The image of waves slowly merging on the beach reflects the essence of this report, the third edition of the *A world in balance* sustainability series. It captures the steady progress organizations have made toward sustainability goals over the past three years.

Since 2022, significant strides have been made in areas such as circularity, sustainable design, and measurement, though there is still more to achieve. This year's report highlights these advancements and explores how organizations are factoring in current geopolitical dynamics in their strategies while preparing for regulations like the CSRD. The cover design aims to convey a sense of balance and continuity within the series, moving away from stark contrasts to illustrate a more blended landscape, symbolizing a journey of consistent and steady progress.

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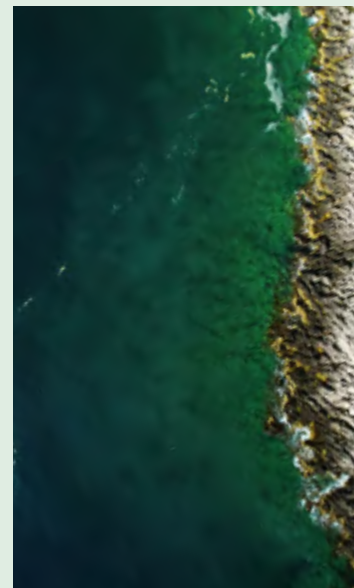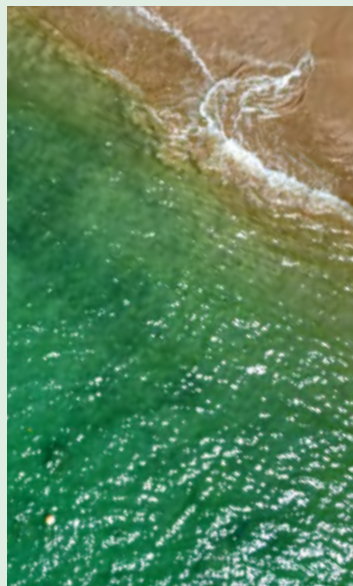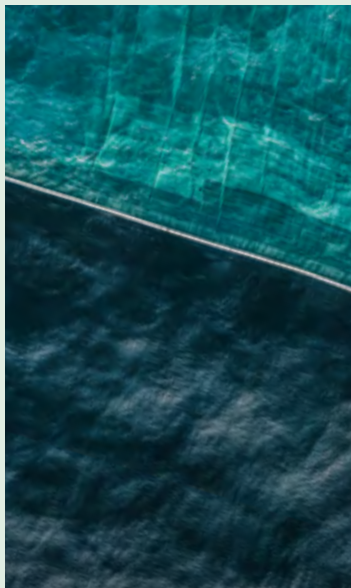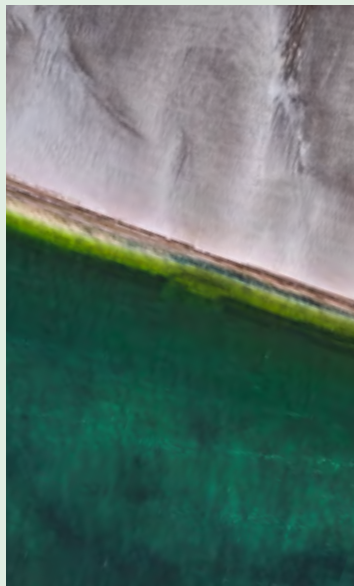
Executive summary

In this third edition of our annual *A world in balance* research series, we examine the progress organizations have made in environmental and social sustainability over the past three years and identify the drivers and challenges they face.

Since 2022, organizations have progressed steadily in sustainability. Our sustainability maturity index reveals a 22 percentage point increase in organizations' adoption of sustainable practices and initiatives from 2022 to 2024. Key areas of improvement include circularity, sustainable design, measurement and data sharing, water stewardship, biodiversity, social sustainability, and sustainability education and training. Notably,

- 72% of executives say that recycling is a core aspect of manufacturing, up from 53% in 2022

- 69% are redesigning products to remove fossil fuel feedstocks, up from 47% in 2022

- 71% say they measure industrial process energy consumption, up from 43% in 2022

- 75% have implemented a water stewardship program, up from 55% in 2022

- 66% invest in natural habitat conservation, up from 43% in 2022

- 61% use an external third party to disclose their social impact, up from 49% in 2022

- 73% train employees on sustaining the environment, up from 52% in 2022

Regulations have and will continue to drive sustainability efforts, accelerating measurement and tracking capabilities. Three-quarters of executives believe regulation is necessary to achieve global climate goals. However, many organizations remain unprepared for the EU Corporate Sustainability Reporting Directive (CSRD) and other upcoming regulations. There is still room for

Executive summary

improvement, particularly in tackling Scope 3 emissions. Of the organizations in our survey that must submit their first CSRD report in 2025, only 38% are prepared to report Scope 3 downstream emissions in 2025, and 56% are prepared for Scope 3 upstream emissions.

Two-thirds of executives recognize that climate tech, such as low-carbon hydrogen, industrial carbon capture, and electrification, is crucial to reducing greenhouse gas (GHG) emissions and hitting sustainability targets. Sixty-nine percent of executives also agree that data and digital technologies will accelerate climate tech adoption. However, they must weigh these advantages against high costs, skills shortages, and regulatory uncertainty.

Our research reveals that sustainability is geopolitically and politically sensitive. There are scenarios in which geopolitics can accelerate sustainability; however, our research reveals a pessimistic sentiment among executives regarding the impact of current geopolitics on sustainability, which could serve as a potential disrupter to the momentum. Most executives (65%) believe current geopolitical dynamics are driving a slowdown in sustainability investments. Sixty-nine percent are also concerned about the impact of the uncertain political environment in the US and other regions on their sustainability investments and projects.

67%

of executives say that their organization will never be able to achieve its sustainability goals without climate tech

Executive summary

65%

of executives believe current geopolitical dynamics are driving a slowdown in sustainability investments

It is surprising that at a time when organizations are making progress, consumers are becoming much more skeptical. Our findings reveal that organizations are struggling to convince consumers of their progress. Despite corporate awareness of greenwashing, consumers are increasingly skeptical and distrustful of their claims. The percentage of consumers who believe that organizations are greenwashing their sustainability initiatives increased to 52% this year from 33% in 2023. Consumers also expect corporations to play a larger role in reducing GHG emissions and demand greater transparency and accountability.

The report concludes with recommendations to help executives accelerate sustainability transformation and drive lasting impact by preparing for regulatory changes and geopolitical uncertainties and elevating water and biodiversity as key strategic priorities. By prioritizing customer centricity in sustainability strategies, embedding circularity in the full value chain, investing in climate tech solutions and digital technologies, and ensuring the achievement of sustainability goals are an enterprise-wide focus, organizations will build trust and credibility with consumers and drive innovation and business value.

52%

of consumers globally believe organizations are greenwashing their sustainability initiatives
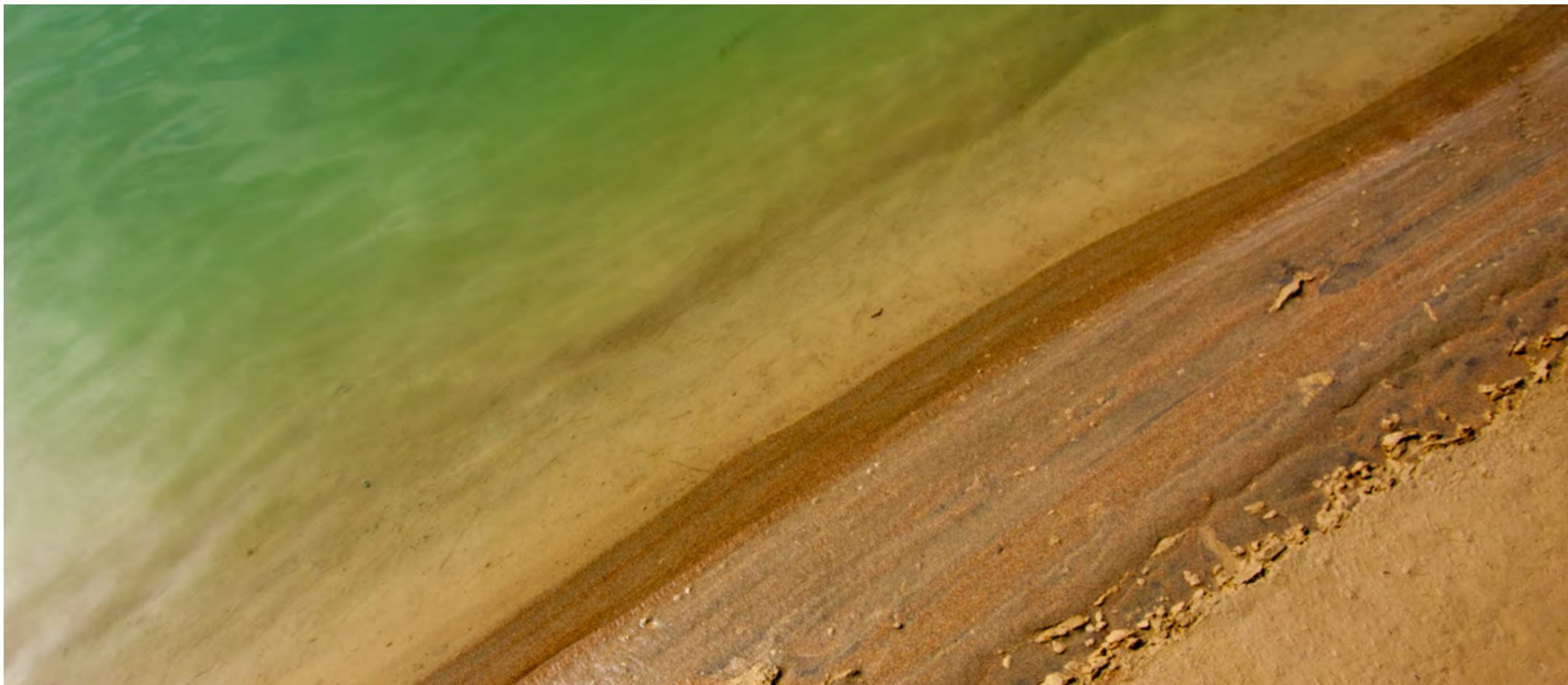
This report is part of Capgemini Research Institute's series on sustainability

Commit	Act			Monitor and Report
Sustainability strategy and governance	Sustainable products	Sustainable operations, manufacturing, and supply chain	Sustainable technology	ESG management and reporting
A World in Balance - annual sustainability trends research				
The eco-digital era: The dual transition to a digital and sustainable economy	Sustainable product design	Food waste	Climate tech	Data for net zero
Biodiversity		Sustainable IT	Green hydrogen	
Three editions of *Conversations for Tomorrow on* sustainability, climate tech, and the dual transition		Sustainable operations	Inclusive tech	
Digital skills and education		Sustainable supply chain*	Generative AI and sustainability*	
Gen Alpha/Z and sustainability*		Gigafactories*	The future of batteries*	
			Carbon capture*	
Sustainability in automotive				
Sustainable aviation*				

(left axis label: Social sustainability)

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Who should read this report and why?

This report is – first and foremost – for Chief Sustainability Officers (CSO). It offers recommendations to help CSOs accelerate their sustainability journeys. Given the importance of sustainability to both corporate (e.g., strategy, marketing, finance, human resources) and value chain functions (e.g., R&D, procurement, manufacturing), this report will also make an interesting read to the wider C-suite.

This report offers insights into important sustainability trends, both environmental and social, for the global corporate sector, analyzing shifts in key trends over the past three years. Large organizations across sectors and industries with the aspiration to social and climate impact, including aerospace and defense, agriculture and forestry, automotive, consumer products

and retail, energy and utilities, financial services, healthcare and life sciences, industrial manufacturing, public sector/government, and telecom, will find this report valuable.

This report is based on original findings from a comprehensive industry survey of 2,152 senior executives (director level and above) from 727 leading organizations across 13 countries with annual revenue above $1 billion. Half of surveyed executives work within corporate functions, and the remaining 50% come from value chain functions. We also interviewed senior sustainability executives at leading organizations and conducted a global survey of 6,500 consumers. Please see the research methodology at the end of the report for more details.

01 | Organizations have steadily progressed on sustainability

Progress has been made across sustainability topics

To benchmark organizations' progress on sustainability over the past three years, we developed a sustainability index across 93 questions in our sustainability framework (refer to Figure 30). We took 2022 as the base year. An index value of 100 indicates that a result matches the baseline average; an index of 200 means the result is double the average; and an index of 50 means it is half the average.

Overall, the maturity of organizations in adopting sustainable practices and initiatives increased by 12 percentage points from 2022 to 2023 (an index of 112) and 10 percentage points (pp) from 2023 to 2024 (an index of 122), representing a cumulative increase of 22% over the three-year period (see Figure 1). In addition, 84% of executives in our survey this year say their organization is on target to meet its emissions goals; only 9% say they are behind.

By country:

- Australia has made the most consistent progress, year on year. Its sustainability index moved from 100 in 2022 to 106 in 2023 to 120 in 2024, representing a 6pp increase and 14pp increase, respectively.

- The Netherlands maintained relatively consistent progress between 2022 and 2024, moving from 100 in 2022 to 120 in 2023 to 137 in 2024 (20pp and 17pp, respectively).

- After a slight decline in their sustainability index in 2023 for France and Spain (5pp each), both countries improved significantly in 2024, rising to 110 and 125, respectively.

By sector:

- The consumer products manufacturing industry has made the most consistent progress, year on year. Its sustainability index moved from 100 in 2022 to 115 in 2023 to 127 in 2024, representing a 15pp increase and 12pp increase, respectively.

- The financial services sector improved most significantly in 2024. The industry's index was 108 in 2023, rising to 138 in 2024, representing a 30pp increase.

- The industry with the least improvement is utilities, which had an index of 103 in 2023 and 108 in 2024.

Figure 1.

Sustainability index by country and by sector, 2022–24

Country*	2022 Base	2023 Index	2024 Index	Sector**	2022 Base	2023 Index	2024 Index
Australia	100	106	120	Aerospace and defense	100	111	113
Canada	100	113	114	Automotive	100	116	121
France	100	95	110	Consumer products manufacturing	100	115	127
Germany	100	99	92	Energy	100	108	118
India	100	124	105	Financial services	100	108	138
Italy	100	100	142	Healthcare and life sciences	100	121	133
Japan	100	99	124	Industrial manufacturing	100	116	116
The Netherlands	100	120	137	Public/government	100	119	123
Spain	100	95	125	Retail	100	105	128
Sweden	100	119	120	Telecom	100	110	115
UK	100	111	118	Utilities	100	103	108
US	100	109	114				
Global average					100	112	122

Source: Capgemini Research Institute, Sustainability transformation trends survey, August–September 2022, N = 2,004 executives; August–September 2023, N = 2,001 executives; June–July 2024, N = 1,859 executives.
*Norway is excluded since it was not covered in the 2022 research.
**Agriculture and forestry is excluded since it was not covered in the 2022 or 2023 research.
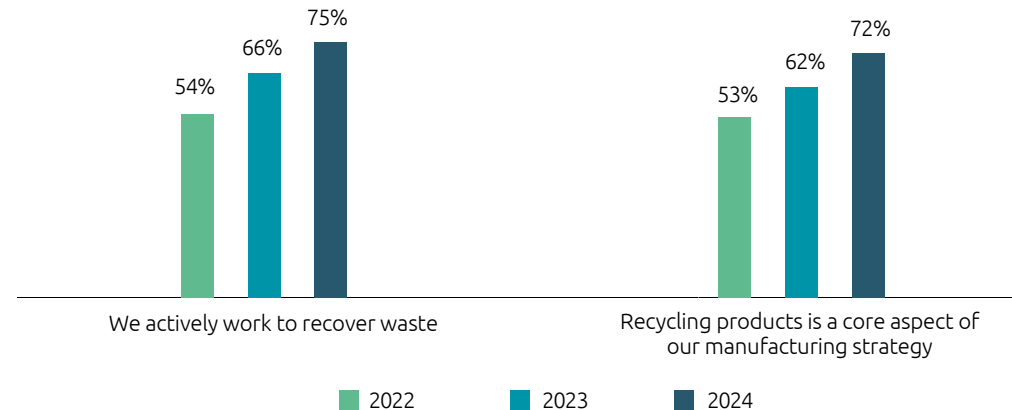
For a growing number of organizations, circularity is a key focus

Circular systems are critical to sustainability, aiding resource conservation, waste reduction, and energy efficiency. A healthy 72% of all organizations in this year's survey say that recycling products is a core aspect of their manufacturing strategy, up from 53% in 2022 (see Figure 2). Thomas Becker, Vice President Sustainability, Mobility at BMW Group, expands: *"We have a dedicated vehicle dismantling facility and we find effective recycling methods and processes, for example, avoiding contamination of steel and aluminum. There is huge potential for the recycling sector in cars."* It is estimated that only 7.2% of materials are cycled back into the economy globally.[1] Recycling alone is not enough to achieve substantial progress. It is crucial to reform policies, industries, and behaviors that contribute to environmental exploitation.[2]

Figure 2.
Recycling is a key part of the manufacturing strategy at most organizations

% of executives who agree with the statements

	2022	2023	2024
We actively work to recover waste	54%	66%	75%
Recycling products is a core aspect of our manufacturing strategy	53%	62%	72%

Source: Capgemini Research Institute, Sustainability transformation trends survey, August–September 2022, N = 1,001 executives in value chain functions; August–September 2023, N = 1,000 executives in value chain functions; June–July 2024, N = 923 executives in value chain functions.
The waste statement was only asked of executives in value chain functions from industrial manufacturing, consumer products, life sciences, automotive, telecom and aerospace and defense.

Sustainable design capabilities have grown steadily

Organizations have been pushing sustainable design principles and talent over the past three years. As many as 67% of organizations said they were redesigning products to have a lower impact on forests in 2024, up from 44% in 2022. Similarly, 47% of organizations said they were removing fossil-fuel feedstock sources from products, rising to 69% this year (see Figure 3). Our previous research reveals that more than two-thirds (67%) of organizations saw a reduction in carbon emissions due to the implementation of sustainable product design strategies.[3]
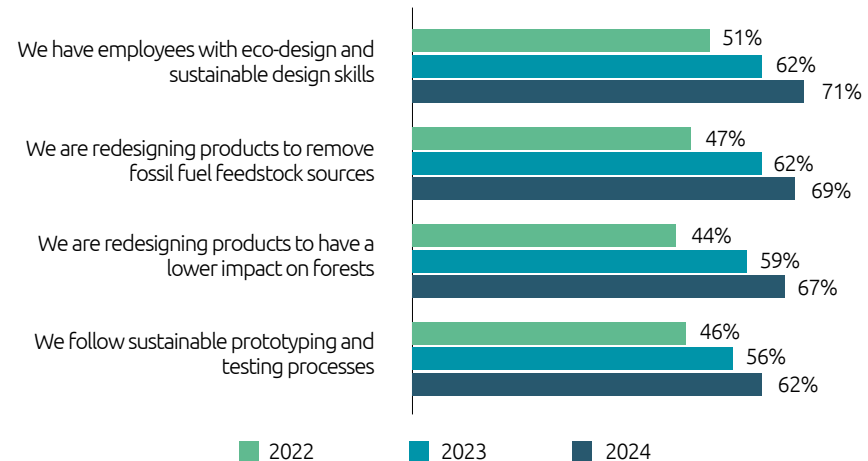
67%

of executives said they were redesigning products to have a lower impact on forests in 2024

Figure 3.

The majority of executives say their organization has progressed in sustainable design

% of executives who agree with the statements

We have employees with eco-design and sustainable design skills
- 2022: 51%
- 2023: 62%
- 2024: 71%

We are redesigning products to remove fossil fuel feedstock sources
- 2022: 47%
- 2023: 62%
- 2024: 69%

We are redesigning products to have a lower impact on forests
- 2022: 44%
- 2023: 59%
- 2024: 67%

We follow sustainable prototyping and testing processes
- 2022: 46%
- 2023: 56%
- 2024: 62%

Legend: 2022 | 2023 | 2024

Source: Capgemini Research Institute, Sustainability transformation trends survey, August–September 2022, 1,001 executives in value chain functions, N = 1,003 executives in corporate functions for the statement on design skills; August–September 2023, N = 1,000 executives in value chain functions, N = 1,001 executives in corporate functions for the statement on design skills; June–July 2024, N = 923 executives in value chain functions, N = 936 executives in corporate functions for the statement on design skills.
*Public sector, retail, energy, and utilities executives were excluded from the statements on removing fossil fuels and sustainable prototyping.

Measurement and data sharing have seen an uptick

Organizations have also found more precise ways to measure industrial process energy consumption (71% in 2024, up from 43% in 2022) and make sustainability data available internally (68% in 2024, up from 43% in 2022) (see Figure 4).
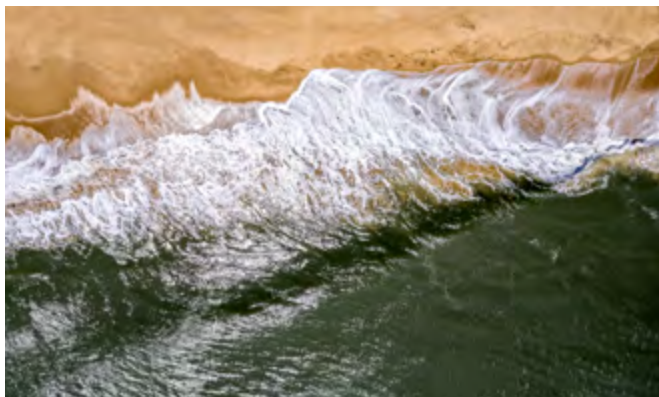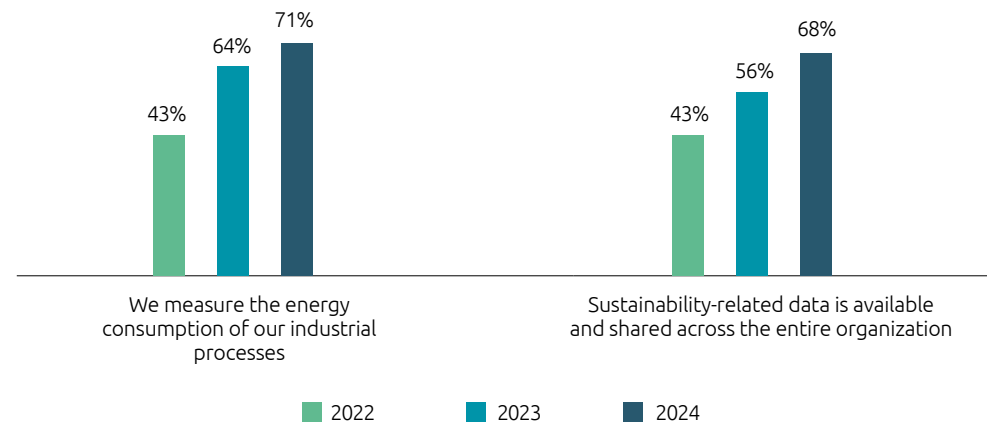
Figure 4.

More organizations measure energy consumption and share sustainability data widely

% of executives who agree with the statements

We measure the energy consumption of our industrial processes: 2022 43%, 2023 64%, 2024 71%

Sustainability-related data is available and shared across the entire organization: 2022 43%, 2023 56%, 2024 68%

2022 2023 2024

Source: Capgemini Research Institute, Sustainability transformation trends survey, August–September 2022, N = 1,001 executives in value chain functions; August–September 2023, N = 1,000 executives in value chain functions; June–July 2024, N = 923 executives in value chain functions.

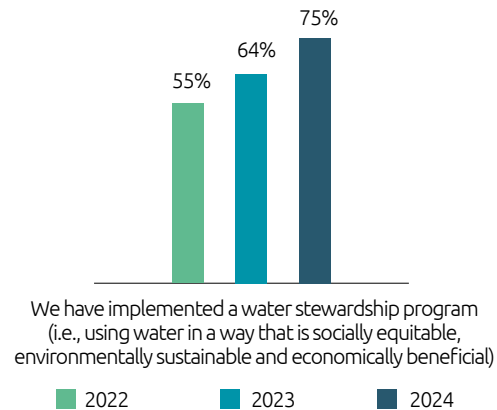# Water is a focus for an increasing number of organizations

Water stewardship (the responsible use and management of water) is essential to achieving environmental, social, and economic sustainability. Not only is it critical to resource conservation, biodiversity, and climate resilience, but it is also a key consideration in achieving social equity, as access to clean water is a basic human right.

In this year's research, three-quarters of organizations have implemented a water stewardship program, up from 55% in 2022 (see Figure 5). In our biodiversity research, 65% of organizations surveyed in September 2023 said they had committed to using less water.[4] There is growing awareness among water-intensive industries to focus on water replenishment and restoration. For example, Facebook, Google, and PepsiCo have committed to becoming "water positive" by 2030, with the goal of offsetting the large volumes of water used in their operations.[5] In 2023, Colgate-Palmolive launched a new fabric softener tablet under its Soupline brand. It was created by adding 0% water to the formula, 72% less plastic than liquid softeners, and has 89% natural ingredients.[6]

Figure 5.

Three-quarters of executives say their organization focuses on water stewardship today

% of executives who agree with the statements

We have implemented a water stewardship program (i.e., using water in a way that is socially equitable, environmentally sustainable and economically beneficial)

- 2022: 55%
- 2023: 64%
- 2024: 75%

Source: Capgemini Research Institute, Sustainability transformation trends survey, August–September 2022, N = 1,001 executives in value chain functions; August–September 2023, N = 1,000 executives in value chain functions; June–July 2024, N = 923 executives in value chain functions.
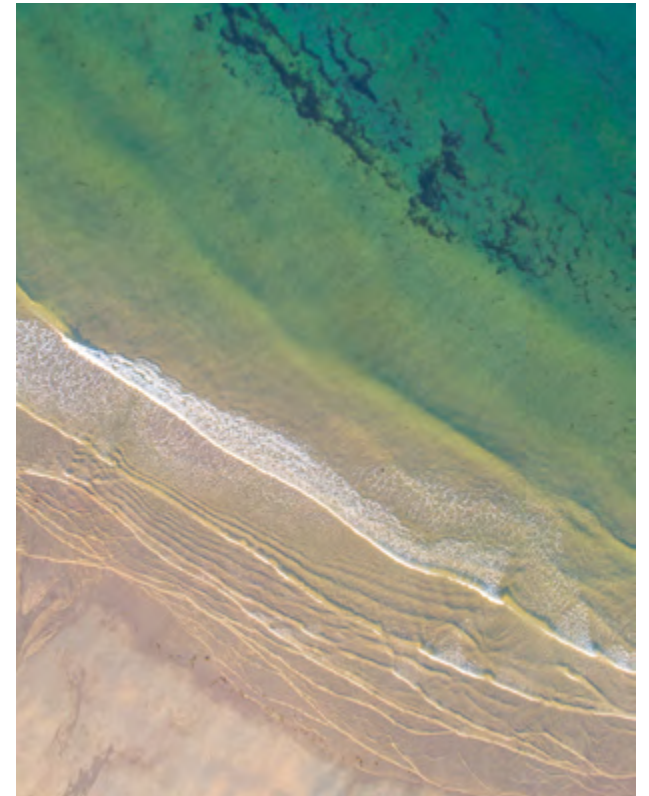
Biodiversity gains traction

In our 2023 biodiversity research, 63% of executives surveyed said biodiversity is important to their company, but only 24% of organizations had a biodiversity strategy.[7] While most organizations lack a coherent strategy to protect biodiversity and combat biodiversity loss, they have progressed in actions taken since 2022. In this year's research, 66% of organizations invested in conserving natural habitats, up from 43% in 2022 (see Figure 6).

66%

of executives surveyed agree their organizations invest in conserving natural habitats

Figure 6.
More organizations are investing in biodiversity

% of executives who agree with the statements
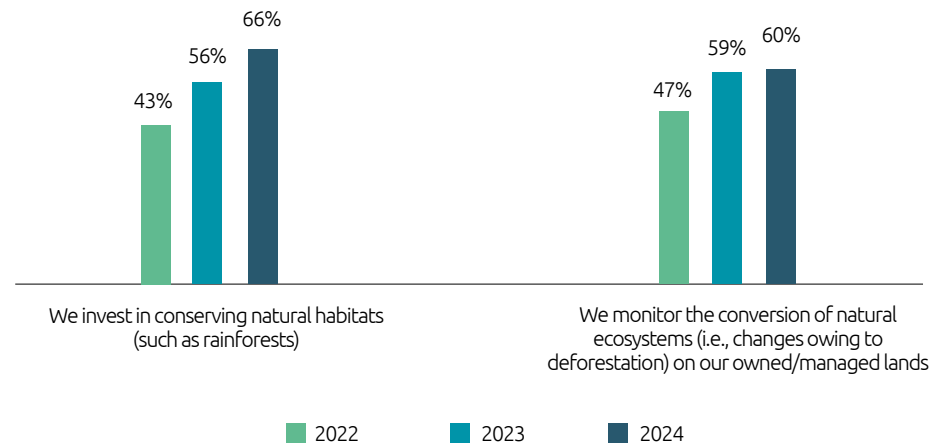
	2022	2023	2024
We invest in conserving natural habitats (such as rainforests)	43%	56%	66%
We monitor the conversion of natural ecosystems (i.e., changes owing to deforestation) on our owned/managed lands	47%	59%	60%

Source: Capgemini Research Institute, Sustainability transformation trends survey, August–September 2022, N = 1,001 executives in value chain functions; August–September 2023, N = 1,000 executives in value chain functions; June–July 2024, N = 923 executives in value chain functions.

Organizations are moving forward with social sustainability initiatives

Sixty-two percent of organizations in this year's research are putting the spotlight on the social dimension of ESG, up from 56% in 2023, including transparency, affordability, and accessibility. For example, over half (54%) of executives say their organization makes products/services affordable to local communities, up from 40% last year.
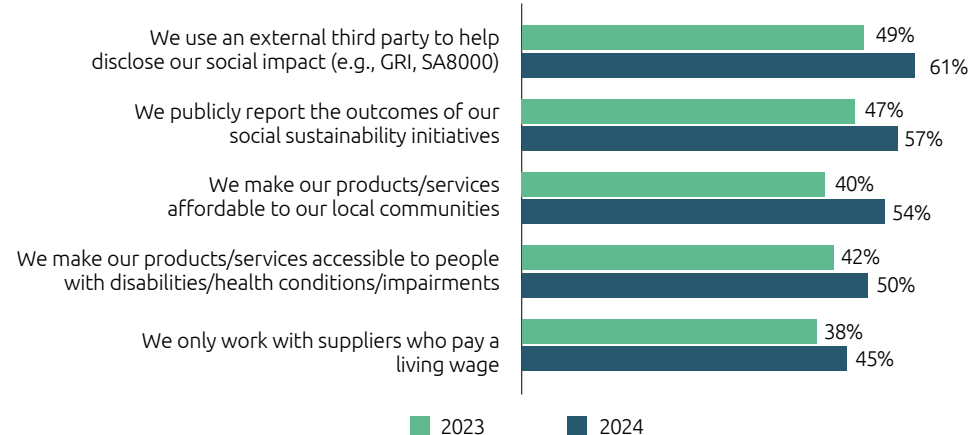
In addition, more organizations are using third parties to disclose their social impact: 61% this year versus 49% in 2023 (see Figure 7).

While there has been a slight uptick in the percentage of organizations that say they only work with suppliers who pay a living wage, this year's research reveals that consumers have more stringent expectations. Across all age groups, 66% of consumers expect organizations to work only with suppliers who pay a living wage, up from 45% last year.

Figure 7.
Organizations have advanced on key social sustainability topics

% of executives who agree with the statements

We use an external third party to help disclose our social impact (e.g., GRI, SA8000): 49% (2023), 61% (2024)

We publicly report the outcomes of our social sustainability initiatives: 47% (2023), 57% (2024)

We make our products/services affordable to our local communities: 40% (2023), 54% (2024)

We make our products/services accessible to people with disabilities/health conditions/impairments: 42% (2023), 50% (2024)

We only work with suppliers who pay a living wage: 38% (2023), 45% (2024)

■ 2023 ■ 2024

Source: Capgemini Research Institute, Sustainability transformation trends survey, August–September 2023, N = 1,076 executives in corporate functions; June–July 2024, N = 1,003 executives in corporate functions.

Continued progress on sustainability skilling

More than seven out of 10 organizations (73%) in this year's research educate employees on the importance of sustaining the environment, up from 52% in 2022. Six in 10 organizations agree that upskilling and reskilling on hard sustainability skills such as renewable energy, carbon accounting, and environmental science/engineering is a top priority, up from 41% in 2022 (see Figure 8).

73%

organizations in this year's research educate employees on the importance of sustaining the environment, up from 52% in 2022.

Figure 8.

More organizations have adopted employee skilling initiatives on sustainability

% of executives who agree with the statements

We train our employees to adopt sustainable practices in-office
- 50%
- 64%
- 74%

We train employees on the importance of sustaining the environment
- 52%
- 69%
- 73%

Upskilling/reskilling on hard sustainability skills is a top priority for our organization
- 41%
- 52%
- 60%

■ 2022   ■ 2023   ■ 2024

Source: Capgemini Research Institute, Sustainability transformation trends survey, August–September 2022, 1,003 executives in corporate functions, August–September 2023, N = 1,001 executives in corporate functions; June–July 2024, N = 936 executives in corporate functions.

A discussion with
Kristen Siemen, Chief Sustainability Officer at General Motors

What is your mandate at General Motors (GM)?

"My mandate is to drive sustainability into all aspects of our business. We must ensure our decisions are good for the company but also good for the outside world."

How do you prioritize sustainability investments at GM?

"The biggest impact we can make is through a transition to an all-electric future. That said, other initiatives are also important, including supply chain, logistics, and Scope 1 and 2. We also consider priorities such as saving water and eliminating waste from a financial perspective. However, just as in school, you can't ignore any subject – you just might have to put more effort into some areas than others."

How is GM developing inclusive products?

"Through our GM Able team, we have a Center of Excellence that focuses on product engineering and designing products for the disability community. We look at it from both a retrofit and a new product standpoint. In 2023, we received the Accessible Product of the Year Award from Disability:IN for our accessible conversion of the Chevrolet Traverse, in partnership with BraunAbility."

Continue

A discussion with
Kristen Siemen, Chief Sustainability Officer at General Motors

Will sustainability regulations enhance measurement and tracking?

"Regulations, transparency, and standards are critical, allowing everyone to talk a common language. The possibility of over-reporting does concern me, however. For example, designing vehicles for European or US safety standards sometimes influences design choice without directly benefiting the customer. One set of standards is not better, they are just different. If there were more consistency across countries, we could spend more time working on outcomes."

Is the auto industry prepared for an all-electric future?

"GM is well positioned but the entire ecosystem has a lot of work to do. Charging infrastructure is not where it needs to be. More time and resources need to be spent on customer education and knowledge building. We must prioritize vehicle-to-grid, energy transition, and the decarbonization of the grid nationwide. Of course, domestic policies can open up long-term opportunities. GM beat its original renewable energy commitments to the US by 28 years. But we can't do it alone."

What recommendation would you offer to other companies looking to embed sustainability into their operations/supply chain?

"I would advise them to just get started. Often, identifying the opportunities and setting a goal is the biggest obstacle. It's also very important to be thoughtful and intentional on sustainability. For example, consider how material shows up in your facilities. If we package a cardboard box nailed to a wooden box, it requires more time and energy to separate and recycle than if we were to use another adhesive."

Source: Capgemini Research Institute interview with Kristen Siemen, July 18, 2024

02 | Regulation has been – and will continue to be – a key sustainability driver

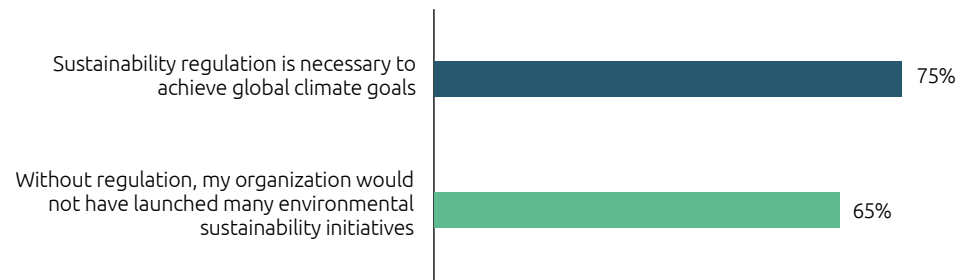# Executives believe regulation guides the path to global climate goals

Governments worldwide are striving to establish consistent sustainability reporting. For example, in 2023, the US Securities and Exchange Commission (SEC) approved its Climate-Related Disclosure Standards (CRDS), which mandate US public companies include information about climate risks and their responses to them in annual reports and registration statements.[8] In late 2023, California enacted two laws as part of its Climate Accountability Package that requires both public and private companies operating in the state to disclose their GHG emissions and climate-related financial risks.[9]

In our current research, 69% of executives say that anticipating or pre-empting stricter future regulations is a key driver of sustainability initiatives, up from 57% last year. Notably, three-quarters of executives agree that sustainability regulation will be a beacon guiding organizations towards global climate goals (see Figure 9). The majority of executives across sectors agree, ranging from 62% in automotive to 84% in telecom. Moreover, the

Figure 9.

The majority of organizations would have launched fewer sustainability initiatives without regulation

% of executives who agree with the statements

Statement	%
Sustainability regulation is necessary to achieve global climate goals	75%
Without regulation, my organization would not have launched many environmental sustainability initiatives	65%

Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 2,152 executives.

majority (65%) of executives say that regulation underpins new sustainability initiatives. Again, this trend is consistent across sectors, ranging from 56% in automotive to 70% in aerospace and defense, and financial services.

Regulation can serve as an accelerator to sustainability. Germany digitized permitting, streamlined approval processes, and designated clean energy to be of "overriding public interest" to avoid burdensome legal challenges. As a result, the country saw new wind and solar installations nearly double from 2022 to 2023.[10] Our upcoming World Energy Markets Observatory 2025 edition further explores how regulation and specifically reduced permitting times can accelerate the energy transition.

Interviewed executives also noted challenges with regulation. An executive from a large European telecom says: *"ESG regulation can have both positive and negative impacts. Engaging in ESG initiatives can be deeply rewarding and purposeful, yet it also risks becoming a mere compliance task driven by reporting requirements."* Sven Jansen, Head of Global Finance at Hellmann Worldwide Logistics, adds: *"Regulations drive progress in sustainability, but the increased workload and substantial costs required to comply are major obstacles."*

"Regulation like the CSRD is an accelerator in advancing sustainability goals. They establish measurement and reporting standards."

Peter Rupp
Head of Corporate
Sustainability at Hilti Group

Regulation accelerates measurement and tracking

The EU Corporate Sustainability Reporting Directive (CSRD), which came into effect in 2023, is a key regulation for this year because its first disclosure reports are due in 2025. It requires all large organizations and listed small- and medium-sized organizations to report regularly on their environmental and social impact and defines a standard reporting framework for non-financial data. Given this regular reporting cadence, it requires more data consistency. The directive applies to organizations that operate in the EU, which includes US companies with EU subsidiaries that meet certain criteria. The European Commission estimates that 50,000 companies will need to comply with CSRD's reporting requirements.[11] Peter Rupp, Head of Corporate Sustainability at Hilti Group, a Liechtenstein-based construction product manufacturer, confirms: *"Regulation like the CSRD is an accelerator in advancing sustainability goals. They establish measurement and reporting standards. Especially in the EU, the harmonization of different standards is crucial to maximize benefits."*

Figure 10.

Nearly three-quarters of executives believe the CSRD hones measurement and tracking

% of executives, by country, who agree with the statement:
The CSRD is driving my organization to improve its sustainability measurement and tracking capabilities
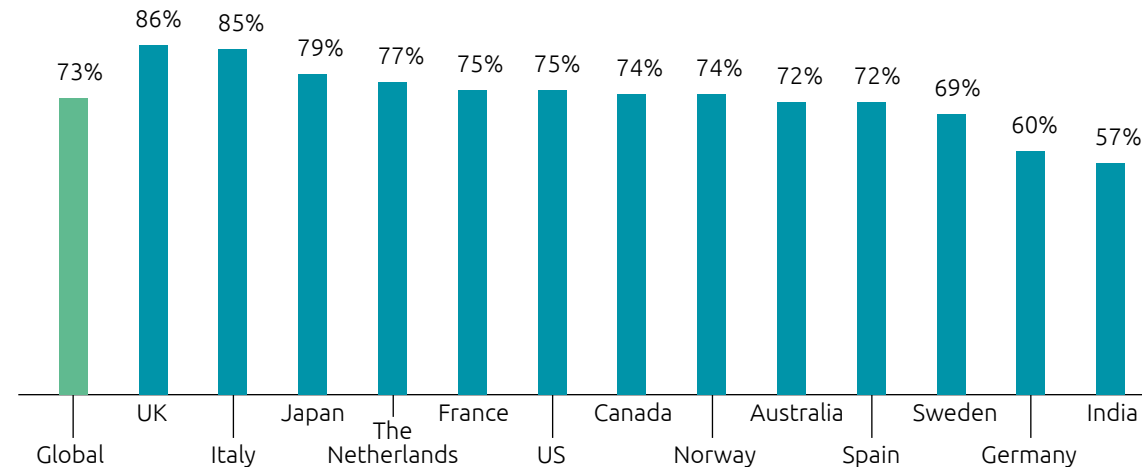
Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 2,152 executives.

In our current research, the majority (73%) of executives globally agree that the CSRD is honing sustainability measurement and tracking capabilities. This rises to 86% among UK executives and declines to 57% among executives in India (see Figure 10). This generally positive view of CSRD is consistent across sectors, ranging from 77% in industrial manufacturing to 70% in healthcare and life sciences, and telecom.

73%

of executives globally agree that the CSRD is honing sustainability measurement and tracking capabilities

Organizations are unprepared for Scope 3 emissions disclosures

Scope 3 emissions reporting continues to be a thorny topic, especially for those organizations that are required to report for CSRD in 2025. Max-Christian Lange, Deputy Head of Sustainability at Deutsche Bahn, the national railway company of Germany, says: *"We have this year to prepare for CSRD reporting, which is resource-intensive and costly. However, this process will enhance the quality and quantity of our sustainability data, allowing for better comparisons of performance both within and across sectors."*

Of the 44% of organizations in our survey (N = 316) that must submit their first CSRD report in 2025 (based on data from the 2024 financial year), these organizations are least prepared to disclose Scope 3 GHG emissions. Only 38% of organizations say that they are prepared to report Scope 3 downstream emissions in 2025, while 86% are prepared for Scope 1 emissions (see Figure 11). The majority (93%) of surveyed organizations that will need to report in 2025 say they will ramp up investment in carbon credits in the next 12–18 months.

An executive from a US-based financial services company, says: *"We are in good shape on Scope 1 and Scope 2. Our main challenge lies in Scope 3, especially our investment-related emissions in category 15. The Partnership for Carbon Accounting Financials (PCAF) is the only available guidance, but it does not cover all business aspects. This gap makes it challenging to accurately measure and report emissions."* An executive from a large European telecom confirms: *"Ninety-eight percent of our emissions are Scope 3, presenting two key challenges: limited influence over major suppliers and the complexity of managing and engaging with thousands of suppliers to achieve our sustainability goals."*
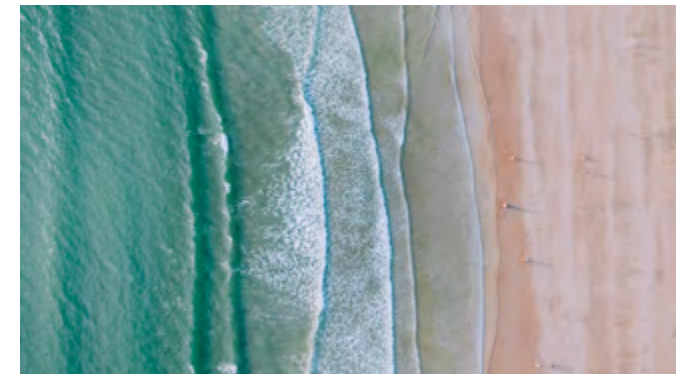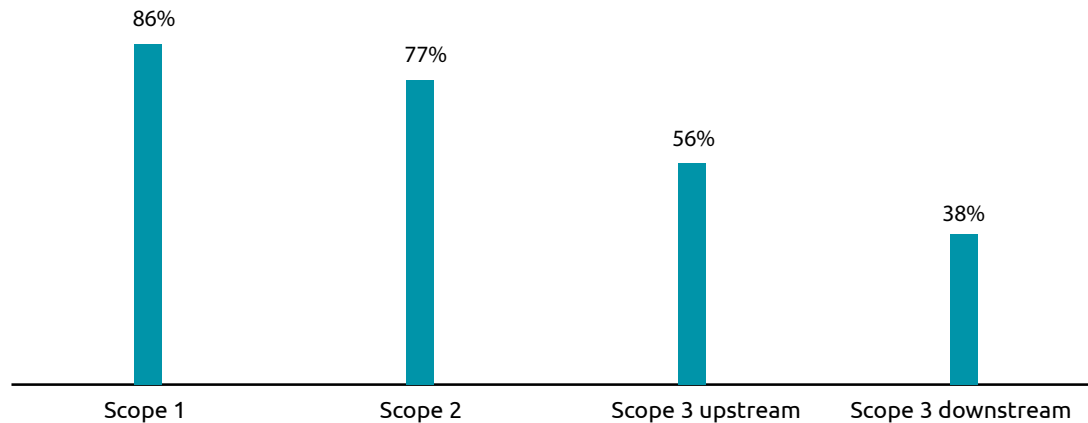
Figure 11.

Less than 40% of organizations that will need to report for CSRD in 2025 are prepared for Scope 3 downstream emissions

% of organizations prepared among those required to report for CSRD in 2025

Scope 1	Scope 2	Scope 3 upstream	Scope 3 downstream
86%	77%	56%	38%

Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 316 organizations required to report for CSRD in 2025, based on 2024 data.

"We have this year to prepare for CSRD reporting, which is resource-intensive and costly. However, this process will enhance the quality and quantity of our sustainability data, allowing for better comparisons of performance both within and across sectors."

Max-Christian Lange
Deputy Head of Sustainability at
Deutsche Bahn

A discussion with
Ann Tracy, Chief Sustainability Officer at Colgate-Palmolive

How do you describe your mandate?

"I am accountable for Colgate-Palmolive's Sustainability and Social Impact Strategy, working across the enterprise on goals that help us advance our purpose to reimagine a healthier future for all people, their pets and our planet – and our business objectives. I empower employees across the organization to contribute to our targets, including net-zero carbon emissions by 2040, sustainable sourcing, zero waste facilities, promoting water stewardship and eliminating plastic, among others."

Being in a water-intensive industry, how does Colgate-Palmolive focus on water conservation?

"We make essential health and hygiene products that advance the health and wellbeing of people and their pets, including fluoride toothpaste, sunscreen, dish soap, and pet nutrition. We have worked hard to reduce the amount of water we use in our operations and have introduced product innovations that utilize less water without sacrificing efficacy. We also support the Water Resilience Coalition – an industry-driven, CEO-led initiative to address the global water crisis and have partnered with Ecolab to adopt more water-efficient cleaning technologies for our equipment."

How does Colgate-Palmolive incorporate sustainable design?

"Circularity is of prime importance to us. We have integrated sustainable design across many of our product lines. We are proud to have created the first-of-its-kind recyclable toothpaste tube – transitioning from multi-layered, non-recyclable toothpaste tubes to a recyclable mono-material, high-density polyethylene (HDPE) tube."

Continue

A discussion with
Ann Tracy, Chief Sustainability Officer at Colgate-Palmolive

How is Colgate-Palmolive managing Scope 3 emissions tracking?

"The manual and time-consuming nature of carbon accounting is a significant challenge. To address this, we are in the early stages of implementing the Watershed sustainability data platform, which will enhance our Scope 3 accounting and automate some processes. We are currently collaborating with suppliers, focusing on reducing upstream Scope 3 emissions."

How is regulation affecting Colgate-Palmolive?

"Regulations play a key role in helping us align our sustainability initiatives. To comply with evolving industry regulations, we are hiring an ESG controller to enhance our organizational effectiveness. We completed our double materiality assessment to ensure we are prepared for our first CSRD report."

What recommendations do you offer to other CPG companies seeking to embed sustainability into their operations/supply chain?

"First and foremost, it starts with your company's purpose: how can the right sustainability and social impact strategy help advance your purpose and business objectives? Next, education is crucial. It's essential to ensure that operations and supply chain teams understand the strategy, the purpose behind the changes being implemented, and feel included in the journey. Beyond that, fostering partnerships is vital. Collaboration, knowledge exchange, and idea sharing across the value chain externally and our Colgate teams, including legal and technology departments, can significantly accelerate progress."

Source: Capgemini Research Institute interview with Ann Tracy, July 25, 2024.

03 | Climate tech is a vital toolset for attaining sustainability goals

Every organization should consider climate tech investment

To hit the Paris Agreement goals, business needs to reduce global GHG emissions by 45% by 2030 and achieve net zero by 2050.[12] At present, we as a global society are not on track. As of November 2023, there is a 9% increase projected by 2030 from 2010 emissions levels.[13] The International Energy Agency's "stated policies scenario" model places the world on a warming trajectory of around 2.4°C by the end of the century, already reaching 2.2°C in 2050.[14] This is neither a successful transition nor total inaction, but rather an insufficient reduction in emissions. Climate technologies could be a key element in getting us back on course.

Executives believe that climate tech is crucial to meeting sustainability targets, with 67% agreeing that their organization will never be able to achieve its sustainability goals without climate tech. Sixty-nine percent of executives say that data and digital technologies will play an important role in accelerating climate tech adoption. An executive from a US-based financial services company,

says: *"We are diving deep into all different technologies from a product perspective. For example, for carbon capture technologies, we ensure that insurance products specific to those kinds of businesses are available and that underwriters are comfortable knowing the risks of those businesses."*

In our research, climate tech refers to innovative technologies specifically designed to mitigate the impact of climate change and resource depletion (e.g., energy storage, carbon capture, low-carbon hydrogen, alternative fuels, electrification, smart grids). It includes both hardware and software solutions (e.g.,

climate modeling). Max-Christian Lange at Deutsche Bahn comments: *"As a mobility company, we are for example: 1) increasing renewable energy use; 2) phasing out fossil fuels by testing alternative fuels like green hydrogen; and 3) transitioning to sustainable heating solutions for our buildings."*

In the sections that follow, we explore executives' views on which will be the most impactful technologies for their sectors over the next 2–3 years, sharing examples.

Industry executives believe climate technologies have the potential to significantly reduce GHG emissions in their industry in the next 2–3 years
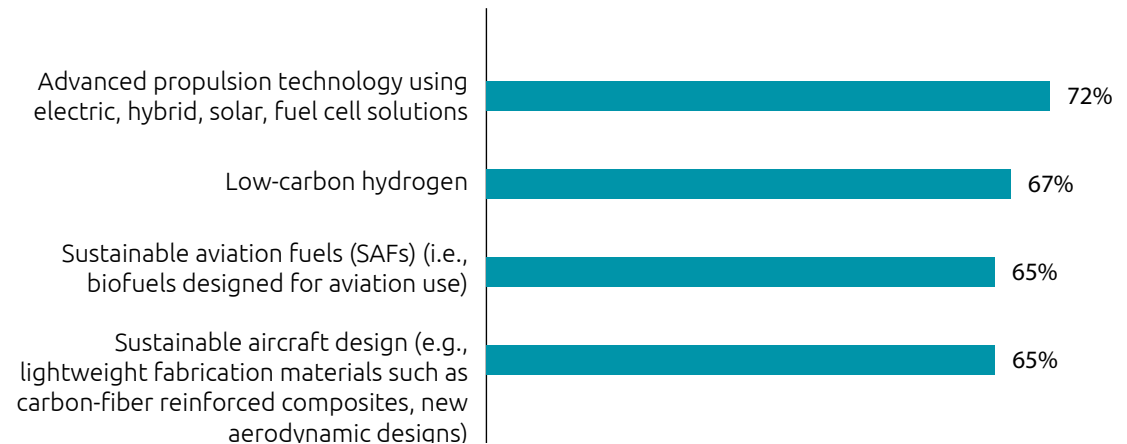
Aerospace and defense

In 2021, the International Air Transport Association (IATA) in its fly net zero resolution committed to net zero aviation emissions by 2050, and is exploring solutions across efficiency measures, energy transition, and innovation.[15]

Nearly three-quarters of aerospace and defense executives believe that advanced propulsion technology will significantly reduce GHG emissions in the next 2–3 years. This is followed by low-carbon hydrogen (67%), sustainable aviation fuels (65%), and sustainable aircraft design (65%) (see Figure 12). Government support for low-carbon hydrogen seems to be growing, as evidenced by recent policies and initiatives, for example, the US Clean Hydrogen Production Tax Credit, the EU Important Projects of Common European Interest, and the UK Low Carbon Hydrogen Agreement.[16]

Figure 12.

Seven in 10 aerospace executives believe advanced propulsion technology is critical to reduce industry emissions

% of aerospace and defense executives who believe these technologies will have a significant impact in reducing GHG emissions in their industry in the next 2–3 years

Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 165 aerospace and defense executives.

Figure 13.

Examples of how climate tech is being explored in the aerospace and defense industry

Technology	Benefits	Examples
Advanced propulsion technology using electric, hybrid, solar, fuel cell solutions	• Reduced GHG emissions as compared with fossil fuel-based propulsion engines • Reduced dependance on fossil fuels	• NASA has been working on magnetic propulsion with the potential to facilitate fuel-less space exploration.[17]
Low-carbon hydrogen	• Reduced GHG emissions as compared with traditional jet fuels • Higher energy density compared with batteries	• Airbus's ZEROe project aims to launch the world's first hydrogen-powered commercial aircraft by 2035, and also prepare the ecosystem required for such aircraft.[18] • Deutsche Aircraft has partnered with Germany-based startup, H2FLY, to explore hydrogen-powered flight.[19]
Sustainable aviation fuels (SAFs) (i.e., biofuels designed for aviation use)	• SAFs have lower carbon intensity, reducing GHG emissions by up to 80% compared with traditional jet fuels, while enhancing performance • SAFs use biomass crops that have several other environmental benefits (e.g., preventing soil erosion, improving soil and water quality, increasing biodiversity, sequestering carbon)	• Most of Rolls-Royce's aircraft engines can operate using blended SAFs; the company is developing engines that can operate on 100% SAFs.[20] • Airbus has set a target of 15% SAF in its own global fuel mix by end-2024, and at least 30% by 2030. Airbus is already conducting flight tests with 100% SAF.[21]
Sustainable aircraft design (e.g., lightweight fabrication materials such as carbon-fiber reinforced composites, new aerodynamic designs)	• Increased fuel efficiency • Reduced GHG emissions • Waste reduction	• Boeing and NASA are developing a transonic truss-braced wing (TTBW) design that is extra-long and thin, with reduced aerodynamic drag and potential to cut fuel consumption and emissions by up to 30%.[22] • 50% of Boeing's 787 Dreamliner comprises carbon-fiber reinforced plastic and other composite material, which reduce aircraft weight by 20% compared with conventional aluminum designs.[23]

Automotive

Climate technologies are critical to the automotive industry achieving its climate goals. Sixty-four percent of automotive executives believe that electric-vehicle (EV) battery gigafactories will significantly reduce GHG emissions in the next 2–3 years. A similar percentage (62%) say the same for electrification and alternative fuels (see Figure 14).
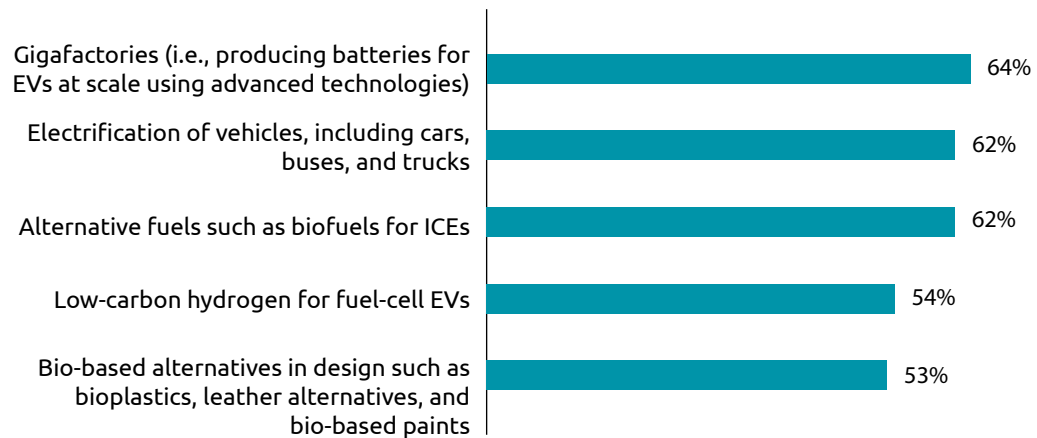
64%

of automotive executives believe that EV battery gigafactories will significantly reduce GHG emissions in the next 2–3 years

Figure 14.

64% of automotive executives agree that gigafactories will be critical to reducing emissions in their industry

% of automotive executives who believe these technologies will have a significant impact in reducing GHG emissions in their industry in the next 2–3 years

Technology	%
Gigafactories (i.e., producing batteries for EVs at scale using advanced technologies)	64%
Electrification of vehicles, including cars, buses, and trucks	62%
Alternative fuels such as biofuels for ICEs	62%
Low-carbon hydrogen for fuel-cell EVs	54%
Bio-based alternatives in design such as bioplastics, leather alternatives, and bio-based paints	53%

Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 180 automotive executives.

Figure 15.

Examples of how climate tech is being explored in the automotive industry

Technology	Benefits	Examples
Alternative fuels, such as biofuels for ICEs (internal combustion engines)	• Reduced GHG emissions replacing fossil-fuel-based ICEs • Reduced dependence on fossil fuels • Increased circularity	• In April 2024, Volvo Trucks North America announced newly assembled vehicles fueled by hydrotreated vegetable oil (HVO).[24] • Porsche is developing eFuel, which can potentially reduce CO_2 emissions by 85% for ICE cars.[25] • Toyota Motor and Suzuki Motor are also exploring biofuel ICE options.[26]
Bio-based design alternatives such as bioplastics, leather alternatives, and bio-based paints	• Reduced environmental footprint • Less waste • Increased circularity • Weight reduction and related enhanced fuel efficiency	• 24% of Renault Scenic E-Tech 100% electric is built with recycled materials, while 90% of its mass (including battery) is recyclable; it was launched in 2024.[27] • Ford uses soy-based foam in all of its vehicles built in North America.[28]
Electrification of vehicles, including cars, buses, and trucks	• Lower GHG emissions than fossil fuels • Reduced dependence on fossil fuels	• Several brands have launched EVs over the past few decades, but the concept has gained traction in the past five years, which is reflected in an increase in the share of total sales going to EVs, from 2% in 2018 to 18% in 2023.[29]
Gigafactories (i.e., using advanced technologies to manufacture EV batteries at scale)	• Facilitate initiatives to transition energy supplies to renewable sources • Increased productions and cost efficiency	• Tesla's gigafactory in Nevada, US manufactures electric motors, energy-storage products, vehicle powertrains and batteries.[30] • Stellantis, Mercedes-Benz and Total Energies partnered to set up a gigafactory in France in 2023.[31]
Low-carbon hydrogen for fuel-cell Evs	• Reduced GHG emissions compared with fossil-fuel-based vehicles • Reduced dependence on fossil fuels	• As early as 2003 Honda launched Honda FCX, the world's first government-certified zero-emission fuel-cell EV (FCEV).[32] • Hyundai launched hydrogen FCEV NEXO in 2018, with an updated version expected in 2025.[33] • At the 2019 Frankfurt Motor Show (IAA), BMW unveiled i Hydrogen NEXT and plans to offer fuel cell vehicles by 2025.[34] • Toyota launched hydrogen-engine car GR Yaris H2 in 2022.[35]

Agriculture and forestry

Climate technologies can help the agricultural sector improve resilience to climate change. Among agriculture and forestry executives, 86% believe that bioplastics developed from plant materials will significantly reduce GHG emissions in the next 2–3 years. Eight in 10 executives believe agroforestry techniques will significantly reduce emissions, and 75% believe synthetic biology will have a tangible impact (see Figure 16).
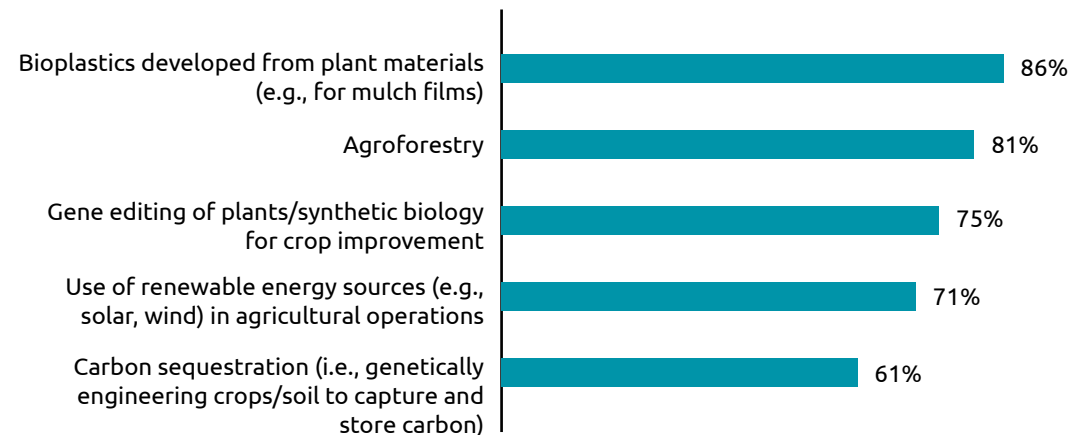
86%

of agriculture executives believe that bioplastics developed from plant materials will significantly reduce GHG emissions in the next 2–3 years

Figure 16.

Nearly 9 in 10 agriculture executives believe bioplastics to be critical to reducing industry emissions

% of agriculture and forestry executives who believe the following technologies will significantly reduce GHG emissions in their industry in the next 2–3 years

Technology	%
Bioplastics developed from plant materials (e.g., for mulch films)	86%
Agroforestry	81%
Gene editing of plants/synthetic biology for crop improvement	75%
Use of renewable energy sources (e.g., solar, wind) in agricultural operations	71%
Carbon sequestration (i.e., genetically engineering crops/soil to capture and store carbon)	61%

Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 150 agriculture and forestry executives.

Figure 17.

Examples of how the agriculture and forestry industry is exploring climate tech

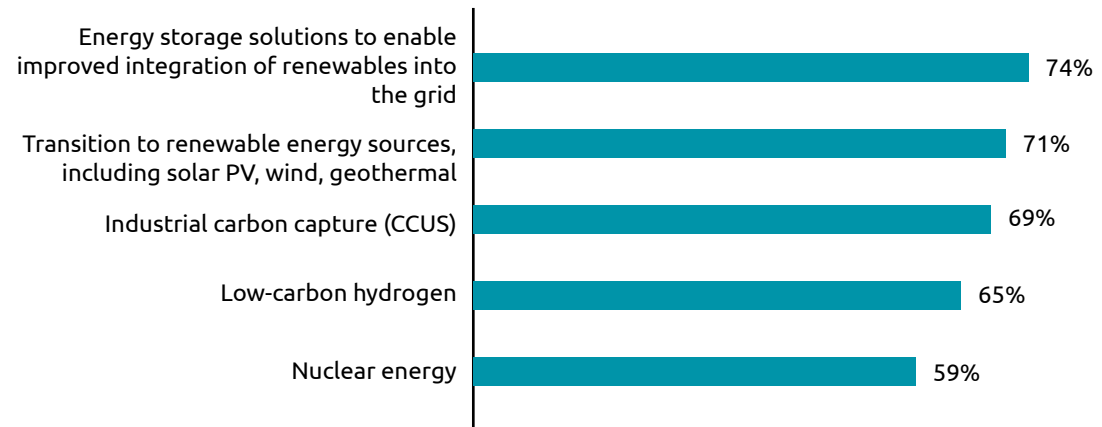| Technology	Benefits	Examples
Agroforestry	• Mitigate GHG emissions • Prevent soil erosion • Offers diversified income sources	• Unilever and Barry Callebaut [36] (in partnership with Nestlé) support cocoa farmers in Côte d'Ivoire, the world's biggest cocoa producer, through agroforestry.[37]
Bioplastics developed from plant materials (e.g., for mulch films)	• Reduced carbon footprint • Biodegradable	• BASF produces mulch films from biopolymer ecovio, which farmers use to suppress weed growth and retain soil moisture.[38]
Carbon sequestration (i.e., genetically engineering crops/soil to capture and store carbon)	• Improved soil fertility • Increased crop yields • Improved agricultural resilience to climate change	• Innovative Genomics Institute (IGI) is working on carbon sequestration research for rice and sorghum.[39]
Gene editing of plants/synthetic biology for crop enhancement	• Improved crop productivity or nutritional content • Climate- or pest-resilient • Rapid development of new plant variants	• UK-based Tropics Biosciences has developed a naturally decaffeinated coffee variant.[40] • Swedish agritech OlsAro designs salt-tolerant wheat that delivers significantly higher yields than traditional crops on otherwise unfarmable land. The organization is also working on heat-tolerant and nitrogen-efficient crops.[41]
Use of renewable energy sources (e.g., solar, wind) in agricultural operations	• Reduced carbon footprint • Reduced dependence on fossil fuels	• In 2021, almost 12% of Canadian farms reported at least one form of renewable energy production, and 75% of these used this energy themselves.[42] • 2,500 farmers in Tanzania and Kenya received training on climate-smart agricultural practices, leading them to set up two biogas digesters to produce renewable energy from cow manure.[43]

Energy and utilities

Nearly three-quarters of energy and utilities executives believe that energy-storage solutions will significantly reduce GHG emissions in the next 2–3 years. The renewable energy transition (71%) and industrial carbon capture (69%) are the next most cited (see Figure 18). Sixty-five percent of energy and utilities executives say the same for low-carbon hydrogen. Our research on low-carbon hydrogen found that 64% of energy and utilities organizations plan to invest in low-carbon hydrogen initiatives by 2030, and nine in 10 plan to do so by 2050.[44]

Figure 18.

Nearly three-quarters of energy and utilities executives agree that energy storage will be critical to reducing emissions in their sector

% of energy and utilities executives who believe these technologies will significantly reduceGHG emissions in the sectorin the next 2–3 years

Technology	%
Energy storage solutions to enable improved integration of renewables into the grid	74%
Transition to renewable energy sources, including solar PV, wind, geothermal	71%
Industrial carbon capture (CCUS)	69%
Low-carbon hydrogen	65%
Nuclear energy	59%

Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 342 energy and utilities executives.

Figure 19.

Examples of the energy and utilities industry exploring climate tech

Technology	Benefits	Examples
Energy storage solutions (ESS) to enable improved integration of renewables into the grid	• Supports energy transition to renewable sources • Enhanced efficiency in power distribution and consumption	• Residential ESS installed in California homes by Swell Energy has helped homeowners save energy bills by applying time-of-use pricing, as well as providing back-up power during outages.[45]
Low-carbon hydrogen	• Reduced GHG emissions • Decarbonization	• US-based Constellation Energy plans to set up a $900 million LaSalle clean hydrogen facility.[46] • In mid-year 2023, Dominion Energy successfully blended 5% hydrogen with natural gas to supply Utah residents.[47]
Transition to renewable energy	• Reduced GHG emissions • Reduced dependence on fossil fuels	• A utility-scale offshore wind farm with 806-megawatt capacity was set up 14 miles off the coast of Martha's Vineyard, Massachusetts to provide electricity to more than 400,000 homes and businesses.[48] • Community solar projects launched by National Rural Electric Cooperative Association (NRECA), currently in four US states (FL, NY, MN, and MA).[49]
Nuclear energy	• Small carbon footprint • More reliable than wind and solar	• The UK government plans to set up a new nuclear energy grid that will help quadruple energy supplies by 2050.[50] • India plans to add seven new nuclear reactors and increase power generation by 70% in the next five years.[51]

Industrial manufacturing

The majority (85%) of industrial manufacturing executives believe that low-carbon hydrogen will significantly reduce GHG emissions in the next 2–3 years. This is followed by industrial process electrification (69%) and industrial carbon capture (68%) (see Figure 20).

Figure 20.

85% of industrial manufacturing executives believe low-carbon hydrogen is critical to reducing industry emissions

% of industrial manufacturing executives who believe these technologies will significantly reduce GHG emissions in their industry in the next 2–3 years

Low-carbon hydrogen — 85%

Industrial process electrification — 69%

Industrial carbon capture (CCUS) — 68%
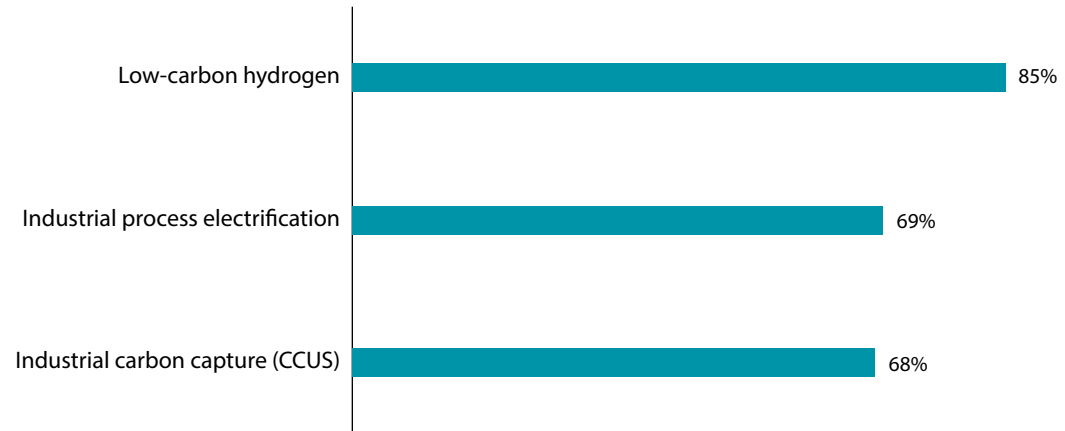
Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 199 industrial manufacturing executives.

Figure 21.

Examples of how climate tech is being explored in the industrial manufacturing industry

Technology	Benefits	Examples
Industrial carbon capture (CCUS)	• Decarbonization • Reduced GHG emissions	• Swiss company Climeworks has partnered with companies such as Audi, Microsoft and Swiss Re to develop and deploy carbon capture technology.[52] • In 2015 Shell Canada launched Quest Carbon Capture and Storage, one of the world's largest CCU projects.[53]
Industrial process electrification	• Reduced GHG emissions • Facilitate energy transition to renewable energy sources • Improved energy efficiency and cost savings	• Schneider Electric has committed to sourcing 90% of electricity in its operations from renewable sources by 2025.[54] • Siemens has committed to sourcing 100% renewable energy by 2030.[55]
Low-carbon hydrogen	• Reduced GHG emissions • Decarbonization	• Swedish company H2 Green Steel uses low-carbon hydrogen for steel production, with ambitions to reduce CO_2 emissions by up to 95%.[56] • Total Energies has partnered with German natural-gas distribution company VNG to use low-carbon hydrogen for oil refining at Leuna refinery from 2025.[57] • Leading Singapore-based chemicals company Evonik has partnered with global industrial gas company Linde to supply low-carbon hydrogen to manufacture methionine, an essential ingredient in animal feed.[58]

Generative AI's impact on the environment is a board-level topic

A slightly higher percentage of executives this year (65% versus 56% in 2023) say their organization uses generative AI models to achieve its sustainability agenda. In this year's research, the majority categorize generative AI's environmental impact as a boardroom topic and agree that the benefits outweigh any negative environmental impact (see Figure 22). An executive from a large European telecom, comments: *"Currently, we use generative AI to optimize network capacity and reduce energy consumption. Moving forward, we aim to use it to address Scope 3 emissions and enhance ESG reporting and calculation processes."*

Organizations must assess generative AI's business value, considering implementation complexity and costs, while also scrutinizing its impact on GHG emissions, electricity usage, and water consumption.

Our research found that one-third of organizations are currently monitoring energy and water consumption, as well as carbon emissions associated with the use of generative AI.[59]

Figure 22.
The majority of executives agree that the benefits of generative AI outweigh the negative environmental impact

% of executives who agree with the statements
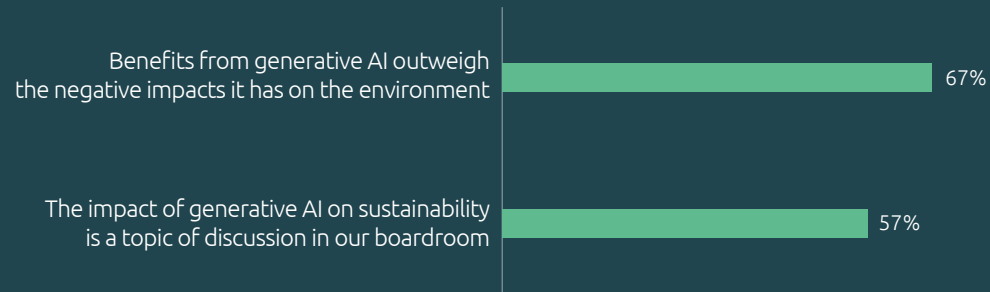
Benefits from generative AI outweigh the negative impacts it has on the environment — 67%

The impact of generative AI on sustainability is a topic of discussion in our boardroom — 57%

Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 2,152 executives.

04 | Current geopolitics might disrupt sustainability momentum

Most executives believe current geopolitics slows down sustainability investments

Escalating geopolitical tensions, such as US-China relations, the wars in Ukraine and the Middle East, and the European energy crisis, pose a risk to business operations and supply chains. Leaders are all too aware of this. Across earnings calls and corporate filings, chief executives of S&P 500 companies referred to the word "geopolitics" around 12,000 times in 2023, three times as many as in 2021.[60] Geopolitics can also impact sustainability through environmental degradation, energy security, and global supply chains.[61] There are also reverberations for social sustainability. For example, geopolitical risk stemming from social instability and humanitarian crises can lead to poverty, inequality, displacement, and widespread unrest.[62]

The majority of organizations (64%) in our survey agree that current geopolitics is an increasing consideration in sustainability investments.

While there are scenarios in which geopolitics accelerates sustainability, our research reveals most executives view the current geopolitical situation as a threat. Sixty-five percent of executives agree that current geopolitics is driving a slowdown in investments and projects. Swedish executives are more likely to agree (73%) compared with 59% of US executives and 52% of executives in India (see Figure 23). Notably, 82% percent of public-sector executives agree, versus 57% of executives in healthcare and life sciences (see Figure 24).

64%

of executives in our survey agree that current geopolitics is an increasing consideration in sustainability investments

Figure 23.

More than half of executives across countries agree that current geopolitics is driving a slowdown in sustainability investments

% of executives, by country, who agree with the statement: Current geopolitics is driving a slowdown in our sustainability investments/projects

65%	73%	71%	70%	69%	69%	69%	67%	66%	65%	61%	61%	59%	52%		

Global · Sweden · The Netherlands · UK · Germany · Canada · Australia · Norway · Spain · France · Italy · Japan · US · India
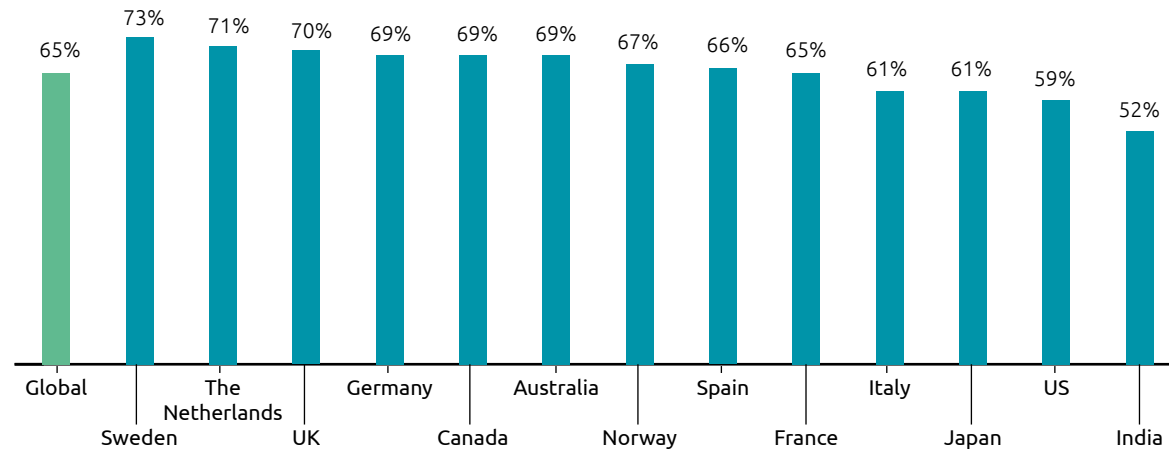
Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 2,152 executives.

Figure 24.

Most executives across sectors believe that current geopolitics is driving a slowdown in sustainability investments

% of executives, by sector, who agree with the statement: Current geopolitics is driving a slowdown in our sustainability investments/projects

Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 2,152 executives.

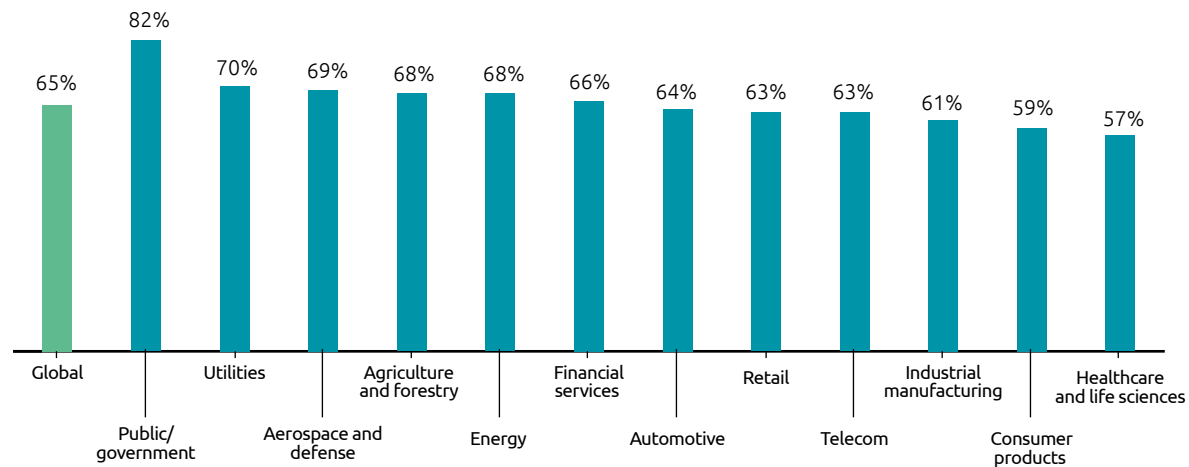# US geopolitical uncertainty is a concern to most executives globally

Among all executives in our survey, 69% are concerned about the impact of the uncertain US political scene on sustainability investments. This is felt across countries, but Swedish executives are most concerned (75%), and executives in India are relatively unperturbed (59%) (see Figure 25).

Executives might be worried by the availability of governmental funding for the significant climate and green tech-related initiatives that the US has passed under Joe Biden. For example, according to estimates from several global financial institutions, the Inflation Reduction Act (IRA), representing the US's biggest investment in addressing climate change, will cost nearly $1 trillion over the next 10 years.[63] The CHIPS and Science Act of 2022, which is intended to improve US semiconductor competitiveness, earmarked $280 billion for domestic research and manufacturing over the coming decade.[64] The majority of US executives (73%) in our survey reported that their organizations received funding from the US federal government to invest in sustainability initiatives (e.g., loans, subsidies, or other incentives to support projects in renewable energy, electrification, or energy efficiency via programs such as the IRA, the Chips Act, or other federal legislation). This dynamic might be a driving force behind US executives' political sensitivity.

Figure 25.

Nearly 70% of executives globally are concerned about the effect of the uncertain US political environment on sustainability investments

% of executives, by country, who agree with the statement: We are concerned about the impact of the uncertain political environment in the US on our sustainability investments/projects
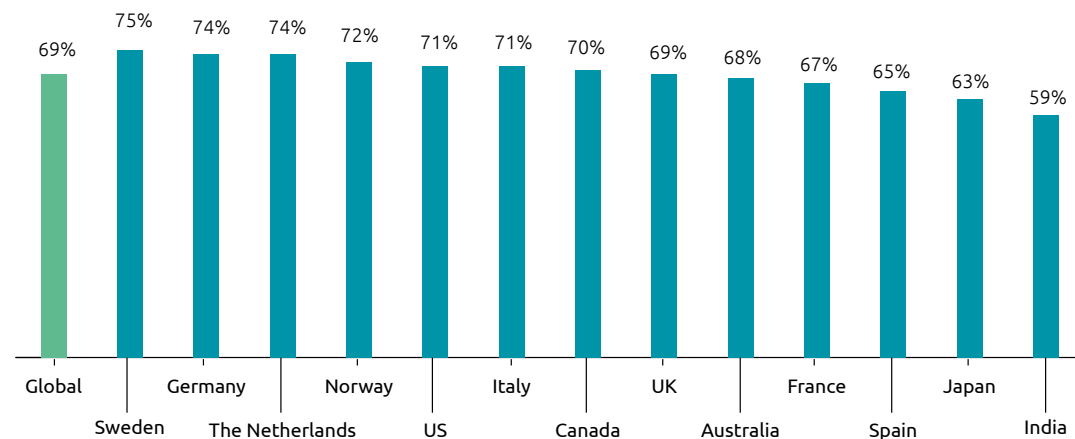
Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 2,152 executives.

Our research shows a somber assessment of executives' views on the impact of current geopolitics on sustainability. Geopolitics, however, is not always a threat to sustainability. Indeed, it can serve as an accelerator to sustainability investments in certain situations. For example, Russia's war in Ukraine forced many countries to revise energy policies and accelerate investment in renewable energy to reduce reliance on Russian energy imports. Germany's federal government adopted a new target to get all the country's electricity from renewable sources by 2035.[65] The UK government is investing £8 billion in funding to create a publicly-owned company that will increase the deployment of renewable energy technologies, such as wind, solar, tidal, and hydrogen.[66] What is clear from our research is that sustainability is a politically sensitive topic. Executives' pay attention to what is happening in the world and the impacts these dynamics have on their sustainability investments.

Smaller organizations invest more heavily in sustainability

Fifty-five percent of executives see a clear business case for sustainability, down only slightly from 63% last year. In addition, only 23% of executives agree that the cost of sustainability initiatives outweighs the benefits, consistent with 22% last year. José Antonio Coll, Head of Sustainability at Airbus Defense and Space at Airbus, suggests the need to clearly articulate the sustainability business case to customers: *"In order to convince our defense and military customers of the value of sustainability, we must speak in their language. For example, we discuss engine operational efficiency, and they are able to understand the potential for both cost savings and CO$_2$ reduction. This connection between the business case and the environmental benefits is critical."*

In our 2024 research, average annual investment in environmental sustainability initiatives and

practices across all organizations represents 0.82% of total revenue, down from 0.92% in 2023. This shows an average decline of around $570,000 in investment per company, year on year. Only the smallest organizations (with $1–$5 billion in revenue) increased investment this year, from 2.9% of total revenue in 2023 to 3.02%.

As in 2022 and 2023, total spending on sustainability trends upward with organization size. But larger organizations invest on average 0.36% of total revenue compared with 3.02% among smaller organizations (see Figure 26).

55%

of executives see a clear business case for sustainability in 2024

Figure 26.

Sustainability investment increased among organizations with $1–$5 billion in revenue

Average annual investment in sustainability as a % of total revenue, by company size
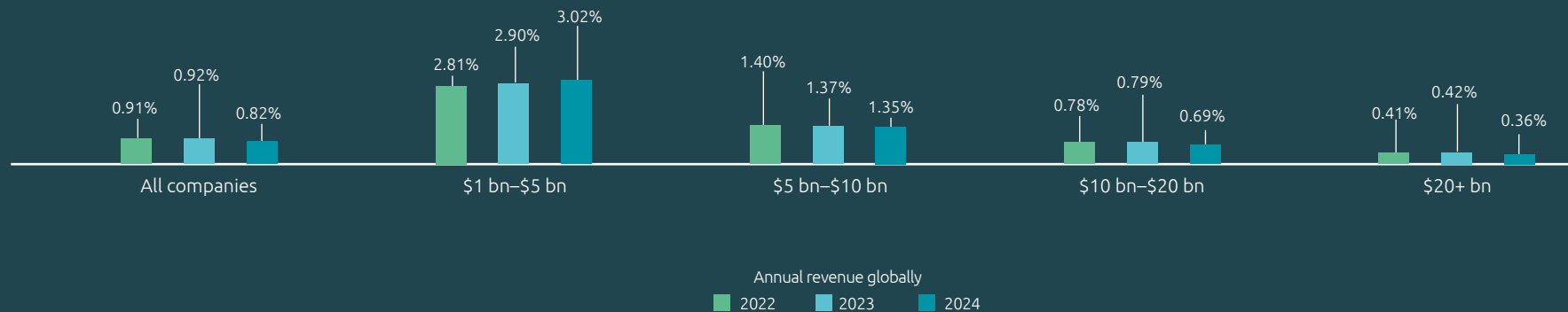
	All companies	$1 bn–$5 bn	$5 bn–$10 bn	$10 bn–$20 bn	$20+ bn
2022	0.91%	2.81%	1.40%	0.78%	0.41%
2023	0.92%	2.90%	1.37%	0.79%	0.42%
2024	0.82%	3.02%	1.35%	0.69%	0.36%

Annual revenue globally
■ 2022 ■ 2023 ■ 2024

A discussion with
Dirk Voeste, Chief Sustainability Officer at Volkswagen Group

What is your sustainability vision and how do you define your strategy?

"Our vision is to become a nature- and society-positive mobility provider. Our sustainability strategy has a four-dimensional approach, including our people, nature, society, and business. We place our employees at the forefront because they are the true engine and driver of the company's success. To tackle climate change and contribute positively towards nature, we are working towards net carbon neutrality, the conservation and restoration of resources, and biodiversity. We take responsibility through our social commitment and towards our stakeholders as well as partners in the supply chain. From the business point of view, we focus on sustainable business areas and financing options.

Can you share an example of how Volkswagen drives sustainability in the supply chain?

"Volkswagen follows a systematic approach to a sustainable supply chain. Our strategy focuses on the topics of 'circular economy and climate,' 'fairness and equality,' and 'global management.' For example, we use a sustainability rating system (S-Rating) that has an agreed-upon methodology among OEMs. Our target is to have more than 95% positive sustainability performance of relevant suppliers in the S-Rating by 2040. Currently, we are at 79%. We are working with our suppliers to identify development needs and committing to necessary changes. If a supplier does not meet our requirements for compliance with sustainability standards, it is fundamentally not eligible for the award of contracts."

Continue

A discussion with
Dirk Voeste, Chief Sustainability Officer at Volkswagen Group

How is Volkswagen incorporating circular practices into production?

"We have systemic circular initiatives across brands and vehicles. For example, we have the Audi MaterialLoop, a circular economy project that focus on closed material cycles for improving sustainability. The goal is to reuse materials from cars at the end of their lifecycle, including automotive glass. Audi uses recycled glass, which is made from damaged windows that are shattered into small pieces and melted down to produce windshields. Up to 30% recycled materials has been used for the windshield of the Audi Q4 e-tron.

We've operated a longstanding closed aluminum loop, which returns aluminum offcuts generated from production directly to the supplier, who uses them to create new aluminum sheets to go back into the production process. This saves primary raw materials and reduces the carbon footprint of each individual car. By example, we are using up to 25% recycled materials (metals and plastics) for our ID.Buzz electric bus. We also have ongoing projects for battery recycling."

Do you think regulation is an accelerator or a hindrance to sustainability goals?

"There are two ways of looking at it. By adding the burden of compliance, regulation can ensure a level playing field and allow companies to compete on product. Moreover, they lead to a reliable need to change and evolve on industry level. That mostly comes at a cost. For example, the CSRD helps to provide transparency, but it also requires significant resources to collect and track data points, making it a cost driver.

On the other hand, companies see sustainability more and more as a value driver and regulations can help to create new business fields. For example, the EU Battery Regulation and ELV Directive demand secondary material quotas that turn end-of-life waste into valuable products, hence creating new business opportunities."

Source: Capgemini Research Institute interview with Dirk Voeste, August 6, 2024.

05 Organizations struggle to convince consumers of their progress

More executives recognize greenwashing dangers

Greenwashing is the act of engaging in false or misleading advertising about environmental or sustainability claims for products and/or services. Six out of ten executives say they are concerned about public perception of their sustainability efforts, up from only 11% in 2023. More executives believe that consumers consider their organizations' sustainability initiatives as greenwashing, 43% this year, up from 17% in 2023 (see Figure 27).

Figure 27.

Sixty-two percent of executives are concerned that their organization's sustainability efforts might appear insincere to the public

% of executives who agree with the statements
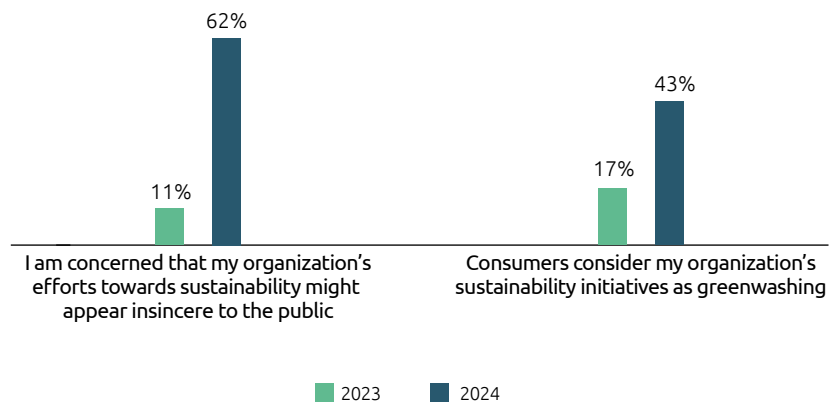
Source: Capgemini Research Institute, Sustainability transformation trends survey, August–September 2023, N = 2,151 executives; June–July 2024, N = 2,002 executives.

Greenwashing regulation brings more scrutiny and litigation

More countries are developing regulatory standards to ensure companies do not over-inflate their sustainability credentials. India is the latest country to develop legislation to outlaw greenwashing, joining the EU, the US, the UK, and Australia.[67] There are significant financial ramifications for being found guilty of greenwashing, and non-compliance attracts heavy fines.

Examples of regulatory standards being enforced to protect consumers are:

- EU's Green Claim Directive[68]
- US Federal Trade Commission's (FTC) Green Guides[69]
- the SEC's new disclosure and labelling regulations[70]
- Australian Competition and Consumer Commission's guidance[71]
- India's Central Consumer Protection Authority (CCPA) guidelines[72]

A tightening of regulation has led to further cases being uncovered, driving public and media awareness. In 2023, there was a 70% year-on-year increase in greenwashing, specifically within the banking and financial sector, with European financial institutions as the primary culprits.[73]

As of 2023, global climate litigation had increased threefold from 2017 levels. According to the Sabin Center for Climate Change Law at Columbia University, in 2023 at least three such cases were filed every week.[74] Organizations can face litigation over misleading marketing and promotions or securities litigation over artificial inflation of share price by publishing misleading sustainability credentials. In 2024, against a backdrop of more stringent consumer protection laws from the EU and the Competition and Markets Authority (CMA), almost four in 10 large UK organizations have been found guilty of greenwashing practices.[75]

Here are a few recent examples of climate and greenwashing litigation:

- In August 2023, 16 children won a case against the state of Montana regarding its energy policies, which also resulted in the UN Human Rights Council and the UN General Assembly recognizing "the right to a clean, healthy, and sustainable environment."[76]

- In June 2023, the Swiss Commission for Fairness (SLK) advised the International Federation of Association Football (FIFA) to avoid making unsubstantiated carbon-neutrality claims.[77]

- In March 2024, the Cologne Regional Court upheld greenwashing complaints against German airline Eurowings, as the airline offered its customers a "carbon neutral" flight option for a higher fee.[78]

62%

of executives are concerned that their organization's efforts towards sustainability might appear insincere to the public

Consumers across all age groups are more skeptical and distrustful

The percentage of all consumers who believe that organizations/brands are greenwashing their sustainability initiatives increased to 52% this year, up from one-third in 2023. Notably, the share of Gen Z and millennial consumers each increased by over 20 percentage points, and even the share of baby boomers increased to 37% this year (see Figure 28).

52%

of consumers globally believe that organizations/brands are greenwashing their sustainability initiatives

Figure 28.

Fifty-two percent of consumers believe organizations/brands are greenwashing their sustainability claims

% of consumers who believe that organizations/brands are greenwashing their sustainability initiatives, by age group
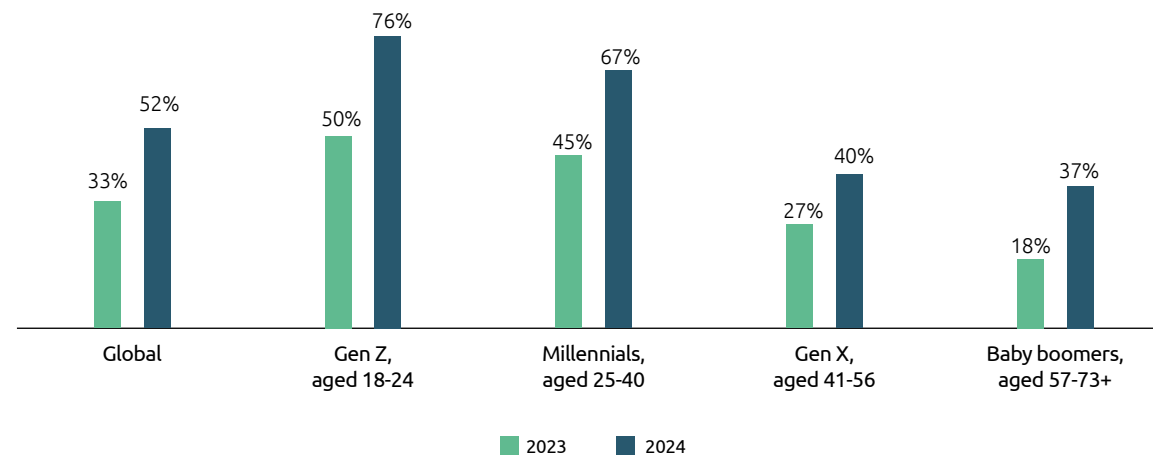
Source: Capgemini Research Institute, Sustainability consumer survey, October 2023, N = 6,500 consumers; June 2024, N = 6,500 consumers.

Gen Z and millennial consumers appear more aware of greenwashing. In our research last year, 49% of all consumers said they never, rarely, or only sometimes trust an environmental claim about a potential purchase. This increased to 59% in 2024 and is significantly higher among Gen Z (80%) and millennial consumers (83%).

Organizations risk loss of credibility from negative press coverage, diminished brand status, and a subsequent business impact. Our research reveals that, of those consumers who never, rarely, or only sometimes trust an environmental claim, 53% will not purchase a product they have doubts about. An additional 39% will inform friends/family that they do not trust the company/brand.

Most consumers see a greater role for the corporate sector

Three-quarters of consumers globally agree that corporations must play a larger role in reducing GHG emissions (see Figure 29), ranging from 64% in Germany to 84% in Japan. Consumers of all age groups and genders believe that corporations must do more.

59%

of consumers globally say they never, rarely, or only sometimes trust an environmental claim about a potential purchase

Figure 29.

Seventy-five percent of consumers globally believe corporations must do more to reduce emissions

% of consumers, by country, who agree with the statement: Corporations must play a larger role in reducing GHG emissions

Global	Japan	Sweden	India	Spain	Canada	Norway	France	The Netherlands	Australia	Italy	UK	US	Germany
75%	84%	82%	79%	78%	77%	77%	76%	76%	72%	70%	69%	66%	64%
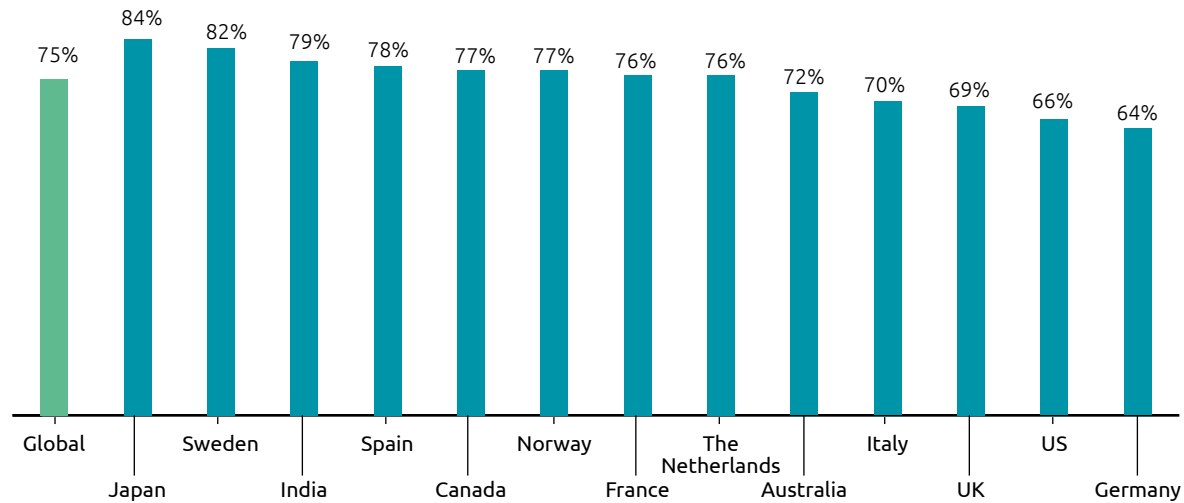
Source: Capgemini Research Institute, Sustainability consumer survey, June 2024, N = 6,500 consumers

Who are the sustainability leaders in 2024?

As this research series shows, many organizations work on sustainability initiatives in silos, lacking overarching strategy or governance. Becoming a sustainable business is a long and complex process, demanding wholesale transformation.

To gain a sense of where organizations are in their sustainability journeys and identify the leading organizations, we mapped their sustainability maturity across three dimensions:

- **Value chain processes:** These include sourcing, R&D/product design/innovation, manufacturing, and logistics, as well as the use of technology for sustainability.

- **Sustainability enablers:** This dimension relates to organizations' getting their people to buy into their sustainability cultures, supported by corporate functions such as IT, finance and accounting, and sales and marketing.

- **Tech accelerators:** This dimension refers to the adoption of digital technologies and pathways to accelerate sustainability transformation.

Figure 30.
The building blocks of sustainability transformation

Value chain processes	Sustainability enablers	Tech accelerators
• Sourcing • Innovation/R&D/ product design • Manufacturing and production • Operations • Logistics • Technology	• Vision and leadership • Talent • Culture • IT • Finance and accounting • Sales and marketing	• AI/machine learning • Automation • AR/VR • Collaboration tools • 3D printing • Digital twins • IoT/IIoT • Robotics • Hydrogen • Gigafactories • Electrification • Smart grids • Bioeconomy • Carbon capture, utilization, and storage

Source: Capgemini Research Institute analysis.

We identified three cohorts:

1. **Frontrunners:** Significant progress along the three dimensions

2. **Experimenters:** Low maturity in one or two of the above three dimensions

3. **Beginners:** Low maturity along the three dimensions

Our framework includes nearly 80 statements to assess the maturity of the organizations across the three dimensions. Please refer to the list of statements in the Appendix.

In 2024, 7% of organizations in our survey are considered frontrunners, 56% are experimenters, and 37% are beginners. Overall, organizations have improved or kept their scores steady across all metrics compared with 2023.

06 | Recommendations: How organizations can drive lasting sustainability impact

Transformation requires enterprise-level coordination, functional commitment, and an overhaul of the operating model and business processes. Our 2022 report focused on specific recommendations and actions for eight C-suite positions in order to lay the groundwork. In last year's report, we challenged executives to close the intention-action gap by:

- Ensuring sustainability is a boardroom priority
- Embedding social sustainability in the business strategy
- Focusing on accurately quantifying Scope 3 emissions
- Embracing circular and inclusive design
- Exploring the potential of technology to achieve climate goals.

All of the recommendations we shared in previous editions hold true today. The current research leads us to make an additional set of recommendations for organizations to drive lasting, sustainable, and inclusive transformations and impact. These include:

Figure 31.
Key actions for sustainable and inclusive transformation

01 Anticipate and prepare for regulatory changes and geopolitical uncertainties that may affect sustainability investments	02 Frame sustainability as a driving force for innovation and business value	03 Embed circularity in the full value chain
04 Elevate water and biodiversity as key priorities of sustainability strategies	05 Invest in climate tech solutions and data and digital technologies that can help reduce emissions, optimize resources, and enhance resilience	06 Prioritize customer centricity in sustainability strategy and initiatives to build trust
07 Ensure the achievement of sustainability goals are an enterprise-wide focus		

Source: Capgemini Research Institute analysis.

Anticipate and prepare for regulatory changes and geopolitical uncertainties that may affect sustainability investments

Our research reveals that sustainability is geopolitically and politically sensitive. Governments worldwide are developing stricter regulations in an attempt to mitigate the climate emergency. Sustainability initiatives offer organizations a minimally disruptive way of becoming future-ready for such scenarios. Organizations should collate and track regulatory developments over time and across the geographies where they operate. Analyzing this information and the concurrent geopolitical and climatic changes can help organizations build a robust regulatory intelligence program. Integrating regulatory intelligence within the decision-making process from the beginning (rather than referring to it as an afterthought) helps organizations be better prepared for regulatory compliance.

Almost all (98%) of frontrunner organizations believe regulation is necessary to achieve climate goals and

standardize sustainability tracking and reporting. Tracking and reporting of Scope 3 emissions continues to be a challenge for most organizations. However, with the first CSRD reports due in 2025, urgency is increasing.

While regulations can accelerate sustainability initiatives, geopolitical conflict often slows down the progress of such projects. José Antonio Coll of Airbus, says: *"Geopolitics has a significant impact on our sustainability investments one reason is because of our global industrial footprint and supply chains. As we and our supply chain operate under different regulations in various countries, we implement risk management checks to ensure we are operating sustainably, with a focus on how and where we source materials responsibly. Additionally, we work with many defense ministries, so export control and due diligence is crucial depending on the geopolitical context."*

This year, 65% of executives agree that geopolitics is driving a slowdown in investments and projects. As we discussed in our reindustrialization research, here are a few ways organizations can mitigate geopolitical risk:[79]

- Conduct a geopolitical assessment prior to undertaking a sustainability project within a country, which includes analyzing the relationship between countries, trade policies, tariff structure, law and order, and governance structures.

- Increase emphasis on domestic manufacturing in critical strategic sectors such as electric vehicle batteries, semiconductors, or medicines. This also aids in shortening supply chains, thereby reducing carbon emissions.

- Diversify supply chains across different geographies to avoid risk exposure from relying on a single source.

- Ensure an open dialogue with regulators and governments to remain well-informed about industrial developments. Shared resources, insights, and innovative solutions can help to mitigate risk across the ecosystem.

98%

of frontrunner organizations believe regulation is necessary to achieve climate goals and standardize sustainability tracking and reporting

Frame sustainability as a driving force for innovation and business value

The sustainability business case is clear to most executives and they agree the benefits outweigh the costs. Organizations must articulate the potential for sustainability investments to drive innovation and create business value across the enterprise, from operations to manufacturing, to products and services to technology and people. The value in setting sustainability goals is not just in compliance but to drive business growth and resilience.

Measurement and reporting are levers to support this value creation as data is required to demonstrate tangible outcomes. With stricter regulations and reporting standards being implemented every few years, it has become even more important for organizations to accurately measure and report sustainability-related data. Sustainability reporting can no longer be regarded solely as the purview of the CFO; it is a complex business imperative that requires broad collaboration across the organization.

Over the years, progress has been made in measurement and reporting, facilitated by sustainability software, enhanced data and analytics capabilities, better sustainability metrics, and increased awareness among stakeholders. As a result, most organizations now have better control over Scope 1 and Scope 2 emissions. However, measurement, tracking, and reporting of Scope 3 emissions continue to be a challenge. The urgency around controlling Scope 3 is increasing, especially with CSRD.

Incorporating ESG ratings, environmental pledges, and Science-Based Targets initiative (SBTi) targets within vendor selection criteria and closely working with tier-2 and tier-3 suppliers to track carbon emissions in the supply chain are some of the solutions that can help organizations get better control over Scope 3 emissions. In addition, in order to make sustainability reporting more objective, accurate, and reliable, the majority of frontrunners rely on external third-party agencies (see Figure 32). "Limited third-party assurance" is a mandatory requirement for CSRD – an initiative aimed at increasing the reliability of sustainability reports. It involves the verification of sustainability reports by an accredited independent third party, and this verification needs to be part of the CSRD report submitted.[80]
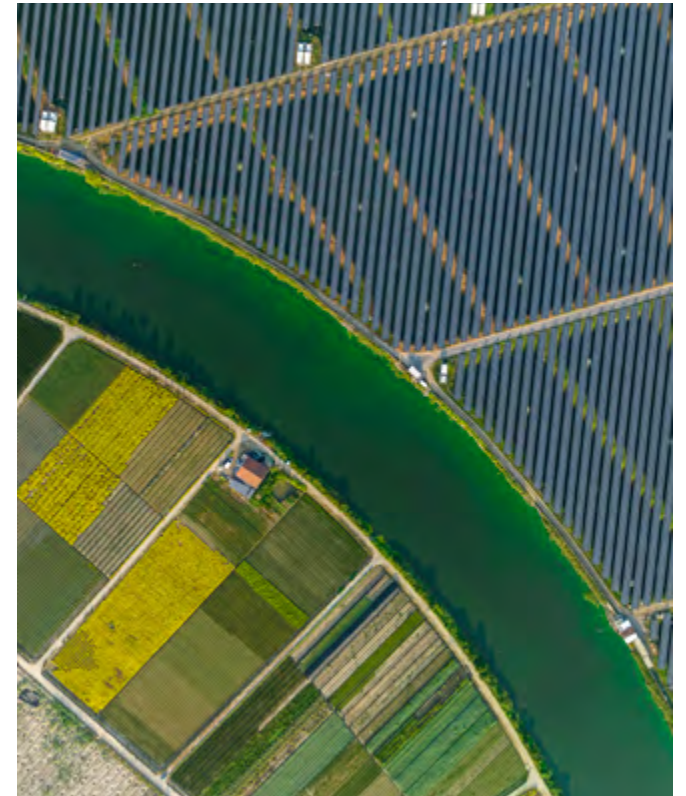
Figure 32.

Three out of four frontrunners use an external third-party for sustainability reporting/auditing

% of executives who agree with the statements
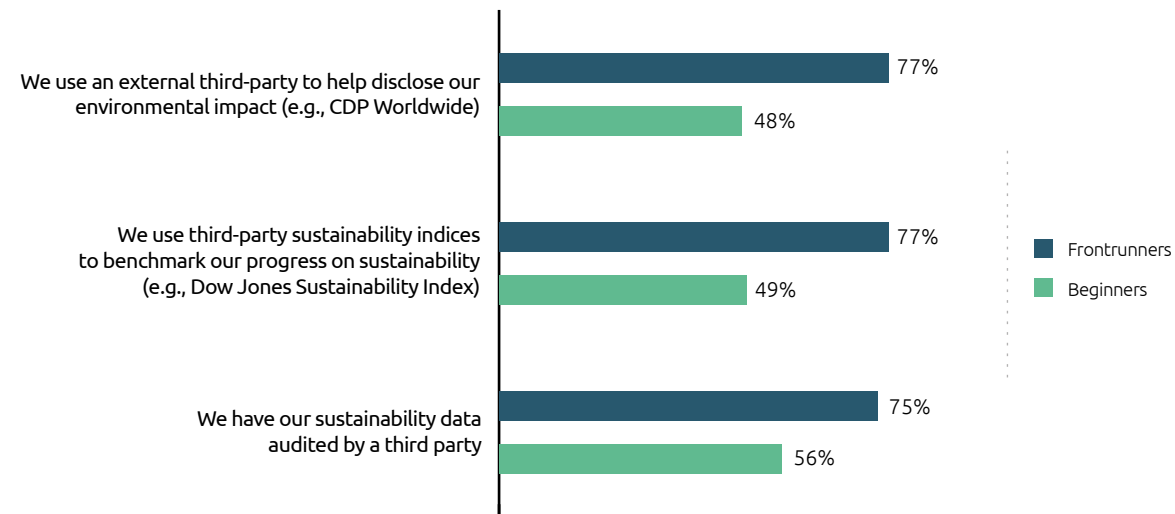
We use an external third-party to help disclose our environmental impact (e.g., CDP Worldwide) — Frontrunners 77%, Beginners 48%

We use third-party sustainability indices to benchmark our progress on sustainability (e.g., Dow Jones Sustainability Index) — Frontrunners 77%, Beginners 49%

We have our sustainability data audited by a third party — Frontrunners 75%, Beginners 56%

Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 628 organizations, 44 frontrunners, 227 beginners.

Embed circularity in the full value chain

In our 2022 report, we stressed the importance of embedding sustainability as a core design principle. In our 2023 research, we emphasized the need for organizations to reduce waste, extend the lifespan of their products, and appeal to sustainability-conscious consumers. This year, we have seen steady progress towards this objective, with recycling now a common manufacturing practice and with increased emphasis on sourcing raw materials locally, waste recovery, and product recycling. Most frontrunners are working toward a circular value chain (see Figure 33).

It is also important for organizations to partner with recyclers who are committed to circularity principles. Given the complexity of local, regional, and national laws regarding recycling and waste disposal, it is crucial that organizations build an ecosystem of partners. As consumers demand more sustainable products, adopting circularity in product design ensures the customer remains central. Further, circular design and operational principles drive the creation of business value and the recognition that sustainability is a force for innovation.

Figure 33.
Four out of five frontrunners are working on a circular value chain

% of executives who agree with the statements

We are working towards a circular value chain, with increased emphasis on recovery, repair, and reuse of materials, and waste reduction — 80% / 59%

Recycling products is a core aspect of our manufacturing strategy — 80% / 67%

We make a concerted effort to source raw materials locally — 75% / 62%

■ Frontrunners
■ Beginners

Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 628 organizations, 44 frontrunners, 229 beginners.
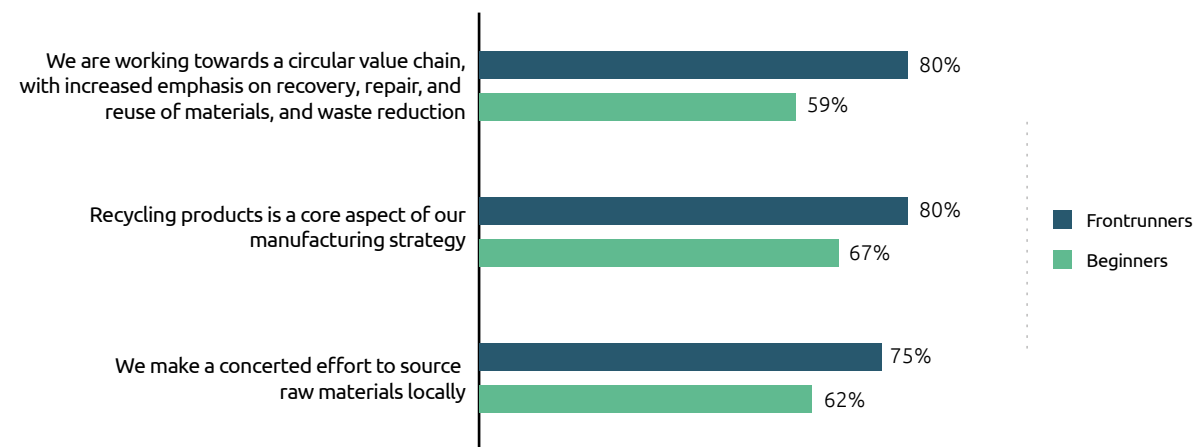
At least seven out of 10 organizations have now incorporated sustainable design principles over the past three years in order to reduce dependency on fossil-fuel feedstock sources and forest resources. These measures will continue to be important in order to minimize GHG emissions, preserve natural resources, and maintain biodiversity. Performing a detailed life cycle assessment (LCA) of products/services is a crucial step to optimize their carbon footprint, already being conducted by 62% of organizations. Extending the life of products/services can increase relevance and reduce waste. Technological solutions such as AI and data analytics can play a significant role in circularity through life cycle assessment, resource discovery, and material/process optimization.

80%

of frontrunner organizations are working towards a circular value chain

Elevate water and biodiversity as key priorities of sustainability strategies

Almost half of the world's population faces severe water scarcity for at least some part of the year.[81] Extreme weather conditions driven by climate change have resulted in frequent and severe droughts in many parts of the world, triggering an increase in geopolitical tensions – a major risk for global organizations.[82] The health of water systems is also fundamental to the health and diversity of ecosystems. Protecting water resources is essential for preserving biodiversity and maintaining the balance of natural systems. Our research reveals that organizations have made progress on water and natural resource conservation over the past three years. However, our biodiversity research revealed that only one quarter of organizations have a biodiversity strategy and 53% of executives surveyed believe biodiversity loss is less of a priority than climate change.[83] Biodiversity is closely interconnected with climate change and actions taken for each cause inevitably impact the other, which means both should be considered equally.

Regular water audits, deploying water efficient fixtures, water recycling systems, redesigning products and/or processes to reduce water requirements, exploring alternative cooling technologies for manufacturing processes or data centers are some of the solutions organizations can integrate within their water stewardship program. Organizations can also increase awareness of water usage and the need to conserve among employees and educate customers.

53%

of executives surveyed in 2023 believed biodiversity loss is less of a priority than climate change.
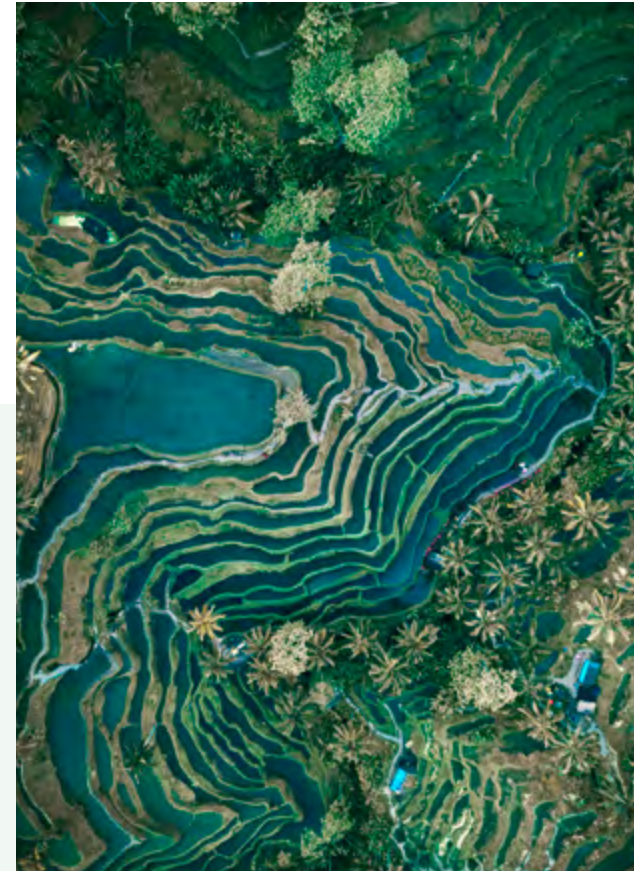
Invest in climate tech solutions and data and digital technologies that can help reduce emissions, optimize resources, and enhance resilience

Last year, we emphasized the importance of climate technologies – defined as technologies specifically designed to tackle and mitigate environmental challenges including climate change, resource depletion, and biodiversity loss. Examples of climate tech include renewable energy, carbon storage, biofuels, low-carbon hydrogen, and synthetic biology. This year, we continue to see its importance in meeting sustainability targets. Our research reveals 91% of frontrunners agree they will never be able to achieve their sustainability goals without climate tech, compared to 75% of beginners.

Organizations across sectors such as aerospace and defense, automotive, agriculture and forestry, energy and utilities and industrial manufacturing are experimenting with several climate technologies in order to reduce GHG emissions. Peter Rupp of Hilti Group, says: *"Technology plays a major role in creating greener products for the construction industry. We partner with steel manufacturers to advance innovative technologies to source green steel – the manufacturing of steel without fossil fuels, using hydrogen or green electricity."* José Antonio Coll of Airbus, says: *"To cut CO₂ emissions and boost operational efficiency, one example is that we are using technologies that can improve the efficiency of turbine aircraft engines and also compatibility and utilization of sustainable aviation fuels. We are also pushing simulation technologies to help our customers avoid flying all the time, thereby saving*

costs and reducing emissions. On space technologies, a very big problem is space debris, so we are working together with customers and the industry on technologies to reduce emissions and also find efficient ways to re-utilize satellites after they reach end-of-life."

Executives also recognize the importance of data and digital to sustainability. Sixty-nine percent of executives agree that data and digital technologies will accelerate climate tech adoption. Development of innovative business models, digitalization of existing processes, and identification of technological solutions which seamlessly align and integrate within the organization's ecosystem will help drive the adoption of climate tech and data and digital technologies within an organization. Governments can further bolster adoption through grants, subsidies and tax credits.
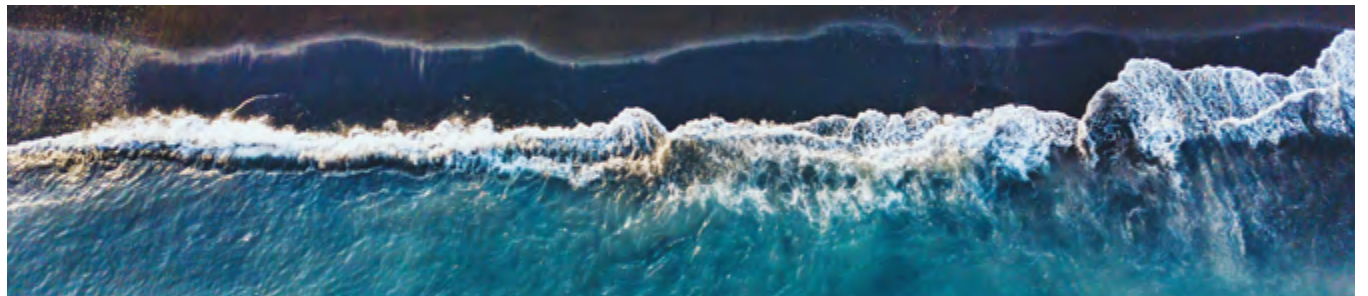
Prioritize customer centricity in sustainability strategies and initiatives to build trust

The customer must be the central focus of sustainability strategies and initiatives. Their expectations and preferences for sustainability must be considered when designing and building products and services as well as communicating and marketing them. Under stricter scrutiny, organizations must be especially careful when making sustainability claims. Owing to significant media interest in greenwashing scandals and public access to organizational data, consumers – Gen Z and millennials, in particular – are much better informed nowadays. They can easily validate or discredit sustainability claims against multiple sources.

Organizations should bolster their sustainability claims with evidence-backed data. This helps avoid greenwashing and builds long-term trust and credibility around the brand among consumers (as well as regulators). Evidence-backed data can also help organizations support claims made on the health and safety impact of products/services on customers. Adhering to external guidelines is one way frontrunner organizations mitigate greenwashing (see Figure 34).

Figure 34.

Eight out of 10 frontrunners follow external guidelines on responsible communication and advertising to mitigate greenwashing

% of executives who agree with the statements
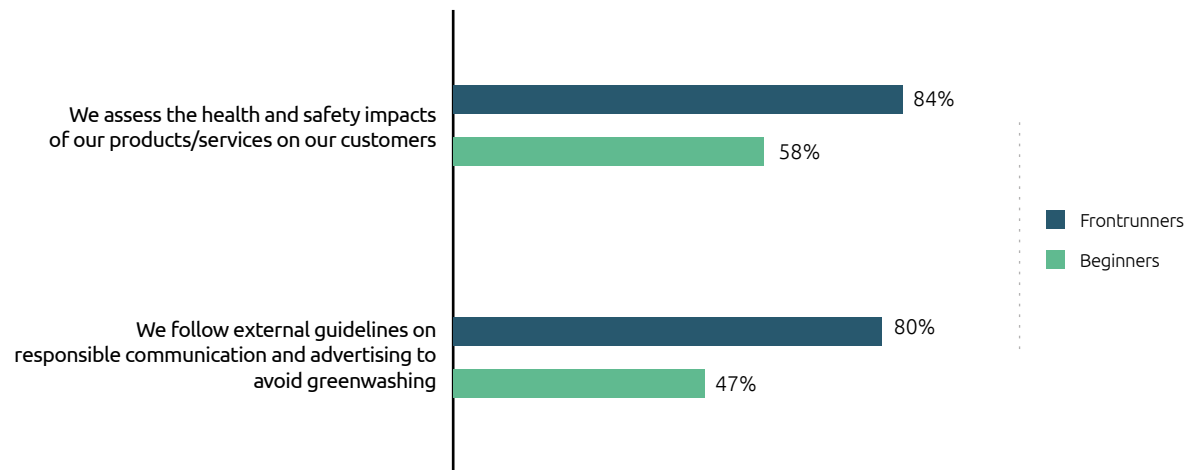
We assess the health and safety impacts of our products/services on our customers
- Frontrunners: 84%
- Beginners: 58%

We follow external guidelines on responsible communication and advertising to avoid greenwashing
- Frontrunners: 80%
- Beginners: 47%

■ Frontrunners
■ Beginners

Source: Capgemini Research Institute, Sustainability transformation trends survey, June–July 2024, N = 628 organizations, 44 frontrunners, 231 beginners.

Ensure the achievement of sustainability goals are an enterprise-wide focus

The successful achievement of sustainability targets requires broad collaboration across functions, teams and departments. Every function and business unit must understand the implications and opportunities from their respective scopes to contribute to sustainability goals. Further, individual employees should also understand how they can directly contribute in helping their organization to achieve environmental and social targets.

Organizations have progressed in offering education and training to employees on sustainability as well as upskilling and reskilling on sustainability skills since 2022. The success of sustainability initiatives rely greatly on employees' engagement and cross-functional teams; hence, ensuring the appropriate skill sets is imperative. Our research reveals that 93% of frontrunners say that their employees understand how their business impacts the environment across the value chain, compared to 61% of beginners. Organizations should prioritize skilling initiatives around how employees can help support Scope 3 emissions

reporting and reduction, how they can support circularity in their day-to-day role, the importance of conserving water, reducing waste, and being transparent and sincere in marketing and communications to mitigate greenwashing, among other areas.

With regulation being a key driver of sustainability programs, it is equally important to educate employees

about the required guidelines and standards. Sustainability reporting and compliance demands wide collaboration across business functions. As organizations use sustainability to drive business value, it is critical to raise awareness and bring attention to the role each employee and team can play.
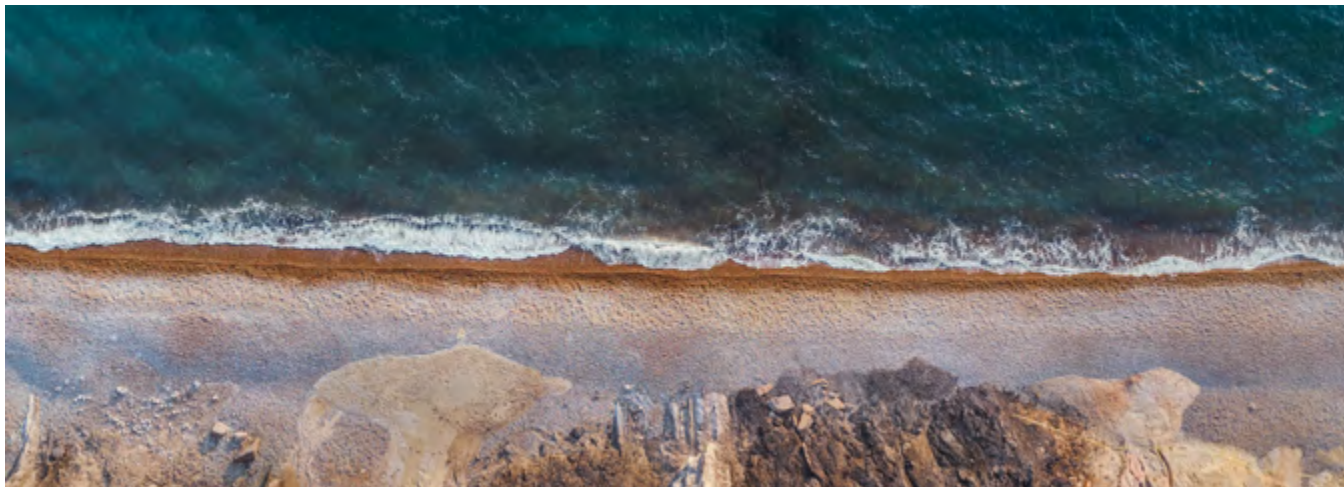
Conclusion

Building on three years' worth of data, this year's research underscores the steady progress made by organizations in sustainability. It also highlights the pivotal role of regulation, the potential of climate tech, and the influence of geopolitics on sustainability investments. Our research reveals significant uncertainty in global sustainability investments due to current geopolitical dynamics. Even if organizations might pause or push off sustainability investments, the clock is still ticking. We do not have the time to delay. We must call for enhanced measurement, consumer trust, and investment in climate tech to drive impactful transformation for a more inclusive and sustainable future.

Research methodology

We surveyed 2,152 executives employed at 727 organizations, each with more than $1 billion in annual revenue, across 13 countries in North America, Europe, and Asia-Pacific and in 12 industries and sectors.

- **Countries covered included:** Australia, Canada, France, Germany, India, Italy, Japan, the Netherlands, Norway, Spain, Sweden, the UK, and the US.

- **Industries and sectors covered included:** aerospace and defense, agriculture and forestry, automotive, consumer products, energy, financial services, healthcare and life sciences, industrial manufacturing, retail, telecom, utilities, and the public sector/government.

Executives surveyed were director level and above. They were divided into the following profile groups:

- Fifty percent were executives from corporate functions, including strategy, sustainability, sales and marketing, finance and accounting, IT, operations, and human resources.

- Fifty percent were executives from value-chain functions, including innovation/R&D, product design and development, sourcing and procurement, supply chain and logistics, and manufacturing and production.

We surveyed three executives on average from every organization. The global survey took place in June and July 2024. The distribution of executives and their organizations is provided in the following charts. We also conducted a global survey of 6,500 consumers over the age of 18 across the 13 countries. Lastly, we conducted interviews with 12 senior sustainability executives at leading organizations globally.

The study findings reflect the views of the respondents to our online questionnaire for this research and are aimed at providing directional guidance. Please contact one of the Capgemini experts listed at the end of the report to discuss specific implications.

Note: For any chart that compares 2022, 2023, and 2024 data, the sample excludes respondents from Norway and the agriculture and forestry sector, as they did not partake in the 2022 and/or 2023 surveys; hence, in these analyses, N = 1,859 executives and 628 organizations. For any chart that compares 2023 and 2024 data, the sample excludes respondents from the agriculture and forestry sector, as they did not partake in the 2023 survey. In these analyses, N = 1,002 executives and 677 organizations.

% of executives by organization enterprise-level revenue, in USD

	$1 bn–$5 bn	$5 bn–$10 bn	$10 bn–$20 bn	$20+ bn
2022	47%	20%	15%	18%
2023	48%	20%	15%	17%
2024	45%	21%	14%	20%

■ 2022 ■ 2023 ■ 2024
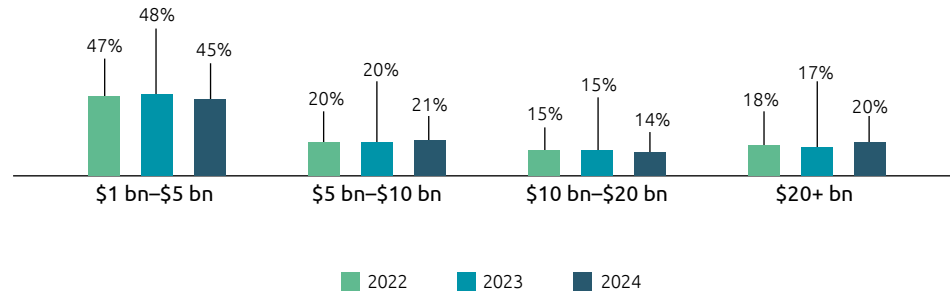
% of executives by job title

	Director	Vice President	Executive
2022	60%	37%	2%
2023	61%	37%	2%
2024	63%	35%	2%

■ 2022 ■ 2023 ■ 2024
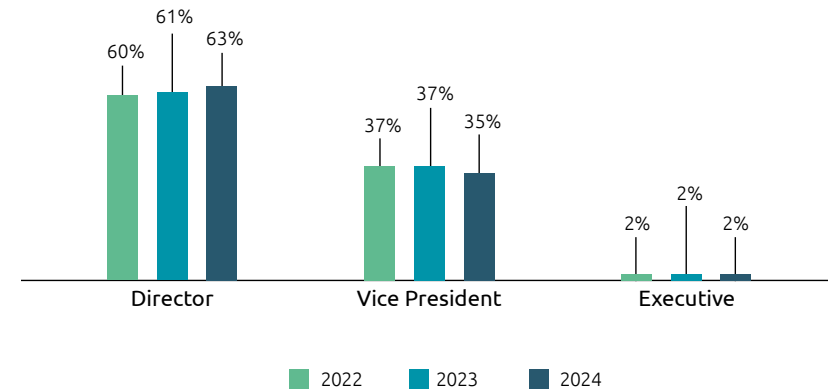
% of executives by location of headquarters of current organization

Australia: 9%, 9%, 9%
Canada: 9%, 8%, 8%
France: 9%, 8%, 8%
Germany: 9%, 8%, 8%
India: 9%, 8%, 8%
Italy: 8%, 8%, 7%
Japan: 8%, 8%, 7%
The Netherlands: 7%, 7%, 7%
Norway: 0%, 7%, 7%
Spain: 7%, 7%, 7%
Sweden: 7%, 7%, 7%
UK: 8%, 8%, 8%
US: 9%, 9%, 10%

■ 2022   ■ 2023   ■ 2024
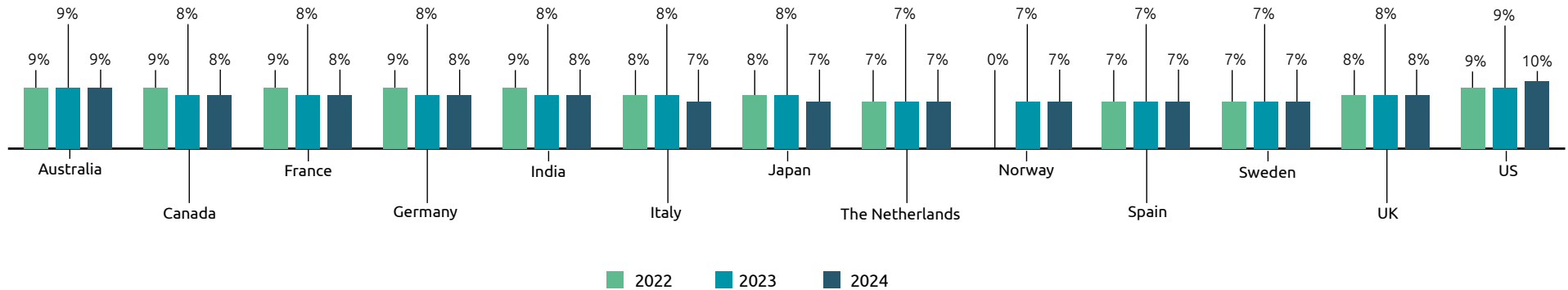
% of executives by industry of current organization

Aerospace and defense: 8% (2022), 7% (2023), 8% (2024)
Agriculture and forestry: 7% (2024)
Automotive: 9% (2022), 8% (2023), 8% (2024)
Consumer products manufacturing: 10% (2022), 10% (2023), 9% (2024)
Energy: 9% (2022), 9% (2023), 9% (2024)
Financial services: 11% (2022), 12% (2023), 12% (2024)
Healthcare and life sciences: 9% (2022), 8% (2023), 7% (2024)
Industrial manufacturing: 9% (2022), 10% (2023), 9% (2024)
Public/government: 9% (2022), 9% (2023), 7% (2024)
Retail: 11% (2022), 12% (2023), 11% (2024)
Telecom: 8% (2022), 8% (2023), 7% (2024)
Utilities: 8% (2022), 7% (2023), 7% (2024)

2022 2023 2024

% of executives by business function of current organization
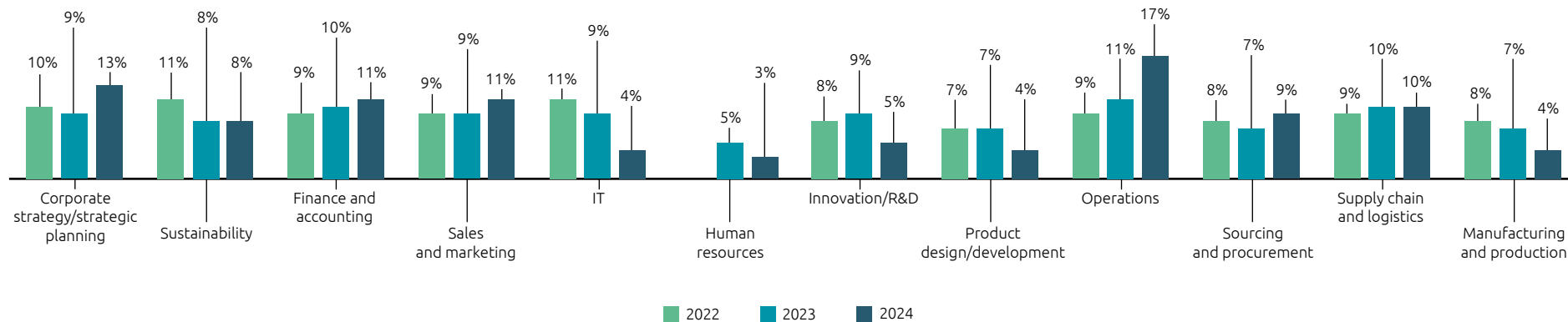
	2022	2023	2024
Corporate strategy/strategic planning	10%	9%	13%
Sustainability	11%	8%	8%
Finance and accounting	9%	10%	11%
Sales and marketing	9%	9%	11%
IT	11%	9%	4%
Human resources		5%	3%
Innovation/R&D	8%	9%	5%
Product design/development	7%	7%	4%
Operations	9%	11%	17%
Sourcing and procurement	8%	7%	9%
Supply chain and logistics	9%	10%	10%
Manufacturing and production	8%	7%	4%

Source: Capgemini Research Institute, Sustainability transformation trends survey, August–September 2022, N = 2,004 executives, 668 organizations; August–September 2023, N = 2,151 executives, 718 organizations, June–July 2024, N = 2,152 executives, 727 organizations.
*Utilities includes electric utilities, gas utilities, water utilities, and waste management. Energy includes oil and gas, alternative/renewable energy, and energy services. Consumer products manufacturing includes apparel, footwear, household, and personal care. Financial services includes retail banking and insurance.
**Agriculture and forestry was not included in the 2022 or 2023 surveys.

% of consumers by age group

Gen Z, aged 18–24: 15% (2023), 15% (2024)
Millennials, aged 25–40: 29% (2023), 29% (2024)
Gen X, aged 41–56: 30% (2023), 30% (2024)
Baby Boomers, aged 57–73+: 26% (2023), 26% (2024)

■ 2023   ■ 2024
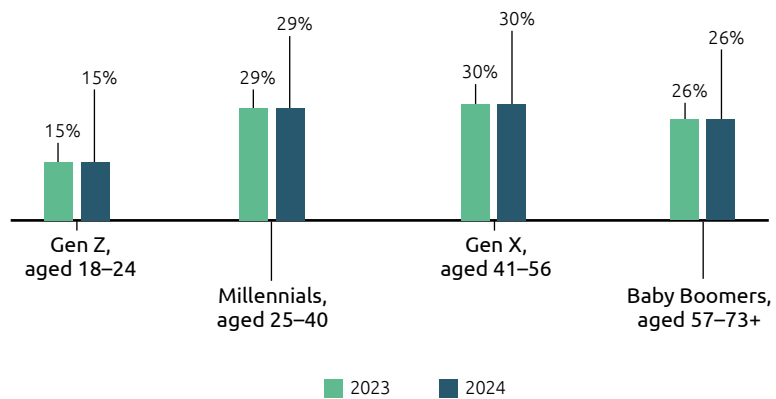
% of consumers by gender identity

Man: 51% (2023), 49% (2024)
Woman: 49% (2023), 51% (2024)

■ 2023   ■ 2024
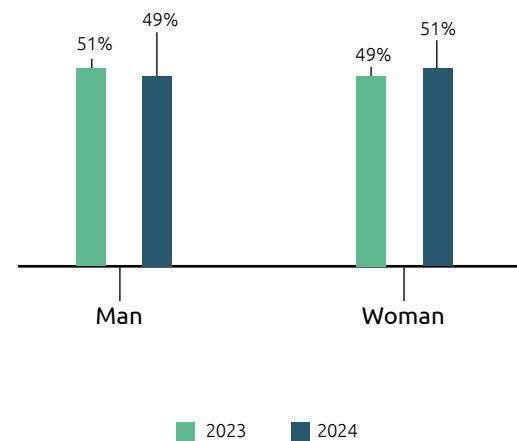
% of consumers by country of residence
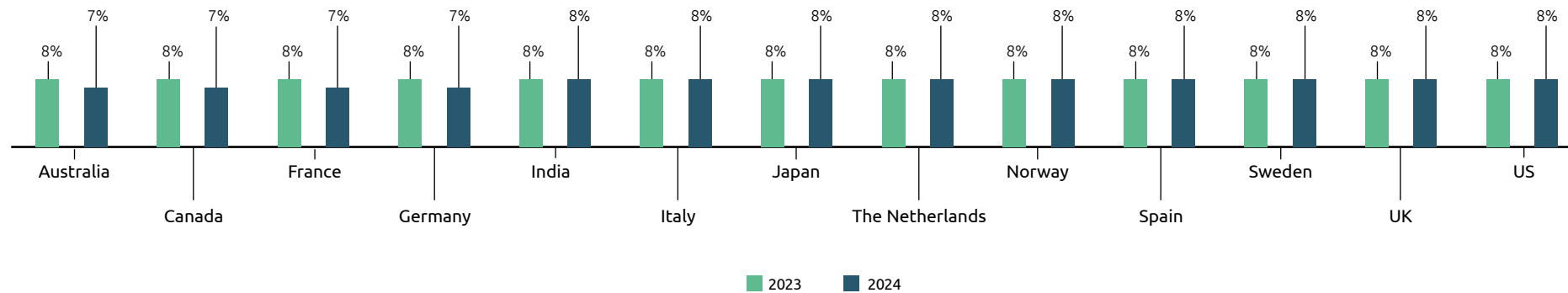
Country	2023	2024
Australia	8%	7%
Canada	8%	7%
France	8%	7%
Germany	8%	7%
India	8%	8%
Italy	8%	8%
Japan	8%	8%
The Netherlands	8%	8%
Norway	8%	8%
Spain	8%	8%
Sweden	8%	8%
UK	8%	8%
US	8%	8%

■ 2023   ■ 2024

Source: Capgemini Research Institute, Sustainability consumer survey, October 2023, N = 6,500 consumers; June–July 2024, N = 6,500 consumers

Appendix

Questions asked in each of the three years and used to calculate the sustainability maturity index among organizations in our survey.

Statement	2022	2023	2024
N = executives	2,004	2,001	1,859
Vision and leadership (asked to corporate functions)	% of executives who agree with the statement		
• Top leadership share a common vision of how the business needs to change to become sustainable	58%	69%	68%
• The sustainability vision is well integrated into the core strategy of the organization	52%	55%	58%
• We have defined a corporate purpose that extends to the environment and society (i.e., purpose meaning a reason for being beyond profit)	55%	57%	63%
• Sustainability aspects are considered in corporate decisions across the organization	56%	61%	68%
• We have a sustainability task force with representatives from all functions of the organization	53%	55%	63%
• We have a clearly defined priority list of sustainability initiatives to be implemented in the next three years	49%	61%	68%
• Sustainability is part of each of our C-suite executives' agenda	64%	59%	66%
• We are redesigning our business/operating model, so it is more sustainable	37%	57%	62%
• We use third-party sustainability indices to benchmark our progress on sustainability (e.g., Dow Jones Sustainability Index)	50%	42%	54%
• We have a strategy to transition to renewable energy for all sources (i.e., a switch from conventional to renewable energy for electricity, fuel, heating)	54%	60%	68%
• Circularity (i.e., a product is created with its own end-of-life considered; once the user is finished with the product, it goes back into the supply chain instead of the landfill) is a key component of our sustainability strategy	58%	56%	65%
• We have internal governance policies and procedures relating to environmental and social sustainability	48%	59%	59%
• We use an external third-party to help disclose our environmental impact (e.g., CDP Worldwide)	54%	49%	58%
• We have set up an internal carbon pricing to aid our decision-making for new projects	45%	57%	59%

Statement	2022	2023	2024
N = executives	**2,004**	**2,001**	**1,859**
Talent (asked to corporate functions)	% of executives who agree with the statement		
• Upskilling/reskilling on hard sustainability skills (e.g., renewable energy, carbon accounting, environmental science/engineering, data analysis/visualization) is a top priority for our organization	41%	52%	60%
• Upskilling/reskilling on soft sustainability skills (e.g., leadership, innovation, communications, design thinking) is a top priority for our organization	50%	48%	56%
• We actively recruit and hire new talent with strong sustainability skills	47%	64%	63%
• We train our employees to adopt sustainable practices in-office	50%	64%	74%
• We equip our employees with tools to support their low-carbon transition (e.g., giving reusable water bottles to reduce single-use plastic, utilities tracker for carbon footprint)	41%	52%	59%
• We train employees on the importance of sustaining the environment	52%	69%	73%
• Employees have sustainability KPIs that they are evaluated against as part of performance management	46%	46%	59%
• Leaders have sustainability KPIs that they are evaluated against as part of performance management	60%	62%	65%
• We have employees with eco-design and sustainable design skills	51%	62%	71%

Statement	2022	2023	2024
N = executives	2,004	2,001	1,859
Culture (asked to corporate functions)	% of executives who agree with the statement		
• Employees understand how our business impacts the environment along the value chain	58%	67%	69%
• We encourage research and experimentation to develop new initiatives for sustainability	55%	53%	61%
• We provide autonomy to employees to develop new solutions to sustainability challenges	50%	59%	62%
• We actively collaborate with interested stakeholders, including customers, investors, academia and governments, to develop and promote sustainable approaches	48%	55%	57%
• Our leaders are focused on profit at the expense of our environmental footprint	29%	39%	41%
• All our sustainability reporting and claims are backed by robust audited data	58%	61%	70%

Statement	2022	2023	2024
N = executives	2,004	2,001	1,859
Technology (asked to value chain functions)	% of executives who agree with the statement		
• We measure the environmental impact of technologies before using them	52%	66%	71%
• We use technology to minimize landfill usage efficiently (e.g., smart waste management for tracking, sorting using robots for recycling, using AI/ML to reduce waste)	53%	47%	55%
• We use technology such as AI, automation, or digital twins to achieve our sustainability agenda	58%	54%	63%
• We are using IoT/IIoT to monitor/reduce energy consumption	56%	57%	61%
• We use 3D printing to produce less waste and save fuel required for transport (asked only for industrial manufacturing/CP/LS/auto/telecom/A&D)	40%	60%	57%
• We use digital technologies (e.g., AR/VR, collaboration tools) to reduce travel needs of employees	54%	54%	59%
• We use blockchain/smart contracts to make our supply chain more sustainable	43%	56%	58%
• We use tools such as supply chain control tower for monitoring and measuring our ESG metrics	53%	65%	65%
• We use AI/ML to optimize data center utilization	43%	53%	56%
• We are able to measure and collect data on all our scope 1 and scope 2 emissions	60%	61%	66%
• We are able to measure and collect data on all our scope 3 emissions	60%	51%	58%
• Sustainability-related data is available and shared across the entire organization (e.g., functions, business units, employees, managers)	43%	56%	68%
• Sustainability-related data is available to interested stakeholders external to the organization (e.g., investors, activists, governments, consumers)	48%	58%	66%

Statement	2022	2023	2024
N = executives	2,004	2,001	1,859
Manufacturing (asked to value chain functions)	% of executives who agree with the statement		
• We are minimizing over-production and waste in the production process (Asked for industrial manufacturing/CP/LS/auto/telecom/A&D)	60%	73%	67%
• We are shifting our manufacturing footprint to places/locales with low carbon alternatives	55%	57%	63%
• We are redesigning processes, so they consume less energy (e.g., improving process heating in the production process, powering down equipment at the end of the day)	50%	55%	62%
• We measure the energy consumption of our industrial processes	43%	64%	71%

Statement	2022	2023	2024
N = executives	2,004	2,001	1,859
Operations (asked to value chain functions)	% of executives who agree with the statement		
• We use responsible recyclers who do not export our e-waste to developing countries or improperly dispose of it	52%	65%	62%
• We are reducing food waste in our operations (e.g., by improving accuracy of forecasting, clearer expiration dates)	48%	43%	53%
• We have implemented a water stewardship program (i.e., using water in a way that is socially equitable, environmentally sustainable and economically beneficial)	55%	64%	75%
• We actively work to recover waste (i.e., using wastes as an input material to create useful products as new outputs)	54%	66%	75%
• We take back end-of-life products from customers to use them in the remanufacturing process/upcycle	52%	53%	64%
• Recycling products is a core aspect of our manufacturing strategy	53%	62%	72%
• We monitor the conversion of natural ecosystems (i.e., changes owing to deforestation) on our owned/managed lands	47%	59%	60%
• We invest in conserving natural habitats (such as rainforests)	43%	56%	66%
• We have smart systems in place to monitor and reduce energy consumption (e.g., sensors to optimize heating in buildings)	54%	58%	65%
• We are adopting plant-based food in our operations (e.g., offering only vegetarian meals/snacks in office, promoting plant-based diets to employees/customers)	50%	38%	42%

Statement	2022	2023	2024
N = executives	**2,004**	**2,001**	**1,859**
Sourcing (asked to value chain functions)	% of executives who agree with the statement		
• We consider the ESG ratings and environmental pledges taken by suppliers during supplier selection	50%	66%	63%
• We are working with our tier -1 suppliers to identify measures for reducing their carbon emissions	57%	52%	58%
• We are working with our tier-2 and tier-3 suppliers to identify measures for reducing their carbon emissions	54%	50%	60%
• We use suppliers who have validated SBTI targets to procure raw materials	51%	57%	65%
• We make a concerted effort to source raw materials locally	50%	63%	64%
• We are working towards reducing deforestation in our supply chain	55%	60%	62%

Statement	2022	2023	2024
N = executives	2,004	2,001	1,859
Innovation/R&D/Product Design (asked to value chain functions)	% of executives who agree with the statement		
• We are reducing the use of packaging material in our products (Not asked for public/energy/utilities)	49%	59%	62%
• We are designing products so they can serve their originally intended functions longer (i.e., lifetime extension as opposed to planned obsolescence, in which products are designed to fail after a specific time) (Not asked for public/energy/utilities)	57%	47%	55%
• We use AI/data analytics to aid in the discovery of optimal raw materials (Not asked for public)	52%	55%	61%
• We follow sustainable prototyping and testing processes (e.g., use of additive manufacturing or 3D printing) (Not asked for public/retail/energy/utilities)	46%	56%	62%
• We are redesigning products to remove fossil fuel feedstock sources (such as coal) (Not asked for public/ retail/ energy/ utilities)	47%	62%	69%
• We are redesigning products to have a lower impact on forests (e.g., using less wood so fewer trees are cut down)	44%	59%	67%
• We are building solutions to reduce the environmental footprint of our end users/customers	51%	57%	63%
• We perform LCA (life cycle assessment) on all of our products/services	54%	55%	56%

Statement	2022	2023	2024
N = executives	2,004	2,001	1,859
Logistics (asked to value chain functions)	% of executives who agree with the statement		
• We use analytics for optimizing logistics to reduce travel and associated emissions	48%	72%	72%
• We have adopted eco-friendly transportation strategies to reduce emissions (e.g., use of low-carbon fuels, electric vehicles, replacing old fleets with more energy-efficient ones)	62%	56%	64%
• We have dedicated reporting from our transportation suppliers on the carbon impact of their services	54%	66%	76%

Statement	2022	2023	2024
N = executives	2,004	2,001	1,859
IT (asked to corporate functions)	% of executives who agree with the statement		
• We know how much carbon our technology (i.e., digital tools, apps, IT systems, data centers) emits	55%	65%	65%
• We use a green cloud architecture for our data centers (which reduces the data center power consumption)	48%	45%	54%
• We eco-design our IT applications (i.e., designing for the lowest environmental impact such as using "sleep modes" on laptops)	50%	56%	55%
• We identify energy-intensive applications and take steps to improve their energy performance	51%	58%	67%
• We have green policies for IT hardware and services procurement (e.g., environmental disclosure for IT vendors)	52%	52%	62%
• We include a carbon emissions assessment when allocating IT spend	51%	58%	58%
• Our organization has a sustainable IT strategy and roadmap	56%	61%	66%

Statement	2022	2023	2024
N = executives	2,004	2,001	1,859
Finance and accounting (asked to value chain functions)	% of executives who agree with the statement		
• We include an assessment of environmental externalities when evaluating projects to fund (e.g., pollution that might be caused by the project that diminishes property values or health of people in the surrounding area)	47%	55%	67%
• We report our sustainability impacts (e.g., water usage, GHG emissions, hazardous waste produced) along with our financial performance, on a quarterly/annual basis	46%	55%	58%
• We have assets invested in ESG portfolios (i.e., funds that incorporate screening criteria for environmental, social and governance issues, or invest in socially responsible companies)	57%	60%	65%
• We have made fossil fuel divestment pledges (i.e., accelerating the adoption of the renewable energy transition through the stigmatization of fossil fuel companies)	55%	59%	68%
• We invest in carbon offsets (such as purchase of credits or increase in carbon storage through tree planting, land restoration) to balance out our carbon emissions	54%	52%	61%
• We have our sustainability data audited by a third party	50%	54%	61%
• We have leveraged debt with the interest rate indexed on our ESG performance/KPIs	49%	53%	67%

Statement	2022	2023	2024
N = executives	2,004	2,001	1,859
Sales and marketing (asked to corporate functions)	% of executives who agree with the statement		
• We educate customers about the importance of adopting sustainable practices	50%	67%	64%
• We follow external guidelines on responsible communication and advertising to avoid greenwashing	49%	51%	54%
• We offer competitive pricing to encourage more people to consume/purchase sustainable products/services	59%	57%	48%
• We communicate a carbon footprint for every product/service we sell	59%	60%	65%
• We measure how our organization's digital presence impacts our carbon emissions	50%	56%	61%
• We consider environmental sustainability when designing our branding and marketing campaigns (e.g., fewer physical events)	56%	63%	65%

Source: Capgemini Research Institute, Sustainability transformation trends survey, August–September 2022, N = 2,004 executives; August–September 2023, N = 2,001 executives; June–July 2024, N = 1,859 executives.
*Norway is excluded since it was not covered in the 2022 research.
**Agriculture and forestry is excluded since it was not covered in the 2022 or 2023 research.

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Based in New York, Vincent has over 25 years of experience supporting global organizations across industries on their digital transformations and more recently, on their sustainability journeys as Capgemini Group Sustainability Business Accelerator head since 2023. Vincent graduated from EM Lyon in France and started his career in the technology industry in the UK and France, before joining Capgemini in 2008. His passion is to help companies leverage innovative digital and engineering solutions to deliver sustainable and business outcomes.

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As Capgemini's former Chief Corporate Responsibility Officer and as a leader with over 20 years of experience in the technology and consulting industry, Shobha's expertise is focused on helping large organizations accelerate value through their sustainability initiatives. She serves on the board of the Global Compact Network USA, the USA local network for the United Nations Global Compact.

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Sol is a corporate sustainability expert and digital transformation global thought leader with 30 years of experience in all aspects of sustainability and digital transformation. Sol was one of the founders of the US Environmental Protection Agency's (EPA) ENERGY STAR program and served as its Director of Strategic Planning and Brand Czar from 1991 to 2005. After leaving ENERGY STAR, he was appointed Assistant Office Director at EPA's Office of International Affairs where he led various US-led multilateral partnerships related to global climate change, clean air, water and sanitation, and solid and nuclear waste. Sol's ESG and sustainability and digital expertise and background spans multiple industries. It includes all aspects of enterprise digital transformation, as well as circular economy, strategic energy management, ENERGY STAR and LEED green buildings, green IT, renewable energy, carbon foot-printing, environmental metrics and reporting, and environmental marketing and branding.

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Florent has more than 20 years of experience in the energy and utilities sector, helping companies achieve their sustainability goals and transition to a low-carbon economy. He advises companies across sectors on their climate, environment, and energy transition strategies. Florent graduated from EM Lyon in France and started his career in the energy industry, before joining Capgemini in 2005. He is a frequent speaker and panelist at the World Climate Foundation events including the World Climate Summit.

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Convinced that talent has no boundaries, Karine has dedicated her career to developing people and pushing the diversity and inclusion agenda forward. In her 25+ year career, she notably served as global talent lead for Capgemini Invent, where she was a strong advocate of gender parity and promoting women's programs. As Head of D&I for the Capgemini Group since 2021, Karine has initiated a cultural shift towards Inclusive Futures for all, embedding D&I in Capgemini's business and operating model. As a member of the Steering committee of ILO Global Disability Network, she has been nominated among "2024 inspirational D&I leaders." A strong proponent of lifelong learning and reverse mentoring, Karine attended a D&I executive education course at Cambridge Judge Business School, and she also serves as a business partner of a DE&I course in an international master's program at HEC Paris.

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About the Capgemini Research Institute

The Capgemini Research Institute is Capgemini's in-house think tank on all things digital. The Institute publishes research on the impact of digital technologies on large traditional businesses. The team draws on the worldwide network of Capgemini experts and works closely with academic and technology partners. The Institute has dedicated research centers in India, Singapore, the UK, and the US. It was recently ranked number one in the world by independent analysts for the quality of its research.

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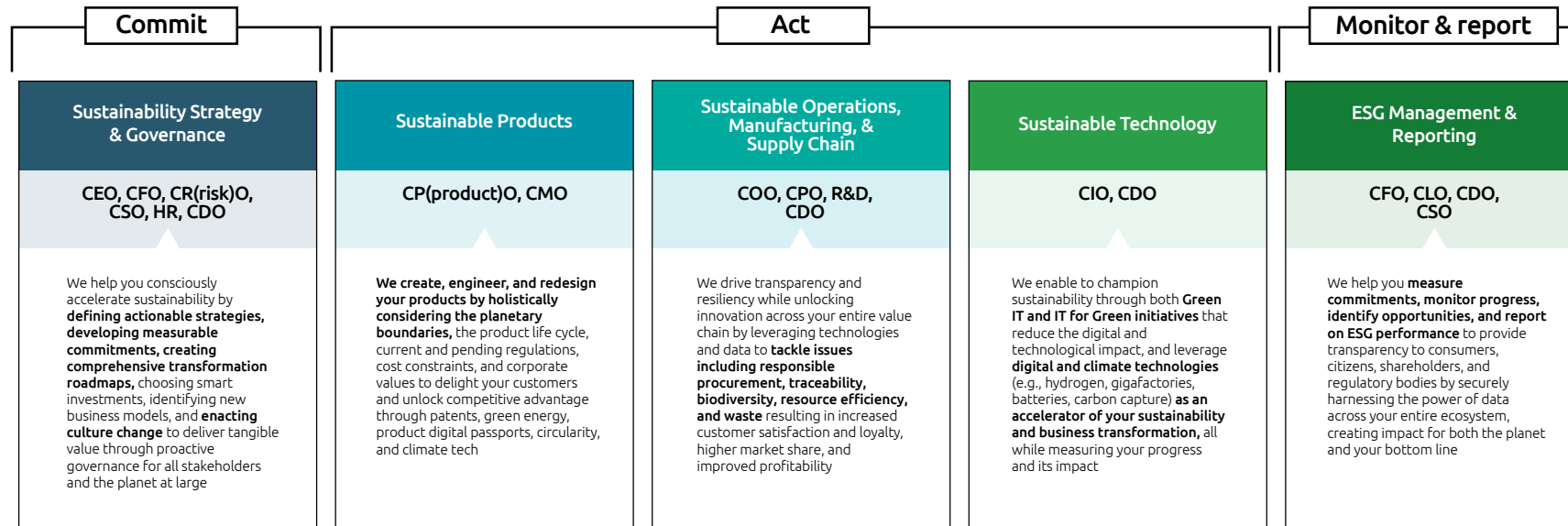alba.contreras-corrochano@capgemini.com

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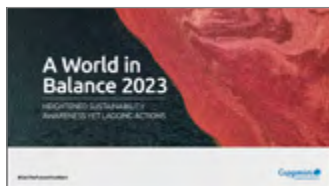**Rory Burghes**
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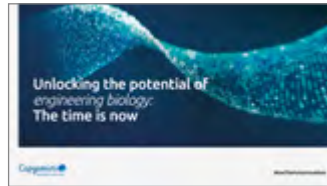
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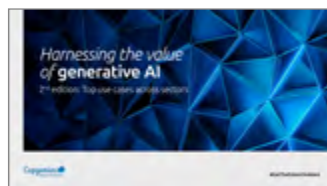**Conversations for tomorrow #7: Sustainability and climate tech**

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Capgemini is a global business and technology transformation partner, helping organizations to accelerate their dual transition to a digital and sustainable world, while creating tangible impact for enterprises and society. It is a responsible and diverse group of 340,000 team members in more than 50 countries. With its strong over 55-year heritage, Capgemini is trusted by its clients to unlock the value of technology to address the entire breadth of their business needs. It delivers end-to-end services and solutions leveraging strengths from strategy and design to engineering, all fueled by its market leading capabilities in AI, cloud and data, combined with its deep industry expertise and partner ecosystem. The Group reported 2023 global revenues of €22.5 billion.

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