 2)*.

Building from its strength in clean energy manufacturing, China has driven down the cost of transition; grown globally competitive brands, including BYD, CATL, and LONGi; and strengthened its position in research and innovation in energy transition technologies. Green molecules and grid technology are the next frontier, and China is focused on them.

Chinese companies recognize the need for mutually beneficial joint ventures and local-for-local partnerships to access export markets, especially high-margin economies of the OECD. That leaves

Figure 2: China power generation in the three scenarios



Sources: Projection data based on Bain Intersect scenarios; historical data based on IEA data from the IEA (2025) World Energy Outlook and World Energy Balances, https://www.iea.org/data-and-statistics, all rights reserved, as modified by Bain & Company

incumbents in those markets—many of which are still designing strategies to manage China's dominance in mineral processing and clean energy manufacturing—to decide whether they wish to form supply chain partnerships or compete, partner, or both with Chinese counterparts.

India: Transition shaped by development

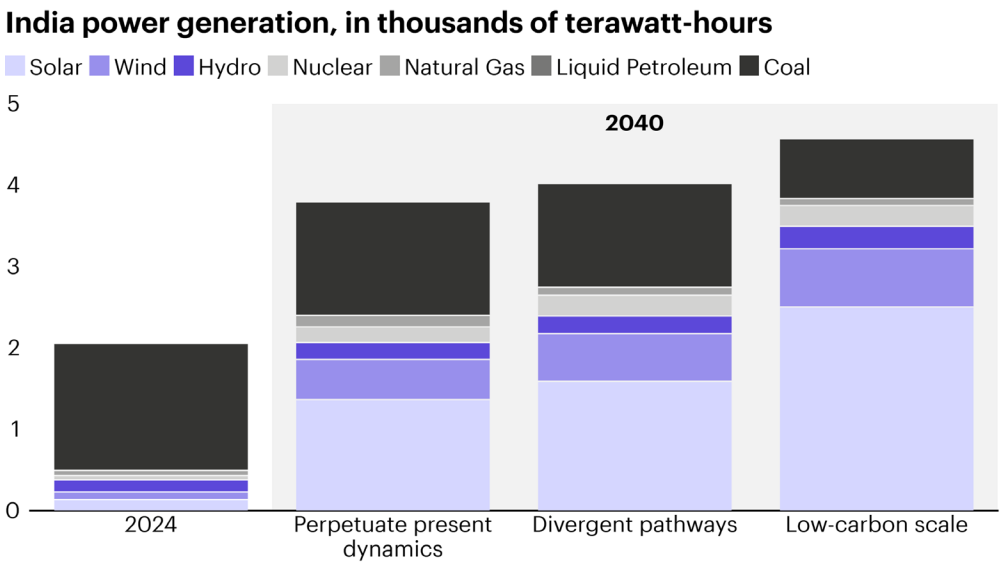
India's response to the energy transition is entwined with its development imperatives and economic goals, including those in its 2047 vision for its centenary of independence.

With a population projected by the IEA to grow to 1.61 billion and a GDP per capita that could increase by more than twofold, India is expected to roughly double its electricity consumption by 2040.

While our divergent pathways scenario forecasts a 12 times increase for solar, 6 times for wind, and 5 times for nuclear, coal is still expected to account for roughly 30% of power generation in 2040 *(see Figure 3)*.

The level of growth in renewables and in energy overall required by this development will require substantial capital. That creates opportunities for foreign and domestic investors alike. The opportunity is broader than just generation capacity. Other sectors targeted for development include biofuels and clean molecules, two- and three-wheel EVs, electrolyzers, energy storage, as well as technology and services more broadly.

Figure 3: India power generation in the three scenarios



Sources: Projection data based on Bain Intersect scenarios; historical data based on IEA data from the IEA (2025) World Energy Outlook and World Energy Balances, https://www.iea.org/data-and-statistics, all rights reserved, as modified by Bain & Company

India needs technology and expertise as well as capital, but the country also has the potential to be a trailblazer in transition technologies and capabilities. Added together, India is one of the most significant commercial opportunities of the coming decade, but scale of opportunity should not be confused with ease of execution or certainty of returns. For CEOs who are new to India, there is much to learn about government majority-owned energy producers, national and state governments, a vibrant private sector, and active private equity and infrastructure investment markets.

Indonesia: Transition shaped by resources

Of these four markets, Indonesia most clearly illustrates how resources shape a country's transition choices and their global implications.

Coal is central to Indonesia's economy and energy security. It is the world's largest exporter and a major consumer of coal, with relatively young coal-fired power plants. The country also recently reversed course on financial assistance intended to accelerate coal plant retirement. Efforts to electrify industry and transport could reduce dependence on oil and liquified natural gas (LNG) imports, but on a coal-intensive grid, this would not necessarily translate into decarbonization.

Yet Indonesia also holds critical clean energy resources, including the world's largest nickel reserves. By restricting nickel ore exports, the country has enticed foreign companies such as CATL, LG Energy Solution, and Hyundai to commit billions to building battery cell manufacturing capacity in Indonesia. In 2024, it became the first Southeast Asian country to produce EV battery cells.

Of these four markets, Indonesia most clearly illustrates how resources shape a country's transition choices and their global implications.

Indonesia sits at the intersection of supply chain opportunity and risk. As the country moves up the battery value chain, it offers companies a genuine route to diversify critical mineral and battery cell sourcing. The investment required to develop that capacity is a growing opportunity for those with capital and technology to deploy. At the same time, Indonesia's clean energy industries are being built on top of its coal-intensive base, and the carbon embedded in its battery and mineral exports is a growing concern. For companies with Scope 3 regulatory requirements, independent commitments, or customer expectations, sourcing from Indonesia may require additional investment to reduce, offset, or capture emissions.

South Korea: Transition as energy security and export edge

For South Korea, which imports around 85% of its primary energy and has been hit hard by the recent spike in energy prices, the energy transition is fundamental to energy security. Its export industries may be its greatest transition asset.

The government has high ambitions to reduce its LNG imports, close coal plants, and increase nuclear and renewable generation, but a structural shift away from fossil fuels will not come easily. Nuclear facilities take time to build, renewables face major constraints to land access, and the country's ambition to become a leader in AI data centers adds to electricity demand.

Korea's export industries may prove an unexpected catalyst for its domestic transition. Hyperscalers and other foreign purchasers of Korean semiconductors and AI compute power have Scope 3 targets that are creating growing commercial pressure to decarbonize Korea's grid. This is contributing to regulatory easing of land access constraints and capital investment in Korean renewables. Recently, KKR and SK Inc. launched a $1.3 billion renewable energy platform to meet clean power demand from chipmakers and data centers.

Beyond semiconductors and AI, Korea maintains globally competitive positions in batteries, power equipment, and other clean energy technologies. LG Energy Solution, SK On, and Samsung SDI are among the only top battery manufacturers outside China and remain key partners to Western EV automakers. Korea is also one of the few countries capable of constructing nuclear reactors at scale and is developing capabilities in small modular reactors, a technology that could disrupt how the world sources dependable, low-carbon power.

Korea raises questions for businesses across all four themes. On disruption, advances in next-generation nuclear and battery technology deserve close monitoring. On competition, Korean manufacturers of batteries, EVs, and power equipment are global players that cannot be overlooked. On supply chains, Korea's technological credibility, commercial accessibility, and geopolitical alignment make it one of the most compelling diversification options in the transition economy. On investment, the clean energy build-out required to sustain Korea's export industries offers opportunities to those with capital to deploy.

Five implications for executives

Together, these four countries tell a story business leaders are wise to track closely. Many of the factors that will determine the pace, shape, and cost of the global energy transition will play out in Asia. Decisions made by its governments and markets in the coming decade will reshape industries, supply chains, and competitive landscapes.

The implications are neither uniform nor distant. Consider the following propositions that our analysis suggests are true, and that more boardrooms need to fully internalize.

- **The companies most likely to disrupt your industry in the next decade may not yet be on your competitive radar.** The technologies that have already reshaped energy, transportation, and manufacturing scaled from Asia, and the next wave—in green molecules, grid technology, and next-generation nuclear—is likely to follow. Tracking Western incumbents will not be sufficient when the signals that matter are increasingly coming from China, Korea, and beyond.

- **Your supply chain may be more exposed to Asia than you think.** The concentration in Asia of critical mineral processing, battery cell manufacturing, and clean energy equipment production represents a structural dependency that most major industries are only beginning to map. As Indonesia's nickel-backed battery industry illustrates, diversifying away from China does not always reduce embedded carbon risk or geopolitical exposure.

- **India may be the largest commercial opportunity in the transition economy that international companies are missing.** The scale of capital, technology, and expertise required to deliver India's energy and manufacturing ambitions dwarfs what domestic sources can provide. Companies and investors that engage now and navigate the conditions of entry will be far better positioned than those who wait for the market to mature.

- **The pressure to decarbonize your supply chain will arrive through your customers as much as through regulation.** As Korea's semiconductor industry is already discovering, the Scope 3 commitments of major global buyers increasingly dictate procurement requirements. Companies with carbon-intensive supply chains in Asia face a choice: Invest proactively to reduce embedded emissions or risk potentially losing customers and high-margin markets.

- **The capital flows that Asia's energy growth and transition will generate—and require—will be commensurate with the region's impact on the global energy system.** The greatest risk is not making the wrong bet on Asia; it's failing to make a considered bet at all. You may conclude that your current exposure and strategy are appropriate, but that conclusion should be reached with a clear-eyed view of what is unfolding across these markets.

None of these propositions require a company to be headquartered in Asia, or even to operate there. But they do require CEOs to build genuine conviction about what is happening in these markets—country by country—and monitor developments with the same rigor they apply to their home markets. In an era of fragmented transition, the competitive advantage will go to those who see the risks and opportunities coming and move before consensus forms.

Getting It Done

GETTING IT DONE

You're Asking the Wrong Questions about Climate Resilience

Climate resilience comes down to three questions. Many CEOs ask the wrong ones.

By Harry Morrison, Euan Murray, Martha Moreau, and Tanja Pick

At a Glance

- Natural disaster losses are rising 5% to 7% a year, and the gap between exposure and what is insured remains wide.
- Bain analyzed nearly 150,000 assets: Resilience can often be most efficiently built into planned upgrades.
- Climate shocks don't just destroy value; history shows they shift it to companies that prepared.
- The biggest climate risks may sit outside your walls in suppliers, logistics nodes, and key inputs.

Imagine you're the CEO of a confectionery company. In early 2023, your company runs a climate assessment that finds your risk manageable, with no red flags. Cocoa, one of your largest raw materials expenses, is sourced from multiple countries and suppliers across Latin America and West Africa.

Less than 18 months later, events take a sharp turn as climbing temperatures in West Africa and the rapid spread of swollen shoot disease contribute to a third year of insufficient cocoa supply and a 300% rise in prices. Yes, your company has multiple cocoa suppliers, but global prices are determined by production in a single, hard-hit agro-climatic zone across Cote d'Ivoire and Ghana that accounts for more than half of the world's crop.

Production volumes drop sharply, amplified by decades of underinvestment in aging farms, challenging farmer economics, governance failures, and financial speculation. Over time, prices will stabilize. But first, margins compress, and you must reformulate to reduce cocoa content. Why, investors ask, didn't the assessment flag all this?

Indeed, you asked a reasonable question, "Have we diversified our supply chain?" and received a reassuring answer. Unfortunately, it was the wrong question for your business.

Cocoa is one commodity in one sector, but every sector is vulnerable to physical climate risks. Most CEOs understand the critical need for resilience, but they're unsure how to build it. We consistently see companies asking three questions that sound right but that often prove misleading: *Aren't we insured? What's the ROI? Haven't we diversified?* Each produces a confident answer to the wrong problem.

Climate disruption doesn't just destroy value; it moves it, reliably and quickly, toward those better prepared. We suggest three more productive questions for executives facing climate risk: Consider the points at which your business might be most vulnerable, assess how to create competitive advantage, and explore solutions beyond diversification.

And climate is just one risk among many that CEOs must navigate today, from geopolitical shocks to regulatory shifts and material constraints. The good news is that the way of thinking we lay out in this article helps to build resilience across a broad spectrum of risks.

Wrong question: Aren't we insured against climate risk?

Embedded in this first frequently asked question is an assumption that climate change is mostly a physical risk to property and that insurance covers that exposure. It's true that in moments of crisis, insurance usually covers physical damage to buildings and some business interruption, but it typically doesn't fully cover many other potential impacts, including customers lost, cash-flow degradation from reduced demand over time, the supply chain that reroutes around you, regulatory fines, reputational damage, and margin compression from input inflation. And the chronic effects of climate change, things such as water access and labor productivity during heat stress? Those typically can't be insured at all.

In Thailand's 2011 floods, Toyota was lucky; its plants did not flood. Even so, due to the disruption of its broader supply chain, the automaker missed its production plan by approximately 260,000 vehicles. Later, analyst reports found that revenue losses were not covered for many affected companies, including car manufacturers, because supplier disruptions related to flooding were not included in the contingent business interruption policies.

Such indirect and cascading business impacts often exceed the direct physical damage of a climate event. According to Swiss Re and Lloyd's, damage to logistics nodes or other supply disruptions as well as damage to energy, water, and transportation infrastructure are often the greater exposure. The resulting business interruption can damage a company's brand and reputation for the long term.

Insurance and hedging buy time, but they can't replace a comprehensive risk strategy. Data shows that natural disaster losses are growing between 5% and 7% each year in real terms while the gap between total and insured losses remains large *(see Figure 1)*. Hedging buffers short-term price volatility, but when the disruption is structural, the hedge rolls off into a changed reality. While insurance is a helpful tool for managing through crisis events, it won't sufficiently address critical climate challenges in the broader supply chain or those that involve chronic risk.

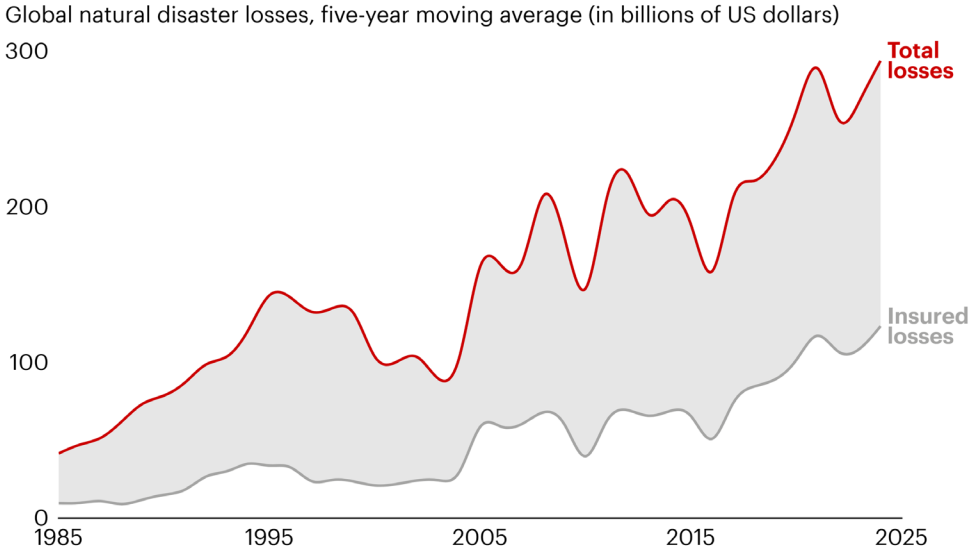
Ask instead: Where can our business break?

Different businesses are exposed in different ways. For some, their weakness is concentrated asset exposure. Others are vulnerable beyond their own walls, in network nodes, correlated supplier risk, or inputs that are structurally threatened.

Companies can start to answer this question by mapping the full value chain from their own assets through their suppliers, including critical inputs, key logistics routes, and customers. Then, they can determine which risks can't be insured, including indirect and cascading impacts, and quantify exposure at each potential breaking point. With a broader view on risk, companies can deploy a full range of resilience strategies far beyond insurance.

A tourist destination may be able to recover from a damaging wildfire; it won't survive increasing heat and drought leading to a chronic decline in travel, visitors, and ultimately cash flow. The summer after the extreme heat of 2022, planned Mediterranean travel dropped 10%, according to the European Travel

Figure 1: The gap between total and insured losses remains large



Notes: Data through May 2025; natural disasters exclude droughts and heat waves
Sources: Munich Re's NatCatSERVICE; Bain analysis

Commission, as visitors chose cooler destinations. This summer's record heatwave, which has Spain topping 45°C, has further raised concerns about the long-term economic impact of steadily warming summers.

Wrong question: What's the ROI on resilience?

For certain businesses, physical climate risk can pose potentially catastrophic, hard-to-predict tail risk, similar to that of a cyberattack. When those companies discuss the return on their resilience investment, rather than focus on near-term financial impact, they'd be better off managing resilience as a business necessity akin to cybersecurity. No board expects a three-year payback on their cybersecurity program. The question isn't *whether* to invest but *how much*.

Ask instead: How can we thrive even as others fail?

Properly answering this question requires overcoming two misconceptions—namely, that resilience is expensive and that the only return is loss avoidance.

Misconception No. 1: Resilience is expensive. Most businesses make decisions every day that will determine their climate exposure without considering or accounting for their climate cost. Retrofitting after the fact can cost orders of magnitude more and may not be possible for decades for long-lived assets. What if, instead, every site selection, asset design, asset refurbishment, contract renewal, and capex approval were treated at the beginning as an opportunity to embed resilience at marginal cost?

Our analysis of almost 150,000 assets in 12 sectors shows that these moments that matter exist for every asset, but when they occur and how often differs greatly by sector. Solar and data centers have short cycles and frequent moments that matter *(see Figure 2)*. For offshore wind, liquefied natural gas, and nuclear power that's being built today, those moments are now, during design, and before they even come online.

More established, capital-intensive sectors such as cement, steel, and ethylene have useful lives measured in decades and refurbishment cycles of 25 to 35 years. For them, each scheduled refurbishment is a rare, high-stakes opportunity *(see Figure 3)*.

Misconception No. 2: The only return is loss avoidance. Climate shocks don't just destroy value; they transfer it.

The great majority of Publix supermarkets sit in hurricane zones in the southeastern US. Following the 2004–2005 storm season, which forced hundreds of stores to close, the company spent more than $100 million on 400 backup generators in anticipation of future storms. In 2017, when Hurricane Irma hit Florida, Publix was able to reopen most of its storm-shuttered stores within two days, well ahead of peers, thanks to its forward planning, and attribute $250 million in revenue to hurricane-related demand. The company has continued to enjoy steady growth since.

Figure 2a: The young solar fleet offers a critical window to build resilience: 79% of plants face upcoming refurbishment, while one-fifth of plants—two-thirds of capacity—have yet to be built

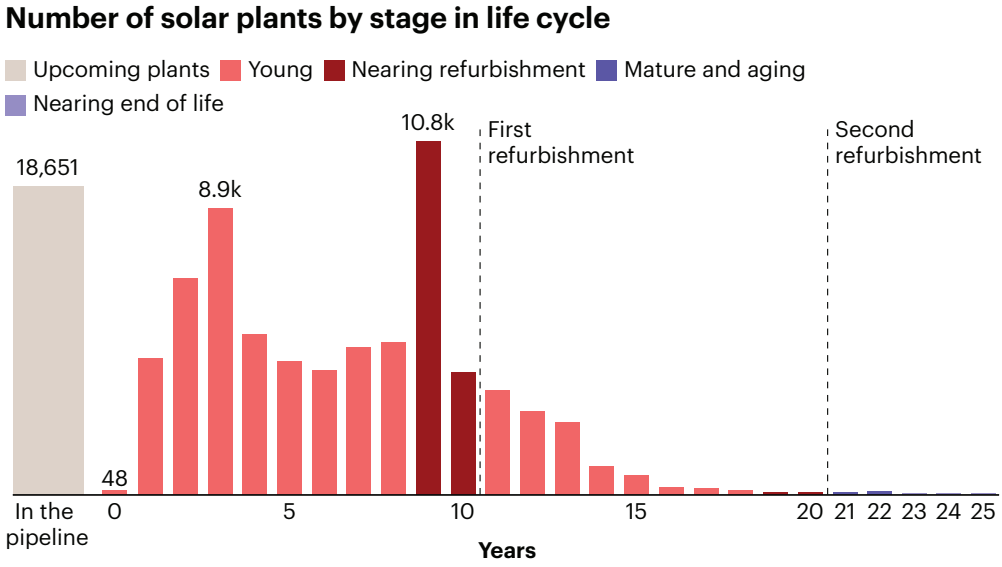
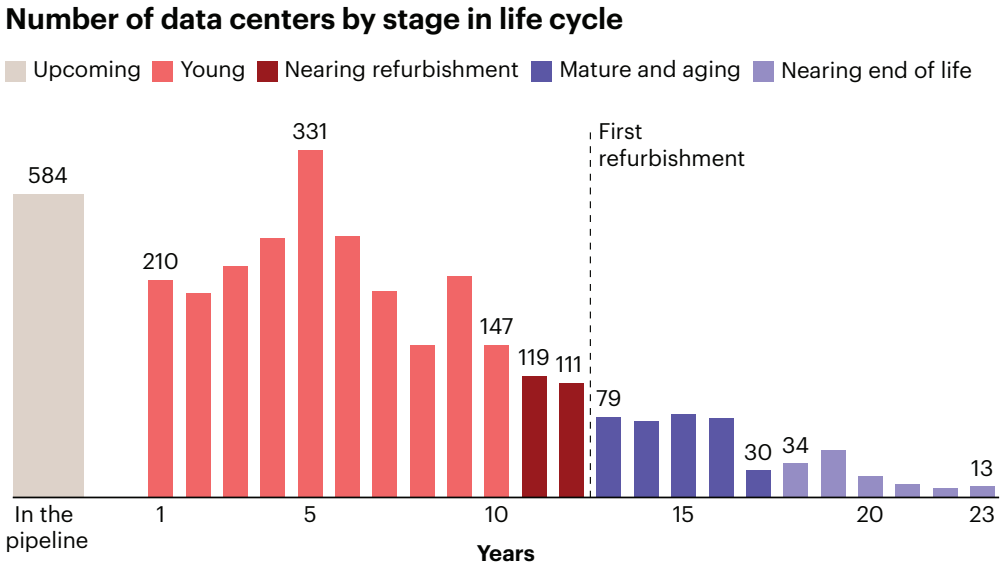
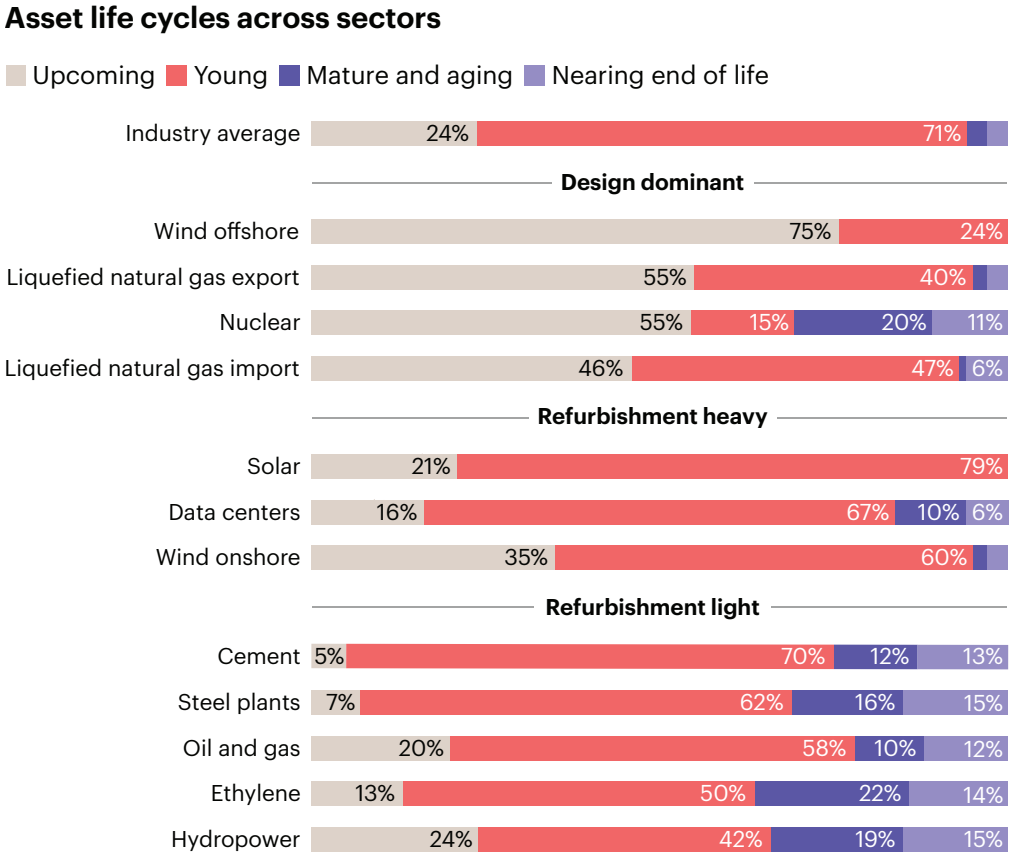


Figure 2b: Data centers' costly components last about 12 years, giving them one shot at refurbishment over a 20-year useful life



Sources: Global Energy Monitor; Omdia; Bain analysis

Figure 3: Asset life cycles and refurbishment cycles across sectors



Note: Totals may not equal 100% due to rounding
Sources: Global Energy Monitor; Omdia; Bain analysis

Publix added revenue and market share growth, thanks to its strong performance after Irma, but it is also critical to avoid losses when possible. In 2018, Europe's Rhine River set record-low water levels and prevented chemical producers from shipping their products and raw materials, forcing them to shut plants and declare force majeure. That crisis cost BASF $280 million, and afterward, the company invested in early-warning systems, low-water barges, and alternative logistics. When water dropped again in 2022, those investments meaningfully reduced both the number of days that BASF's business was disrupted and its shipping costs.

Today, with Rhine water levels hitting new record lows, Hungary's sole nuclear power plant being forced to shut down due to record-low water levels in the Danube, and wildfires blazing across different regions, European companies are recognizing that they must follow BASF's lead and prepare for a new climate reality.

The goal is not to be perfectly resilient. That's not possible. It is possible, however, to be more resilient than competitors, and the best moment to take these steps is up front and often in sync with natural upgrade and investment cycles. Late movers may find their options limited.

Wrong question: Haven't we diversified our suppliers?

For many companies, the biggest climate risks are upstream in the potential impact on availability, price, or input materials. The natural response is to seek protection by diversifying. Unfortunately, for globally traded commodities, a supply shock anywhere drives up prices everywhere, and diversifying your suppliers or sourcing regions doesn't insulate you from that. And for inputs that are perishable, don't travel well, or can only be produced in specific conditions, geographic options are inherently constrained.

Across sectors, it's common for critical production to concentrate in a handful of climate-exposed places: Palm oil is found in about half of all packaged supermarket products, and roughly 85% of palm oil comes from Indonesia and Malaysia; many semiconductor fabs are in drought-prone Taiwan; pharmaceutical companies rely on water-stressed regions of India and China for key ingredients; and critical minerals for technology and other products sit in arid mining belts.

While diversification can help, it's clearly only one part of a comprehensive approach to climate risk.

Ask instead: What keeps supply flowing when diversification isn't enough?

Start to answer this by identifying the input materials at risk, where that risk is correlated across suppliers and regions, and the implications for your ability to serve customer demand. Two paths follow from there.

First, consider what flexibility you have to substitute materials or serve your customers with alternatives. Value chains that depend on palm oil, for example, can be made more resilient by developing ways to reformulate, using other oils if supply runs short or prices spike. Where feasible alternatives don't exist, build flexibility into other aspects of operations, including adding redundancy or buffer stocks and securing direct agreements with suppliers that lock in volume and price over the medium term.

For inputs that remain exposed even while those levers are exhausted, engage upstream to make the supply source itself more resilient. Strengthen suppliers' own capabilities, fund R&D (for example, into adaptable climate-resilient crop varieties), and develop new production regions early enough to carry real volume when they're needed. This is the path of Nestlé's "Nescafé Plan 2030," which commits more than $1 billion to coinvesting with farmers in Brazil and Colombia on regenerative agriculture, high-yielding climate-resilient coffee varieties, and agroforestry.

Asking the right questions changes everything

By asking the right questions, executives can build resilience, create competitive advantage, and avoid the potentially terminal risk of unmanaged climate exposure. Seizing the moments that matter to invest in adaptation and resilience and protect value at little to no incremental cost is critical.

The executive who asks, "Are we insured?" or "Are we diversified?" gets a pass, but on the wrong test. Leaders on climate resilience over the next decade will ask the right questions and then take appropriate action before their exposure is locked in.

GETTING IT DONE

Make Better. Sell Better. Protect Better: How Sustainable AI Creates Value

Many executives overestimate AI's footprint. Leading companies focus on where AI creates the most business value.

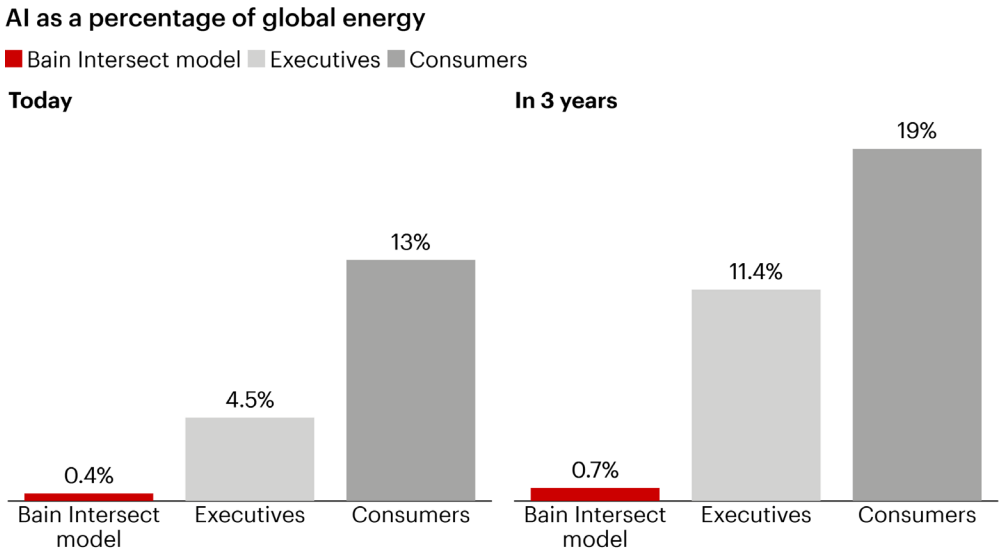
By Wissam Yassine, Harry Morrison, Martha Moreau, and Krystle Jiang

At a Glance

- Bain forecasts AI will consume 0.7% of global energy in three years, but executives predict 16 times that, and consumers 27 times.
- While most consumers are now acting on their concerns about AI, companies don't see its environmental impact as a barrier.
- Ninety percent of "shapers" see a major opportunity in sustainable AI, but among laggards, confidence is falling.
- Among business leaders, 75% cite unclear ROI as the leading AI barrier; for sustainability professionals, it's compliance.

Ask senior executives what share of global energy AI will consume three years from now, and the typical answer is likely to be around 11%. Consumers' average estimate is even higher at 19%. But Bain's proprietary climate-economic modeling tool, Intersect℠, forecasts 0.7%. The gap between perception and forecast is enormous: nearly 16-fold among executives and almost 30-fold among consumers *(see Figure 1)*.

Figure 1: The average executive and consumer vastly overestimate AI's share of global energy



Sources: Bain Sustainable AI Survey 2026 (n=400); Bain Consumer Lab ESG Survey 2026 (n=7,499); Bain Intersect model

Their calculations may be off, but their concern is real. The share of Americans more worried than excited about AI rose from 37% in 2021 to 50% in 2025, according to data from the Pew Research Center. In Bain's consumer research, nearly two in three respondents report taking concrete action due to their concerns about AI, such as limiting what they share, switching platforms, dropping certain tools, or speaking out publicly.

This concern is not mirrored inside companies. In our second annual survey of 400 senior professionals responsible for AI and sustainability decisions across industries and regions, AI's environmental intensity ranked tenth out of thirteen barriers to sustainable AI. Only 22% of respondents placed it among their five greatest challenges.

Companies are focused on other challenges: proving the value, building the capabilities, and creating the data and standards needed to scale.

With two years of data, companies' direction of travel is becoming clear, and increasingly divergent. Two divides are opening: one between companies, the other within them.

The first is between companies that are learning and companies that are losing faith. We identified a small group of sustainable AI leaders we call "shapers," representing about 20% of the sample, based on their AI maturity, breadth of adoption, reported value, and overall sustainability maturity. Among these companies, belief in AI's sustainability potential remains close to 90%, down just four percentage points

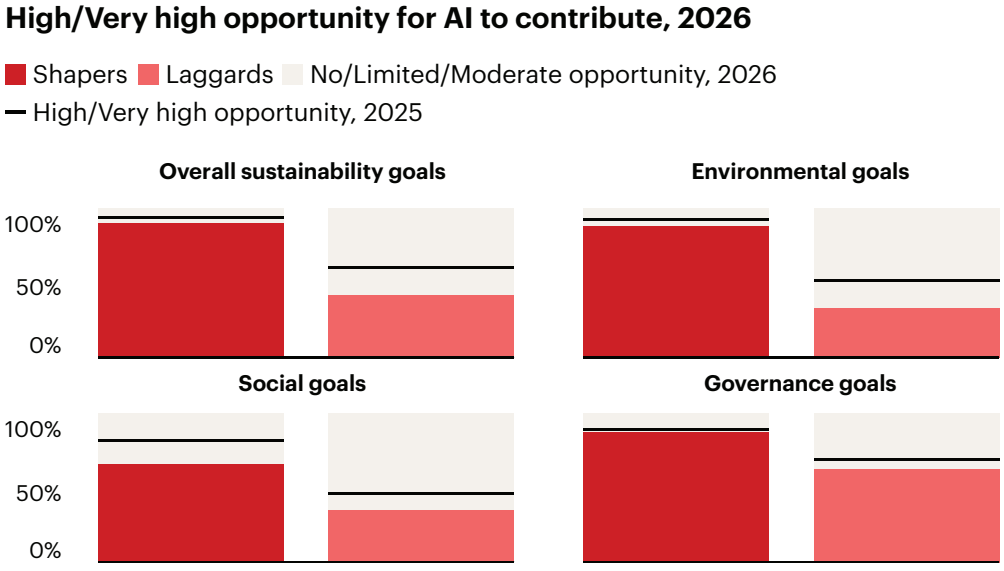
from last year. Confidence among "laggards," the companies at the opposite end of the spectrum, was far lower and fell further from last year, to 41% from 57% *(see Figure 2)*.

Shapers' modest decline reflects the calibration of experience. This group has actively adopted 86% of the sustainable AI use cases in our survey, compared with just 31% for laggards. That breadth of deployment gives shapers a more grounded view of what AI can deliver. Their expectations may have narrowed, but they are now anchored in tangible results.

Laggards have fewer results against which to judge. They started slowly, and their confidence is falling even before they have built the capabilities needed to test the opportunity. They are only about half as likely as shapers to invest in quality sustainability data or upskill their people, and less than half as likely to codevelop tools with partners. There's a danger that laggards lose conviction just as leading companies accumulate the experience and evidence to move faster. A year ago, shapers and laggards were separated mainly by adoption. Today, they're separated by belief and capability as well.

In addition to this divergence between companies, there is a second divide within companies, between the people building the case for sustainable AI and those making the business decisions needed to scale it *(see Figure 3)*. In our survey, the central concern for general managers and C-suite executives is return. Seventy-five percent of this group identify an unclear business case or ROI as a leading barrier to deploying sustainable AI. When evaluating sustainable AI investments, they rank financial return first.

Figure 2: Ninety percent of shapers see AI as a major opportunity to advance their sustainability goals, but laggards' confidence is far lower, and dropping



Sources: Bain Sustainable AI Survey 2026 (n=400); Bain Sustainable AI Survey 2025 (n=400)

Figure 3a: When evaluating investments, business leaders focus on ROI, while sustainability leaders focus on compliance

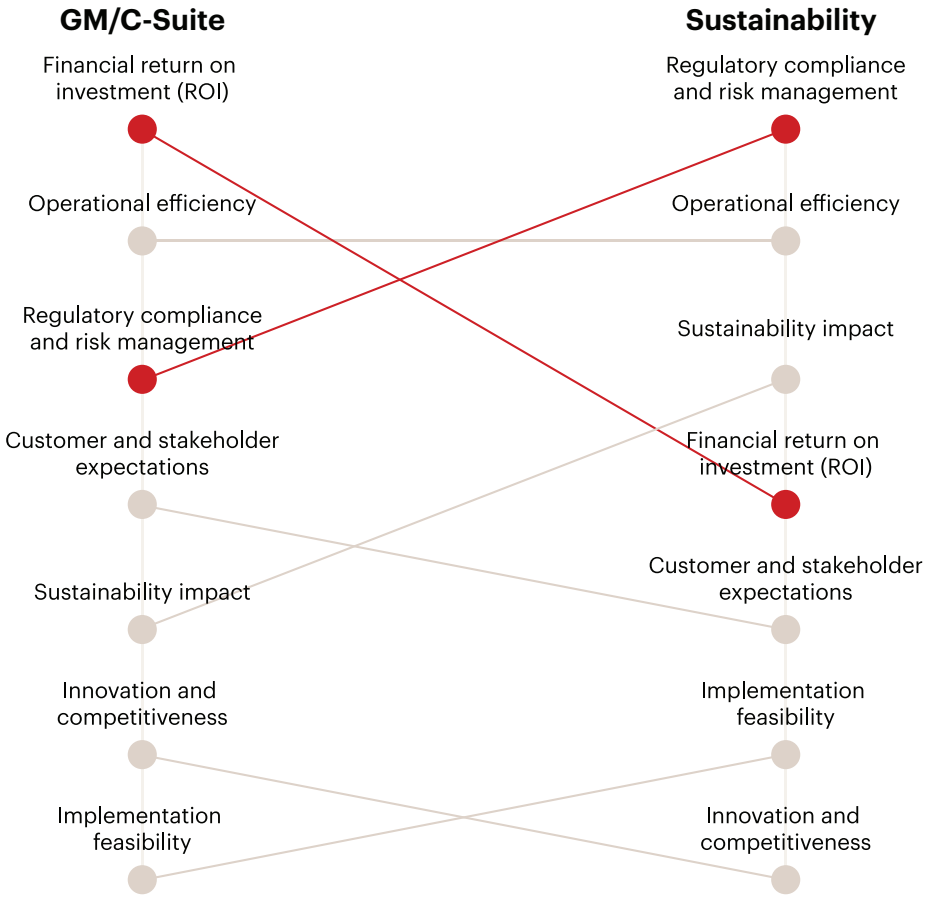
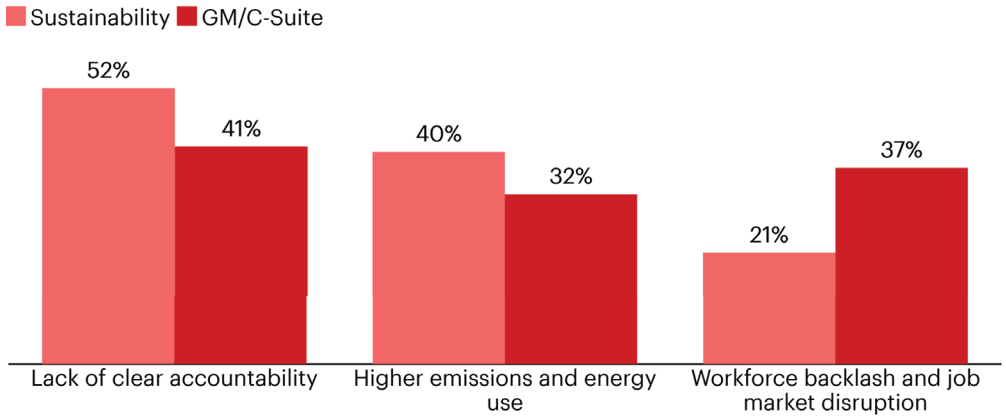


Figure 3b: When evaluating risk, sustainability professionals worry about a lack of accountability and emissions footprint, but business leaders look more at workforce impact



Source: Bain Sustainable AI Survey 2026 (n=400)

The sustainability professionals we surveyed identify different constraints. For this group, data quality and the absence of clear standards rank ahead of ROI. When evaluating sustainable AI investments, they place regulatory compliance and risk management first, and financial return fourth.

These groups also approach risk from different directions. Business leaders are more alert to workforce disruption, employee anxiety, and trust, while sustainability professionals focus on energy, emissions, and disclosure.

One group is asking about revenue, margin, and return. The other is focused on data, impact, and compliance. The case is being argued in one language and being judged and funded in another. Neither perspective is wrong, but each is incomplete. Sustainability teams need to connect materiality, data, and compliance to revenue, margin, and resilience—and give greater weight to workforce and trust. Business leaders should account more fully for environmental impacts and the data and standards required to manage them.

Across companies and functions, the clearest place to start is where sustainability and financial value are already aligned. Shapers use sustainable AI to *make better*, *sell better*, and *protect better*, and support those applications with an operating system that makes the results repeatable.

Business leaders are asking about revenue, margin, and return. Sustainability professionals focus on data, impact, and compliance.

The highest-value use cases for sustainable AI

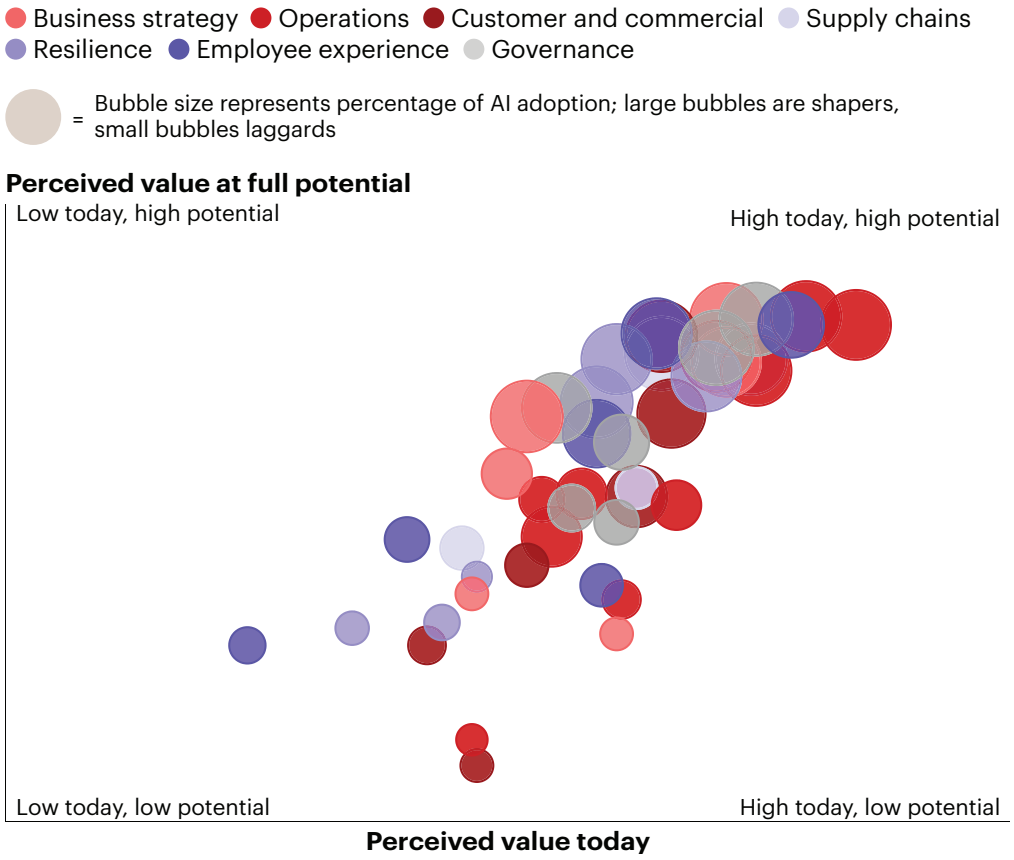
Shapers don't simply use more AI. They are more than three times as likely as laggards to adopt the highest-value AI use cases: those that improve operations, create commercial advantage, and strengthen resilience *(see Figure 4)*.

Make better: Prove value through operations

For companies struggling to prove the AI opportunity, operational applications offer the fastest route from ambition to value.

Across the companies surveyed, AI-driven sustainability starts with four things: energy efficiency, asset and process efficiency, demand forecasting, and emissions monitoring. These apply across industries, from energy and heavy industry to agriculture and consumer goods.

Figure 4: Shapers use AI more than laggards and are getting more value from it



Source: Bain Sustainable AI Survey 2026 (n=400)

Consider some of the ways technology supplier Bosch has deployed AI across its manufacturing and logistics operations. Through applications including predictive, risk-based maintenance and agentic orchestration of both inbound supplier workflows and delivery sequencing, the company has reduced unplanned downtime and streamlined logistics, generating significant efficiency gains.

The potential for such gains is broad and significant. According to the IEA, by optimizing production processes and cutting usage in energy-intensive industries, well-documented AI use cases could save more than 13 exajoules of energy by 2035, equivalent to 3% of global final energy consumption.

Sell better: Turn sustainability into commercial advantage

Here, the translation gap between business and sustainability begins to close. AI helps companies design more compelling sustainable products, identify the customers most likely to value them, and translate sustainability into growth.

Our 2025 B2B survey found that revenue growth leaders are 1.6 times more likely to use sustainability as a top-line growth lever. They develop new sustainable products and services, gain share, reach new customer segments, and earn green premiums.

Most companies, however, do not sell sustainability well. AI can help convert a broad sustainability proposition into a targeted commercial one by analyzing disclosure data at scale, identifying customers for whom sustainability matters most, benchmarking competing propositions, and generating sales plays tailored to a buyer's commitments and unmet needs.

A leading manufacturer piloted an AI-powered sales intelligence tool in one of its business units, automatically surfacing customer-specific sustainability data to help reps tailor value propositions to each buyer's needs. The team saw 80% growth in its opportunity pipeline during the pilot and secured three major retailers wins—demonstrating what embedding AI into sustainability-focused commercial sales processes can unlock.

Revenue growth leaders are 1.6 times more likely to use sustainability as a top-line growth lever.

Protect better: Put climate risk on the balance sheet

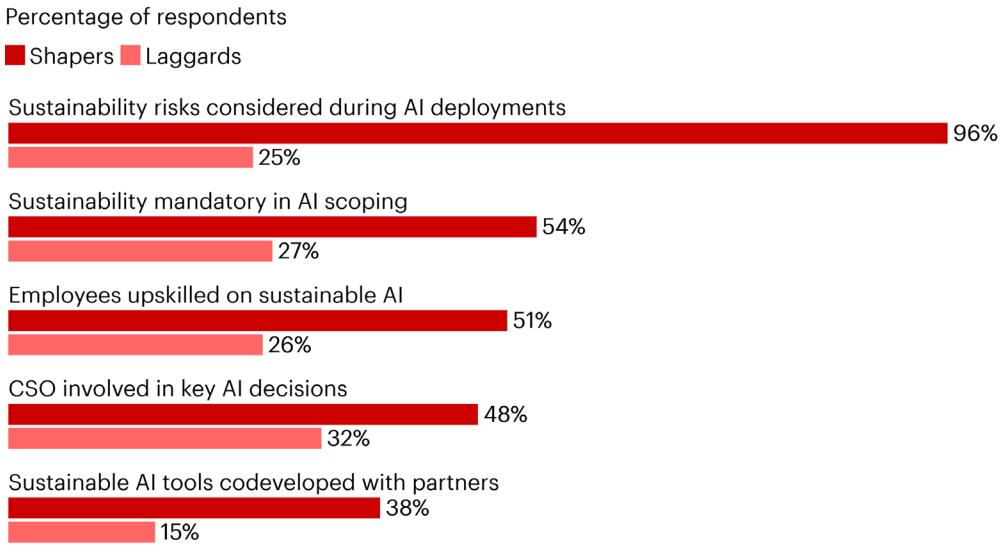
Protecting better brings the two perspectives together: Sustainability teams identify physical risks, while business teams translate those risks into capital allocation and financial value.

As the climate warms, physical climate risk is increasingly showing up in corporate financials through insurance cost inflation, asset value erosion, and supply chain damage. Companies with high physical risk exposure face a 22-basis-point premium in their weighted average cost of capital, according to Bloomberg.

Companies are beginning to use AI to help identify and manage these risks. When a leading global pension fund used AI-powered climate risk data to assess its portfolio, executives could identify which assets offered the greatest potential return from adaptation. Targeted measures could increase the value of selected properties by mid-single-digit percentages, through a combination of lower insurance and energy costs, stronger rents, and higher valuations.

AI can provide the regional and asset-level granularity needed to quantify and manage climate exposure. Shapers in our survey have adopted use cases that help them protect better at four times the rate of laggards.

Figure 5: Shapers' strategic approach to sustainable AI accelerates value and mitigates risks



Note: CSO is Chief Sustainability Officer
Source: Bain Sustainable AI Survey 2026 (n=400)

Building the operating system for scale

Finding value is only the first step. Our study shows that leading companies build an operating system that institutionalizes sustainable AI decisions from investment scoping through deployment. Shapers are twice as likely as laggards to make sustainability mandatory in AI scoping, twice as likely to upskill employees on sustainable AI, and nearly four times as likely to consider sustainability risks consistently during deployment. They connect AI to the company's material priorities; bring business, technology, and sustainability leaders into the same decisions; and assess value and risk together as applications scale *(see Figure 5)*.

That operating discipline also helps close the translation gap inside companies. Sustainable AI scales when business and sustainability leaders work from a shared definition of value, combining revenue, margin, and resilience with environmental impact, workforce effects, and trust.

The divergence in our data is likely to widen. Shapers are turning deployment into evidence and capability, while laggards risk losing conviction before they have fully tested the opportunity.

Public scrutiny of AI's footprint will continue, and companies must manage it carefully. Visionary leaders will go further: aligning their organizations around a shared case for its value and building on each deployment to strengthen the next. That is how sustainable AI becomes part of the way companies make better, sell better, and protect better at scale.

GETTING IT DONE

The New Investment Playbook for Sustainability

How investors can turn sustainability into a source of long-term competitive advantage.

By Deike Diers, Marc Lino, David Hoverman, and Jan Budde

At a Glance

- Sustainability is no longer an investment theme; it is now recognized as a source of competitive advantage.
- Companies with concentrated ownership, including private and PE-owned companies, are accelerating decarbonization and the creation of long-term value.
- A strong understanding of climate risk and policy has become a competitive differentiator among investors.
- Leading investors allocate capital to businesses benefiting from sustainability-linked disruption.

Over the past decade, sustainability investing has undergone a profound transformation. What began as a distinct investment category and portfolio management activity has evolved into something much more fundamental: a determinant of competitive advantage, capital allocation, and long-term enterprise value. Today, many investors weave sustainability into every step of finding, assessing, and managing investments.

Investors now have something they didn't 10 years ago: evidence that sustainability can create added value when the right conditions align. Certain sustainability investments, such as renewable energy, have dramatically outperformed expectations. Others, including green aluminum and hydrogen fuel cell

vehicles, have failed to scale. As a result, some companies created substantial value through decarbonization, while others spent years preparing but fizzled.

This has fundamentally changed the questions investors should ask—both about where to invest next and how to create value in companies they already own.

Sustainability has become a source of competitive advantage

Many observers have concluded that sustainability is in retreat, but sustainability investing is evolving, not disappearing. There have been three distinct waves of investment, each with a different primary source of value creation.

- **Wave 1: Sustainability as investment theme (before 2022).** Capital flowed into renewable energy; sustainable mobility; clean manufacturing; environmental, social, and governance (ESG) software; and other areas until rising interest rates and a decline in the perceived importance of sustainability shifted investor attention toward profitability and cash generation.

- **Wave 2: Sustainability as operational lever (2022 to 2025).** Fund flows to sustainability and ESG-labeled funds slowed amid higher interest rates, greenwashing scrutiny, political backlash, and a renewed focus on cash generation. But rather than disappearing from the investment agenda, sustainability moved to the operating plan. Investors increasingly asked how sustainability could improve traditional businesses through lower energy intensity, smarter procurement, circularity, supply chain resilience, decarbonization, and customer access. In this phase, the key question shifted from "Is this company green?" to "How can sustainability improve its cost, risk, revenue, or growth?"

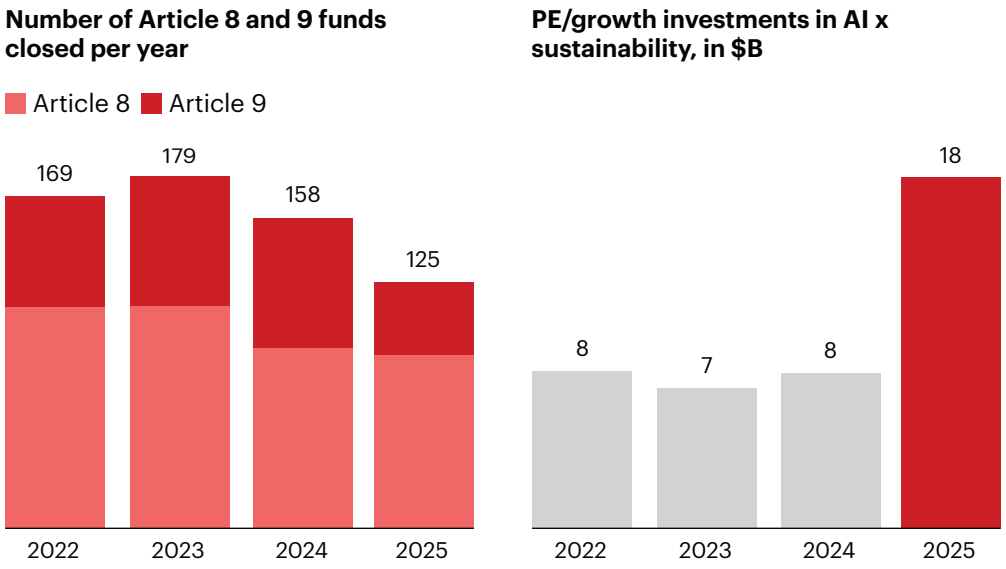
- **Wave 3: Sustainability as intrinsic advantage (2025 onward).** As diverging transitions reshape certain industries, today's defining question has become "How can we leverage sustainability-linked disruptions as a source of competitive advantage?"

As a result of this evolution, investors active in these industries are focusing less on sustainability-labeled sectors and more on the sustainability-linked constraints and inflection points reshaping those industries. Access to renewable power, grid capacity, critical materials, water availability, resilient supply chains, and adaptation infrastructure have jumped from niche sustainability topics to constraints determining which companies grow and which cannot.

Although investors are raising fewer sustainability-focused funds, capital is flowing increasingly to companies positioned to create value as sustainability reshapes industry economics *(see Figure 1)*. The share of investments into companies that link AI or data center infrastructure and sustainability (renewable electricity and transmission infrastructure for data centers, for example) more than doubled from 2024 to 2025, according to Bain analysis of PitchBook data.

Global alternative asset manager Brookfield's acquisition of renewable energy company Neoen illustrates this trend. The investment thesis focused on securing access to one of tomorrow's scarcest industrial inputs: the renewable electricity required to power AI infrastructure.

Figure 1: While fewer sustainability funds are launched, investment is up in sectors whose economics can be reshaped by sustainability



Notes: Includes buyout/leveraged buyout (LBO), growth/expansion, later-stage venture capital (VC), and asset acquisition deals by PE and infrastructure investors; sustainability defined as PitchBook deals matching Bain sustainability themes across energy transition, decarbonization, circular economy, water/waste, sustainable mobility, agtech/food, environmental, social, and governance (ESG)/environmental, health, and safety (EHS) software, and related themes; AI/data center-linked defined as sustainability deals also tagged AI/ML, data center, or colocation
Sources: PitchBook; Bain analysis

Investors are similarly looking at ways to invest in a world of increasing physical risk from extreme heat, flooding, wind, storms, and water stress. The business opportunity in helping the world adapt to climate change is large and growing, from about $1 trillion today to an estimated $4.4 trillion by 2050, according to research by Bain and GIC. Lightsmith Group, a growth equity fund focused on resilience and adaptation, invests in businesses whose value proposition strengthens as climate disruption increases. One example: AiDash, which uses satellite imagery and AI to help utilities reduce outages, manage vegetation, and respond better to climate-related risks. Its focus is on helping clients anticipate and manage physical climate risks, not simply reduce emissions.

Such investment opportunities can be found across a variety of sectors as companies and value chains adapt to new environmental hazards. And only some of this additional business potential is priced into current valuations.

Importantly, these investments don't depend on sustainability labels. They focus on structural constraints that investors believe will become increasingly valuable over time.

Concentrated ownership creates an execution advantage

Just as investors have updated how they select their holdings, they have also redefined the way they create value in their portfolio companies. Decarbonization has shifted from being primarily a compliance

exercise to an increasingly important driver of operational performance and resilience, with implications for long-term enterprise value. Today, the relevant question is, "How do I help my portfolio companies decarbonize in ways that create long-term value?"

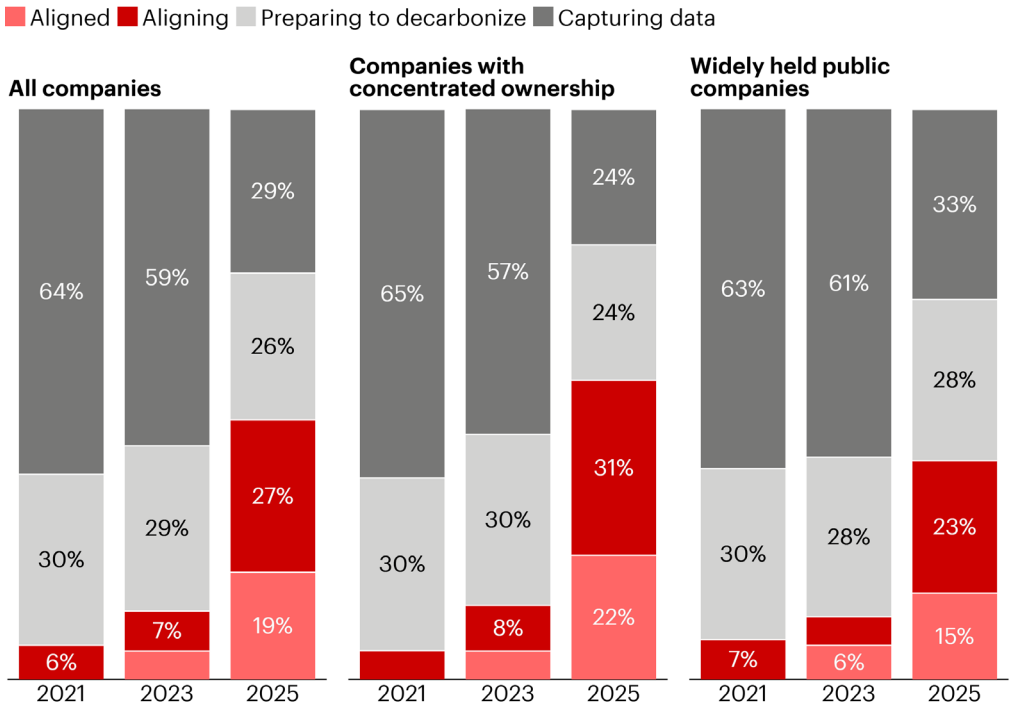
Companies have made significant progress in decarbonization over the past five years *(see Figure 2)*. Across a sample of more than 700 PE-backed, privately owned, and public companies reporting through CDP, almost half are now committed to and delivering on a science-based net-zero decarbonization plan as defined by the Private Markets Decarbonization Roadmap (PMDR).

Overall, emissions have improved materially *(see Figure 3)*.

Companies with concentrated ownership (meaning they are private, PE-owned, or have a large individual shareholder) are further along than widely held public companies. Despite being roughly half the size by revenue, 53% of companies with concentrated ownership in our universe have reached the more advanced "aligning" or "aligned" stages, compared with 38% of widely held public companies.

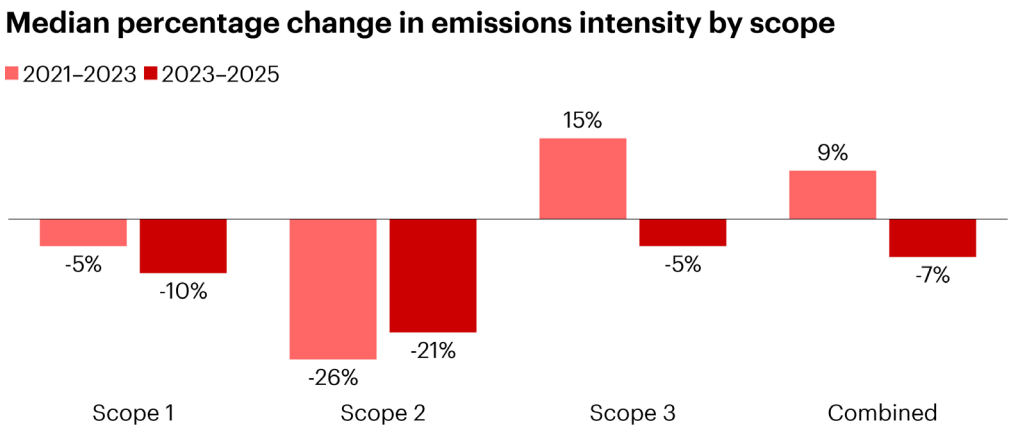
Analysis of CDP's Net-Zero Alignment Dataset also shows that private companies, on average, have more ambitious targets across Scopes 1, 2, and 3. The quality of reported emissions figures of private

Figure 2: More companies are decarbonizing, but companies with concentrated ownership have progressed faster than widely held companies



Notes: Aligning and Aligned not split out in 2021 due to emissions reduction impact of COVID; n=735 for all three years for full universe of companies; n=354 for all years for concentrated ownership; n=381 for all years for widely held public companies; companies with concentrated ownership include companies wholly owned by PE or private owners and public companies with significant single shareholder ownership by financial holding companies, family/individual investors, foundations, governments, or asset managers; totals may not equal 100% due to rounding
Sources: CDP; Bain analysis

Figure 3: Decarbonization has accelerated



Notes: n=824 for 2021–2023; n=593 for 2023–2025
Sources: CDP; Bain analysis

companies is higher, and targets are, on average, more credible, with a clear time-bound action plan defining how a company will achieve its targets.

One possible explanation is that while public ownership provides valuable market discipline and transparency, concentrated ownership may make it easier to prioritize operational investments whose value unfolds over many years and balance those with other priorities. Some long-term-oriented investors such as La Caisse (formerly CDPQ), the Canadian pension fund, see supporting portfolio company decarbonization and the transition to more sustainable business models as part of their fiduciary duty. Other pension and sovereign investors, including CalPERS, Mubadala, GIC, and Temasek, argue that investing in companies with strong sustainability practices and backing businesses positioned to benefit from sustainability-driven market shifts will drive long-term returns and strengthen portfolio resilience.

Although buyout holding periods are typically only five to seven years, private equity investors must constantly evaluate what the business will look like for the next buyer. Questions about physical climate risk, resource scarcity, insurance availability, future regulation, and customer requirements increasingly become questions about future enterprise value. As one chief sustainability officer of a European private equity fund described it: "You don't want to end up holding an asset for seven years with nobody to buy it at the end."

KKR's investment in CoolIT illustrates how sustainability can strengthen a company's strategic value proposition. CoolIT's liquid-cooling technology significantly reduces the energy and water required to cool data centers while lowering operating costs for customers. As demand for AI infrastructure accelerated, these sustainability-linked advantages became a key source of commercial differentiation, helping KKR exit with a 15 times return on its investment.

Climate risk action and policy engagement have become competitive differentiators

Bain and CDP analyzed the key characteristics of leading decarbonizers during two time periods: 2021 to 2023 and 2023 to 2025. During both periods, leading companies:

- combined decarbonization and value creation;
- set ambitious science-based targets;
- held operational leaders accountable for decarbonization; and
- collaborated across the value chain.

More recently, two new capabilities increasingly distinguish the leaders: acting on climate risk and policy engagement.

Between 2021 and 2023, simply identifying climate-related physical and transition risks strongly differentiated leading companies. Today it no longer does. More than 96% of companies in our sample now recognize acute and chronic physical risks as relevant and include them in their risk management process. Almost all do so for transition risks such as market, regulatory, and reputational risks. The differentiator has shifted from identifying these risks to acting on them.

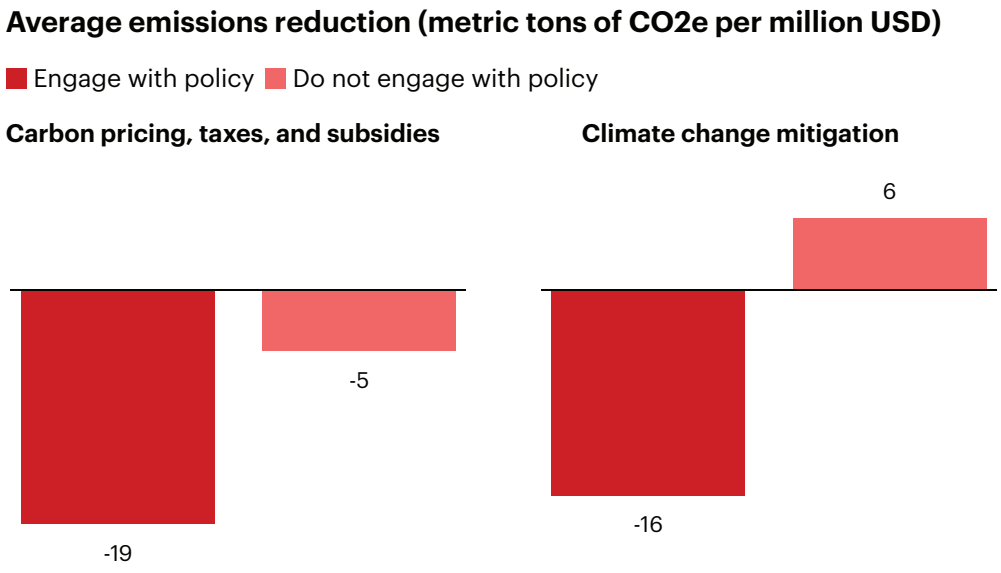
Today, fewer than 70% of companies can articulate the financial impact of the climate risks they face, and only 35% of the world's 1,200 largest listed companies have disclosed an adaptation plan. But well-designed adaptation investments generate substantial business value, returning a median of $10 for every dollar invested in responding to physical climate risk, according to CDP.

The benefit to investors is illustrated by a real estate investor's experience analyzing physical and transition risks across its portfolio and determining which high-risk properties required retrofitting or resilience investment and which were candidates for selective divestment. The effort increased net operating income through higher rents, lower energy consumption, and reduced insurance costs. The exit multiple of modernized and efficient buildings also increased.

Leading investors sometimes extend this approach beyond individual assets to entire value chains. After assessing climate vulnerabilities in its wheat and tomato supply chain, one PE-backed food manufacturer strengthened the resilience of its supply by increasing its local sourcing of ingredients and incentivizing farmers to improve their water efficiency and soil health.

Policy engagement, another differentiator, entails understanding how emerging regulation will reshape industry economics and positioning investments in anticipation of those changes. Companies that engaged with governments directly or via trade associations on carbon pricing, taxation, and subsidies reduced emissions intensity almost four times faster than companies that remained passive *(see Figure 4)*.

Figure 4: Companies that engage on key policies decarbonize more



Note: n=281
Sources: CDP; Bain analysis

Consider the competitive advantage that comes from acting before competitors do. US-based energy transition investor Energy Capital Partners' 2023 take-private of UK recycling company Biffa illustrates the investment opportunity. The acquisition was underpinned by strong UK circular economy regulation, including higher recycling targets and extended producer responsibility, which increased confidence in long-term demand and made the asset more attractive.

Building long-term advantage

Investors have learned a lot through the waves of sustainable investing. First, that sustainability increasingly creates value where it reshapes industry economics and competitive advantage. Second, concentrated ownership can be a structural advantage in executing long-term operational transformation. Third, leadership increasingly comes not from monitoring climate risks and policy developments but from turning them into competitive advantage.

Leading investors allocate capital to businesses positioned to benefit from sustainability-linked disruptions and build operational value inside their portfolio companies by strengthening resilience, accelerating decarbonization, and acting before competitors.

Once a separate investment strategy, today sustainability is an important lens for understanding long-term competitive advantage.

This chapter was written in collaboration with CDP.

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