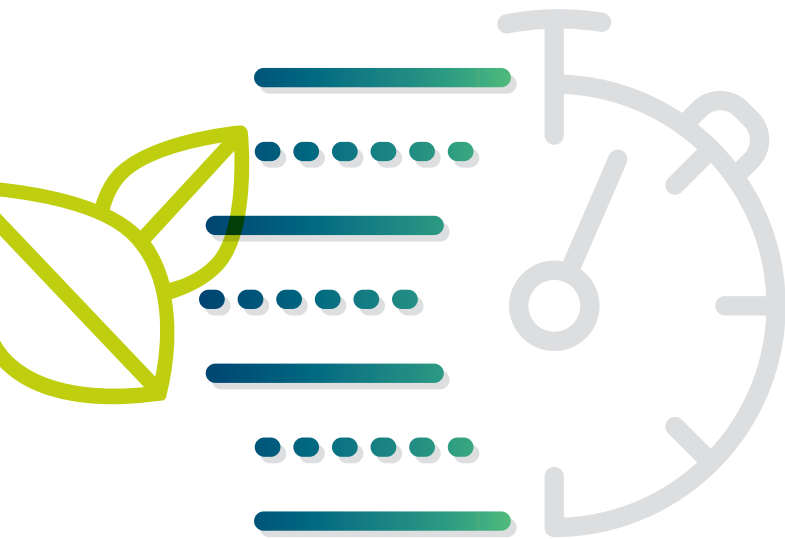


A comprehensive sustainability effort embraces technology, shifting from risk reduction to innovation opportunity.

# Unlocking the power of sustainability

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According to UN climate experts, 2023 was the warmest year on record. This puts the heat squarely on companies to accelerate their sustainability efforts. “It’s quite clear that the sense of urgency is increasing,” says Jonas Bohlin, chief product officer for sustainability platform provider Position Green.

That pressure is coming from all directions. New regulations, such as the Corporate Sustainability Reporting Directive (CSRD) in the EU, require that companies publicly report on their sustainability efforts. Investors want to channel their money into green opportunities. Customers want to do business with environmentally responsible companies. And organizations’ reputations for sustainability are playing a bigger role in attracting and retaining employees.

On top of all these external pressures, there is also a significant business case for sustainability efforts. When companies conduct climate risk audits, for example, they are confronted with escalating threats to business continuity from extreme weather events such as floods, wildfires, and hurricanes, which are occurring with increasing frequency and severity.

**“It’s quite clear that the sense of urgency is increasing.”**

Jonas Bohlin, Chief Product Officer, Position Green

## Key takeaways

- 1 Sustainability initiatives may be driven by external pressures, but savvy organizations also recognize their power to mitigate business risk and create opportunities for innovation.
- 2 A comprehensive sustainability initiative goes beyond reducing direct carbon emissions to address a broad range of environmental and social impacts, across the business’s entire supply chain.
- 3 Technological approaches to sustainability should address both greening with technology and greening of technology.

Mitigating the risks associated with direct damage to facilities and assets, supply chain disruptions, and service outages very quickly becomes a high-priority issue of business resiliency and competitive advantage. A related concern is the impact of climate change on the availability of natural resources, such as water in drought-prone regions like the American Southwest.

### Much more than carbon

Companies looking to act will find a great deal of complexity surrounding corporate sustainability efforts. Based on the Greenhouse Gas Protocol corporate standards, companies are responsible not only for their own emissions and fossil fuels usage (Scope 1), but also the sustainability efforts of their energy suppliers (Scope 2) and their supply chain partners (Scope 3). New regulations require organizations to look beyond just emissions. Companies must ask questions about a broad range of environmental and societal issues: Are supply chain partners sourcing raw materials in an environmentally conscious manner? Are they treating workers fairly?

“The biggest misconception that people have is that sustainability is only about carbon emissions,” says Pablo Orvananos, global sustainability consulting lead at Hitachi Digital Services. “That’s what we call carbon tunnel vision. Sustainability is much more than carbon. It’s a plethora of environmental issues and social issues, and companies need to focus on all of it.”

Sustainability can’t be siloed into one specific task, such as decarbonizing the data center. The only way to achieve sustainability is with a comprehensive, holistic approach, says Daniel Versace, an ESG research analyst at IDC. “A siloed approach to ESG is an approach that’s bound to fail,” he adds.

Bohlin adds that many companies are initially motivated to address sustainability to avoid negative consequences from regulators, to protect their brand image, or to reduce risk. “But over time, they start shifting their mindset from the risk aspects to the opportunity aspects,” he says. Instead of being viewed as a burden and a cost center, sustainability initiatives can open the door to the deployment of new technology, build new collaborations and partnerships, and create new business models.

Taking an ambitious sustainability goal from the pages of the company’s annual report and bringing it to life is a daunting task and requires a holistic approach. Technology is part of the solution: organizations can both green with technology (using technology to help implement their sustainability efforts) and green the technology itself (applying green IT principles to data centers, power, and other technology assets).

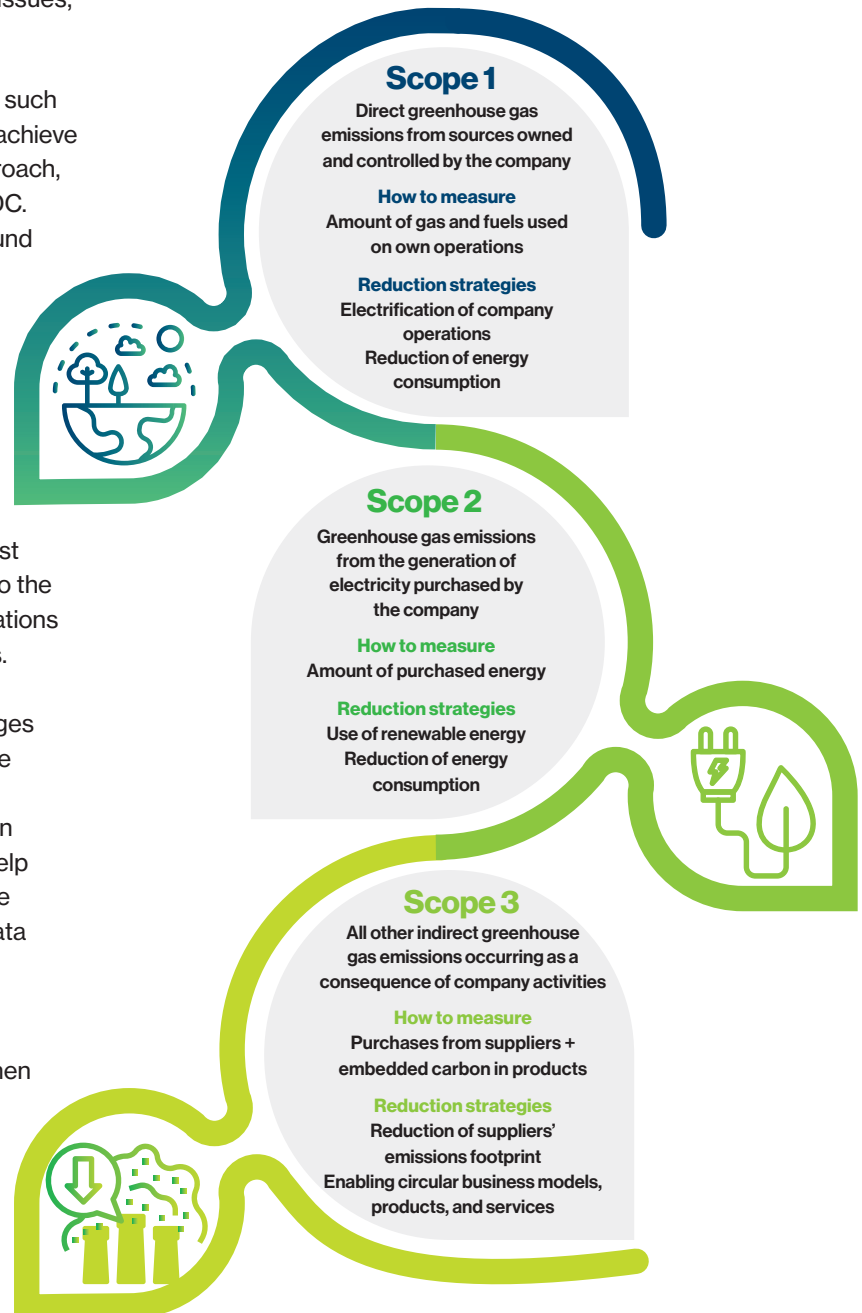
## Four key challenges

Organizations face several common challenges when they begin to implement sustainability programs.

**The data gap.** “The first and probably largest hurdle that a lot of organizations face when they go from nothing to a top-down sustainability business strategy is translating that into what actually needs to be done,” says Versace.

Companies can’t create a plan, allocate resources, and begin attacking a problem until they are able to collect and analyze the right information. As Versace puts it, “Data is at the heart of everything.”

# Understanding emissions scope



Source: Compiled by MIT Technology Review Insights, based on data from Hitachi Digital Services, 2023.

CSRD, for example, requires that organizations track more than 100 ESG key performance indicators (KPIs). Orvananos points out that, for the most part, this is data that organizations are not currently collecting or monitoring. “They need to put new systems in place, new tools in place, and new resources in place in order to start tracking this data,” he says, which is vital for establishing a baseline and measuring progress.

That’s a much more difficult challenge than it might appear. “It turns out that 7 of 10 executives aren’t in control of their sustainability data,” says Bohlin. That data is typically scattered across multiple systems within the company, but also held by third parties such as utility providers and cloud service providers. The average company, for example, may not know whether its electric utility gets power from coal or hydro, or know how to track the power consumption of enterprise assets that sit at a colocation provider or in the cloud.

Organizations are overcoming this hurdle by partnering with specialists who can help gather relevant data, but also apply automation, because manually collecting, aggregating, and reporting this data can be extremely costly and labor intensive.

**Resource allocation.** Sustainability is a relatively new area for most companies; typically, there’s no chief sustainability officer (CSO), sustainability department, or sustainability staff. So organizations need to clearly allocate the money, assign and train staff, and add the technological resources necessary to carry out the organization’s sustainability initiatives.

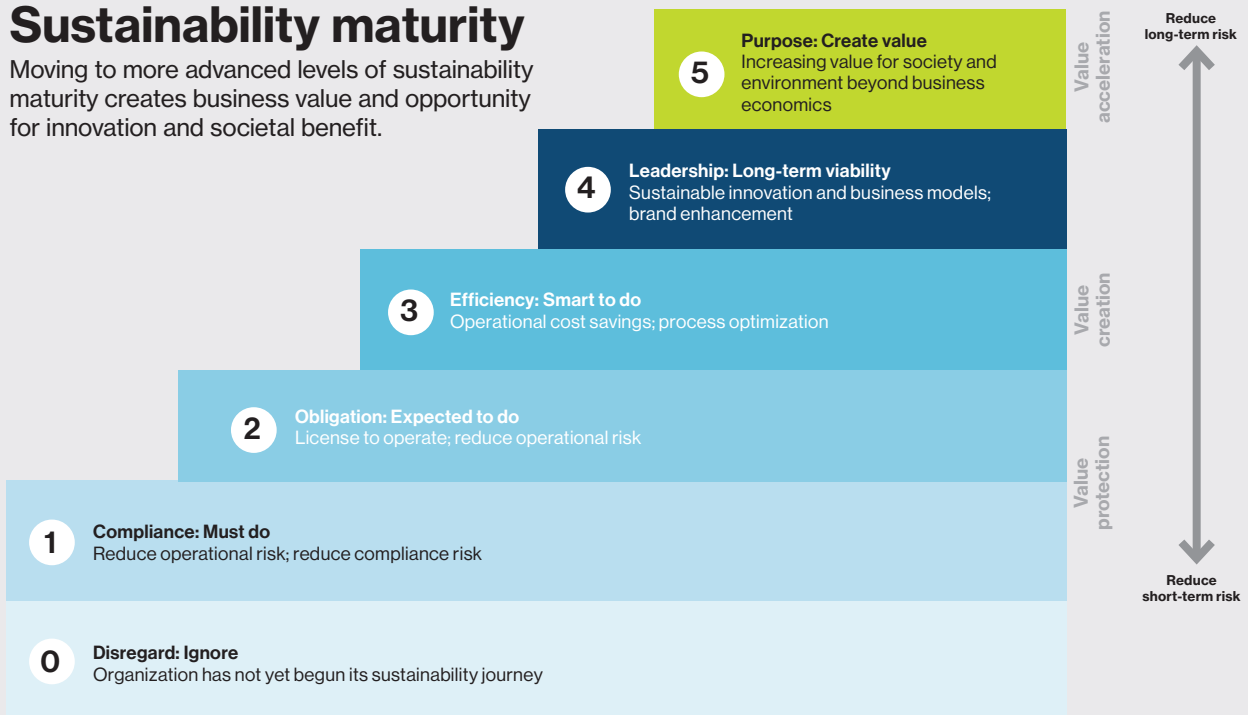
Versace says organizations “really need to have a concerted effort to not only train their employees on what sustainability or ESG is, but also have role-specific training for how to introduce the tenets of ESG into their day-to-day jobs, and by doing that, creating a single source of truth for their employees to reference back on.”

**A cultural shift.** Sustainability needs to be embedded across the organization, in the strategy at the highest levels, in the broad culture of the organization, in the innovation process, in day-to-day operations, and in communications, says Orvananos.

Versace adds, “Having a CSO is great for spearheading any organization’s ESG initiatives. However, if you have ESG running through one office or one pillar of your

## Sustainability maturity

Moving to more advanced levels of sustainability maturity creates business value and opportunity for innovation and societal benefit.



Source: Compiled by MIT Technology Review Insights, based on data from Hitachi Digital Services, 2023.

“Sustainability is much more than carbon. It’s a plethora of environmental issues and social issues, and companies need to focus on all of it.”

Pablo Orvananos, Global Sustainability Consulting Lead, Hitachi Digital Services

organization, the impact is going to be marginal. Ensuring that employees are trained, they’re knowledgeable, that you have buy-in across the board is incredibly important.”

**Regulatory compliance.** The alphabet soup of ESG regulations is constantly changing and organizations need to keep track (see sidebar). As an example, Orvananos notes that a manufacturing company might have to report on more than 300 different KPIs that cover items such as water, energy, and natural resource utilization, but also include social issues, such as gender pay equity. Multinational companies must comply with constantly changing local regulations in every place they have an office or facility, as well as every place that their supply chain partners operate.

### Greening with technology and greening of technology

The technological approaches that organizations take to address sustainability fall into two categories: greening with technology and greening of technology.

Greening with technology is deploying technology to reduce the usage of natural resources or to help restore ecosystems. For example, organizations can deploy IoT sensors to gather real-time information that can help track water or energy consumption.

A simple example of greening with technology would be a company with fleets of vehicles transitioning to electric vehicles. Alternatively, companies can cut their dependence on fossil fuels by ramping up the use of renewable energy through technologies like solar power or wind.

## Sustainability glossary

### CBAM

The Carbon Border Adjustment Mechanism (CBAM) is the first carbon border tax in the world. It was created by the EU to reduce carbon emissions.

### CSRD

The Corporate Sustainability Reporting Directive (CSRD) is an EU law that requires companies to report on the impact of their activities on society and the environment. CSRD took effect in 2023. Starting in 2025, all large, publicly listed U.S. companies on an EU-regulated market will be within the scope of the CSRD.

### ESRS

The European Sustainability Reporting Standards (ESRS) provide specifics on how companies are required to collect and report data under CSRD. One key requirement is double materiality—reporting on environmental and societal issues as well as issues that are financially material to the company.

### GRI

Global Reporting Initiative (GRI) is a nonprofit group that produces free sustainability reporting guidelines.

### TCFD

The Task Force on Climate-Related Financial Disclosures (TCFD) is a global organization that creates a set of recommended climate-related disclosures.



Orvananos is working with a client who is being required by the government to restore the biodiversity around a mining site. They are using advanced technologies including satellite imagery, drone footage, and soil moisture sensors to measure the impact of the restoration efforts.

Data analytics is a key aspect of greening with technology. It's critical that organizations have the tools to understand how resources such as energy, raw materials, and water are being used, and to gather insights into ways to operate in more efficient ways. Robust data analytics are also needed to report the results of those sustainability efforts both internally and externally.

Greening of technology, on the other hand, means ensuring that the technology itself is designed for

maximum sustainability. This means considering the carbon costs and other sustainability impacts of company data centers, IT architecture and hardware, software applications, and cloud services (see box).

And while organizations with large technology footprints – hyperscalers, banks, and telecom providers, for example – have historically been the first to recognize the opportunities opened up by greening their technology, virtually all businesses stand to benefit from re-examining their hardware procurement decisions and technology strategy with a green lens.

## Turning aspirations into action

When developing a sustainability action plan, experts recommend that organizations identify the big risks, pinpoint the hotspots, and address those first. There's

# Greening the organization's technology footprint

Looking to green your organization's technology assets? Pablo Orvananos, global sustainability consulting lead at Hitachi Digital Services, says there are six major areas to focus on.



1

### Power infrastructure

A company needs to measure, monitor, and reduce the amount of power it uses. Beyond that, it can work with its electricity provider to determine when it uses the most sustainable mix of energy sources, and then schedule energy-intensive workloads to run during those periods.

2

### Energy efficiency

Organizations need to look at the energy efficiency of all their assets, including heating and cooling systems, and all the equipment inside the data center — servers, storage systems, and networking gear.

3

### Applications

The way software applications are written can impact their energy usage. An application that has to loop in other applications or databases in order to complete a process, for example, could be streamlined to reduce its energy requirements.

4

### IT architecture

In the past, IT systems were built for resilience and reliability, which may have meant redundancy and overprovisioning. When sustainability becomes part of the equation, right-sizing the equipment can reduce its carbon footprint.

5

### Cloud usage

It might not be easy, because cloud providers aren't always transparent, but organizations need to account for and work to reduce carbon emissions from their cloud usage.

6

### Data stewardship

Organizations need to maintain and make available vast amounts of data. How this is done has sustainability impacts. Says Orvananos, "It's understanding what's your deduplication process, your data lifecycle management process. When do you delete data? How do you virtualize data? All of these policies have a huge impact on the carbon footprint of your IT ecosystem."



no standard blueprint. Each company is different, and each company needs to develop a sustainability plan that addresses its unique situation. Expert consultants, who have the skills, track record, and technology platforms to help companies on their sustainability journey, can aid the process.

Orvananos says, “The very first step is to have a sustainability strategy in place. That means understanding which social and environmental issues are most relevant.” The next step is a materiality assessment that enables companies to identify 10 to 15 top priorities. With that in hand, companies can establish baseline measures and set specific targets for change.

In the world of sustainability, materiality – what matters – is a key concept to understand. Versace explains materiality this way: “What are the aspects of ESG that are truly material to your organization? How do your operations directly impact the world around you, both from a societal and environmental perspective? And what aspects of climate change and social disruption impact your organization specifically?”

**“What are the aspects of ESG that are truly material to your organization? How do your operations directly impact the world around you, both from a societal and environmental perspective? And what aspects of climate change and social disruption impact your organization specifically?”**

Daniel Versace, Research Analyst, IDC

Conducting a materiality assessment is typically a collaborative and inclusive process that gathers input from stakeholders both inside and outside the company. Organizations are increasingly concerning themselves with “double materiality” – assessing their actions for their impacts both on the company’s financial value and also on the environment and society.

For many companies, simply getting their arms around the data related to sustainability is beyond their internal capabilities, so they need to team up with a specialist with an established platform who can help the organization collect, aggregate, analyze and report on sustainability data. Collaboration is also important as organizations seek to meet their sustainability goals. That can include collaboration with nongovernmental organizations, competitors, universities, and consultancies. Says Orvananos, “Only by collaborating are we going to solve the sustainability problems that we have.”



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