



From Insights to Action: The Technology Impact on Sustainability

The Global Sustainability Barometer

NOVEMBER 2024

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Introduction

The climate crisis, resource scarcity, and environmental destruction are no longer distant threats; they are pressing realities that affect us daily. While organizations are making commendable strides towards sustainability, it is imperative that every entity, from governments and industries to enterprises and individuals, commits to addressing the challenges posed by a growing population and a rapidly changing planet. This urgent need highlights the importance of collective action in creating a more sustainable future.

As enterprises strive to meet their climate pledges, data and AI are becoming powerful catalysts for transformation. AI's potential is reshaping industries and revolutionizing how organizations operate and interact. By leveraging data-driven approaches and AI, organizations can enhance their sustainability efforts to reduce their carbon footprint, gain deeper insights into their environmental impact, identify areas for improvement, and develop innovative solutions.

Ecosystem, in collaboration with Kyndryl and Microsoft, continues to drive positive change through the second edition of the Global Sustainability Barometer Study. This initiative emphasizes the urgent need for organizations worldwide to align their sustainability commitments with AI-driven actions. By identifying key gaps and providing practical guidance, the study empowers organizations to take significant strides in their sustainability journeys.

“The science is clear – greenhouse gas emissions are rising, global temperatures are shattering records and extreme weather is wreaking havoc with our lives and our economies. Urgent and ambitious action is needed to support sustainable development, climate action and disaster risk reduction. The decisions we make today could mean the difference between a future of breakdown or a breakthrough to a better world for people and the planet.”

**UNITED IN SCIENCE 2024, WORLD
METEOROLOGICAL ORGANIZATION**





About the Study

The second edition of the Global Sustainability Barometer Study, commissioned by Kyndryl and Microsoft, reflects the perspectives of 1,355 global sustainability leaders spanning 20 countries and 9 industry groups.

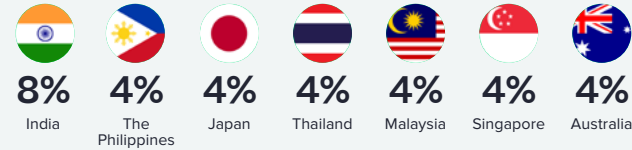
Conducted between August and September 2024, it examines the roles of Strategy, Data, and AI in achieving sustainability goals. To ensure comprehensive insights, 50% of respondents are technology leaders, while the other 50% are sustainability leaders. The study also compares perspectives with last year's poll of 1,523 global leaders.

Country

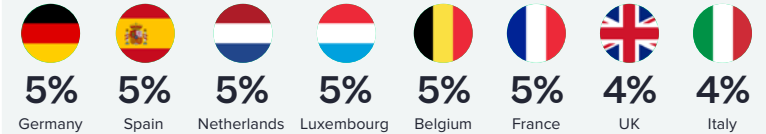
AMERICAS



ASIA PACIFIC



EUROPE



Industry

40%
Financial Services

15%
Manufacturing

15%
Retail

5%
Construction & Real Estate

5%
Energy & Utilities

5%
Hospitality

5%
Primary Industries

5%
Media & Telecom

5%
Transport and Logistics

Organization Size (number of employees)



25%
201 - 499



24%
500 - 999



30%
1,000 - 4,999



21%
More than 5,000



Beyond Commitments: Real Sustainability Impact

Sustainability has emerged as a defining challenge for businesses. As legislation tightens, consumer expectations rise, and the climate crisis intensifies, organizations are under increasing pressure to demonstrate their commitment to environmental and social responsibility. Many organizations are now disclosing their climate impact, either voluntarily or due to regulatory requirements. The stakes are high; neglecting sustainability can lead to financial losses, reputational damage, and operational disruptions.

Are organizations effectively aligning their sustainability goals with their day-to-day operations? Are they investing in technologies that can drive positive change? The answers to these questions will determine their ability to thrive in a sustainable future.

The second edition of the Global Sustainability Barometer Study, in partnership with Kyndryl and Microsoft, takes a deep dive into the critical factors that drive organizational sustainability success. By assessing organizations across the dimensions of ORGANIZATIONAL STRATEGY and TECHNOLOGY ADOPTION, we aim to provide valuable insights into how businesses can leverage technology and AI to navigate the complex landscape of sustainability.

[The Kyndryl Readiness Report](#), launched in October 2024, aligns with the study findings: 90% of organizations prioritize sustainability in tech modernization initiatives, but 54% are challenged to meet sustainability/ESG goals.



84%

of organizations place a high strategic importance on achieving sustainability goals



YET ONLY

21%

use technology holistically both to reduce tech environmental footprint and shape their overall sustainability strategy

ORGANIZATIONAL STRATEGY

Policies and People Measures That Drive Sustainability Success

ESSENTIAL ELEMENTS OF A SUSTAINABLE STRATEGY

Crafting a compelling sustainability business strategy

Defining a clear sustainability engagement strategy

Empowering employees for sustainable impact

Demonstrating sustainability progress

Building sustainability transparency and trust



#1 Crafting a Compelling Sustainability Business Strategy

Organizations should align sustainability initiatives with business goals to understand financial benefits and manage risks. Linking sustainability with business value allows them to integrate, prioritize, and implement actionable steps, leading to tangible outcomes in data management and meeting sustainability requirements.

The Urgency of Moving from Checklists to Change



4%

Sustainability is acknowledged but not integrated

Recognized as important but remains peripheral to the core corporate strategy



23%

Sustainability is a strategic aspiration

Included in the transformation strategy, but goals and measures are still not quantified or operationalized



54%

Sustainability is operationally embedded

Goals and initiatives are incorporated into existing operational review and reporting processes, but impact is not fully measured or quantified



13%

Sustainability is data-driven

Strategy and goals are prioritized and built upon real facts and data, providing a solid foundation for decision-making



6%

Sustainability is a strategic asset

Business value of sustainability data is well-understood, and initiatives are fully integrated into strategic planning and decision-making processes

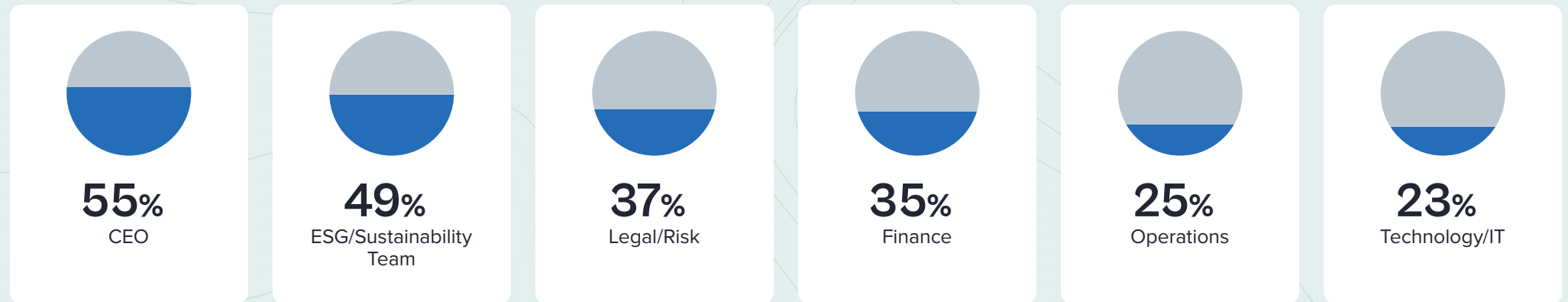
Modeled based on responses to multiple questions

Only 19% of organizations have implemented concrete, data-driven sustainability initiatives. This reveals a significant gap between intent and action. Just 6% of organizations lead the way, effectively leveraging sustainability data as a business asset. Most remain focused on operational and reporting requirements, highlighting the need to bridge this gap and make sustainability a core strategic priority.

#2 Defining a Clear Sustainability Engagement Strategy

Organizations must set clear, material sustainability goals, set key performance indicators (KPIs), and allocate resources efficiently to support their initiatives. This process requires early and strategic collaboration with key stakeholders when shaping and implementing the sustainability vision and roadmap.

Roles Defining Sustainability Vision: The Need for Cross-Functional Collaboration



Q: Who are the top 3 stakeholders for these activities in your sustainability program?

While CEO involvement in shaping sustainability goals is a positive step, many organizations fail to fully engage two critical stakeholders – finance and technology. Aligning sustainability with finance is especially crucial to moving it to a core business priority and technology is critical for implementation.

#3 Empowering Employees for Sustainable Impact

To drive sustainability impact, organizations must provide employees with essential resources including data, tools, and training. Fostering a culture of sustainability instills ownership and responsibility, integrating it into daily operations and encouraging collective action towards sustainability goals. Increased sustainability engagement enhances recruitment, retention, and loyalty.

Employee Impact: Linking Actions to Sustainability



8%

Limited Sustainability Awareness

Employees have a limited understanding of sustainability goals and objectives



14%

Basic Sustainability Awareness

Employees are aware of sustainability goals but may not fully understand their role in achieving them



45%

Emerging Sustainability Engagement

Employees have a basic understanding of sustainability responsibilities and how they relate to their roles



24%

KPI-Driven Sustainability

KPIs are set relevant to employee roles, fostering a more focused and targeted approach to sustainability



9%

Sustainability as a Strategic Imperative

Sustainability performance is tied to executive and key employee compensation, reinforcing its role as a strategic priority

Modeled based on responses to multiple questions

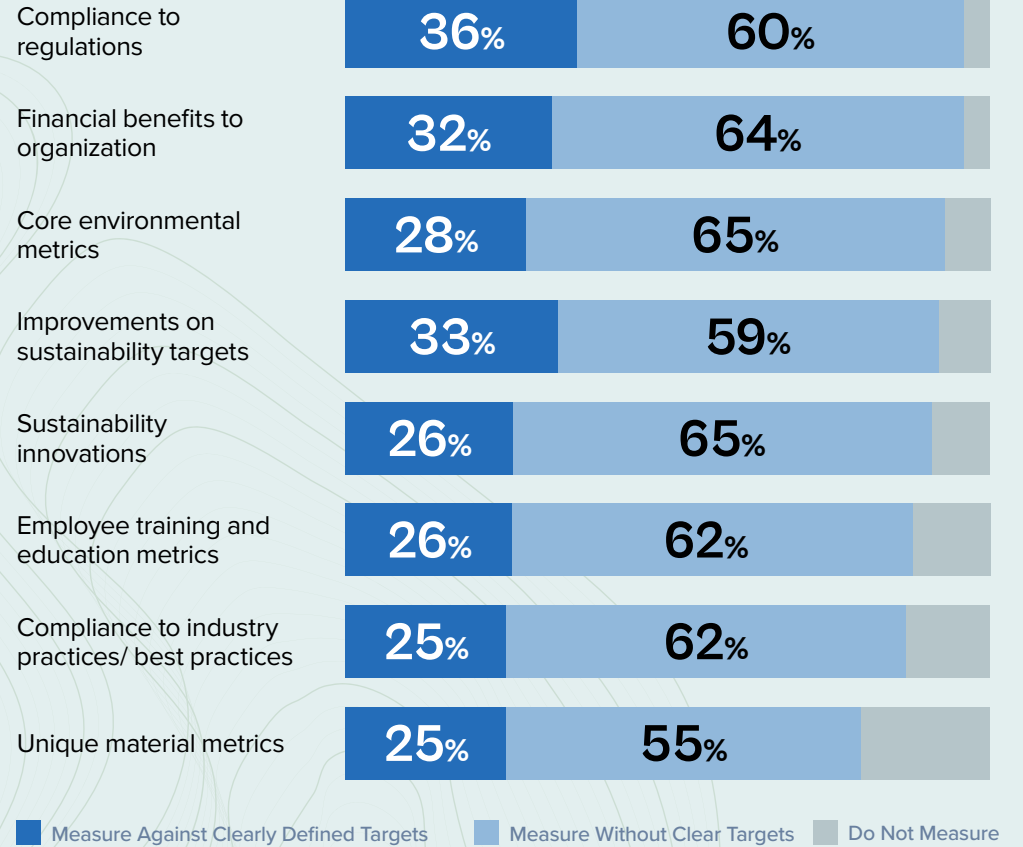
Many organizations have employee sustainability programs, but their effectiveness is often limited by poor access to information and data. 33% ensure staff are fully informed about sustainability progress, roles, and KPIs; and only 9% link sustainability performance to staff compensation, missing a chance to emphasize shared responsibility.



#4 Demonstrating Sustainability Progress

Organizations need a clear understanding of their environmental impact to identify areas for improvement and set achievable targets. By focusing on what's material for their business, they can demonstrate real progress. They require a clear decarbonization roadmap linked to data insights. Targeted carbon reduction plans drive meaningful operational change, led by cross-functional teams, ensuring resources are allocated to initiatives that deliver significant, positive outcomes.

Setting Sights Higher: Defining Clear Sustainability Targets



Q: Which are the metrics that are measured against set targets in your organization's sustainability efforts?

While organizations measure various sustainability parameters, they often fall short in setting specific targets against defined metrics. The opportunity lies in focusing on material topics that deliver business value and meet stakeholder requirements.



#5 Building Sustainability Transparency and Trust

Sustainability is a strategic priority for many stakeholders – there is little difference among its top advocates. Organizations have focused heavily on compliance and key supply chain demands. However, they are missing the mark with key stakeholders who can drive substantial business value for customers and investors.

ORGANIZATION'S RESPONSE TO KEY ADVOCATES OF SUSTAINABILITY

47%

Customers

RESPONSE

24%

track how sustainability affects customer satisfaction or loyalty

45%

Employees

RESPONSE

26%

have specific goals for employee sustainability training

43%

Investors/shareholders

RESPONSE

22%

monitor how sustainability efforts impact investor ratings

42%

Supply chain partners

RESPONSE

39%

use external data to assess their supply chain's environmental impact

35%

Governments/Regulators

RESPONSE

58%

track compliance with environmental and industry regulations

Multiple questions

There is an increased focus on measuring the impact of sustainability programs in relation to compliance with government and industry regulations. Organizations are also responding to demands for greater supply chain transparency. However, adopting a more holistic approach that addresses the concerns of all stakeholders is crucial for driving business value and building trusted relationships internally and externally.

Technology Drives Strategic Sustainability Programs

- 1** **Crafting a compelling sustainability business strategy**

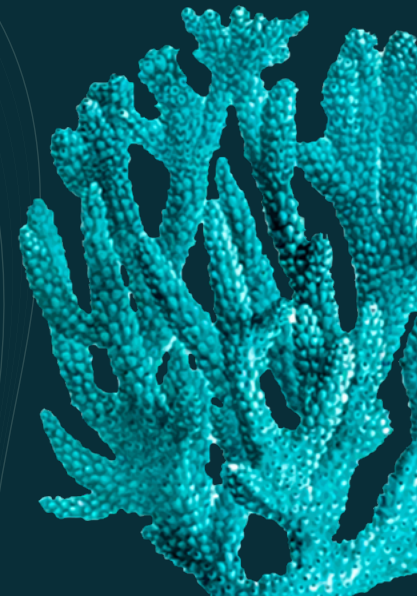
Leverage technology to turn sustainability goals into actionable strategies. Use measurement and reporting tools to align objectives with business priorities, converting emissions targets into concrete plans. Accurate, connected data systems help manage risks, reduce costs, and unlock new revenue opportunities, driving impactful initiatives.
- 2** **Defining a clear sustainability engagement strategy**

Use technology to prioritize strategies with the greatest environmental and financial impact. Access current and forecasted data to plan and communicate with finance, proving business value. Tools that evaluate the cost and impact of reduction strategies support informed decision-making, ensuring cost-effective investments.
- 3** **Empowering employees for sustainable impact**

Foster a culture of sustainability ownership and innovation through technology and empowerment. Provide real-time data and dashboards to help teams understand their environmental impact and develop their integrated strategies to help improve the company's overall position.
- 4** **Demonstrating sustainability progress**

Implement technology for targeted reduction plans with measurable outcomes. Use software to streamline data collection, providing a comprehensive view of environmental impact against operational goals. Monitoring tools track emissions over time and analyze supply chain data for a holistic perspective.
- 5** **Building sustainability transparency and trust**

Drive data-driven conversations using technology. Implement systems to manage and track emissions data across the supply chain, ensuring audit-ready, verifiable data. Cultivate transparency to build stakeholder confidence and strengthen the credibility of sustainability commitments.



TECHNOLOGY ADOPTION

Leveraging Data and AI to Drive a Greener Future

TECH FOR SUSTAINABILITY: KEY CONSIDERATIONS

Integrating technology into sustainability strategies

Empowering tech teams to achieve sustainability goals

Unlocking data for business transformation

Leveraging AI for sustainable decision-making

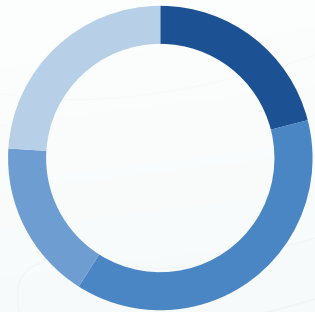
Assessing the environmental cost of innovation



#1 Integrating Technology into Sustainability Strategies

Tech teams must become sustainability champions to create a greener future. By embedding technology into sustainability strategies, organizations can turn abstract goals into actionable plans. Data integration, measurement, and reporting tools can align sustainability objectives with core business priorities. This can also transform emissions targets into concrete strategies. This data-driven approach not only helps organizations manage risks and reduce costs but also opens new revenue opportunities, driving impactful sustainability initiatives.

Beyond Green IT: A Wider Role in Sustainability



21%

IT prioritizes both reducing its own environmental impact and supporting the organization's broader sustainability goals

38%

IT is primarily focused on reducing its own environmental impact

17%

IT is primarily focused on helping the organization achieve sustainability goals by leveraging technology and data

24%

IT has a limited role in the organization's sustainability efforts

Q: What is the extent of the involvement of IT in achieving your organization's sustainability goals?

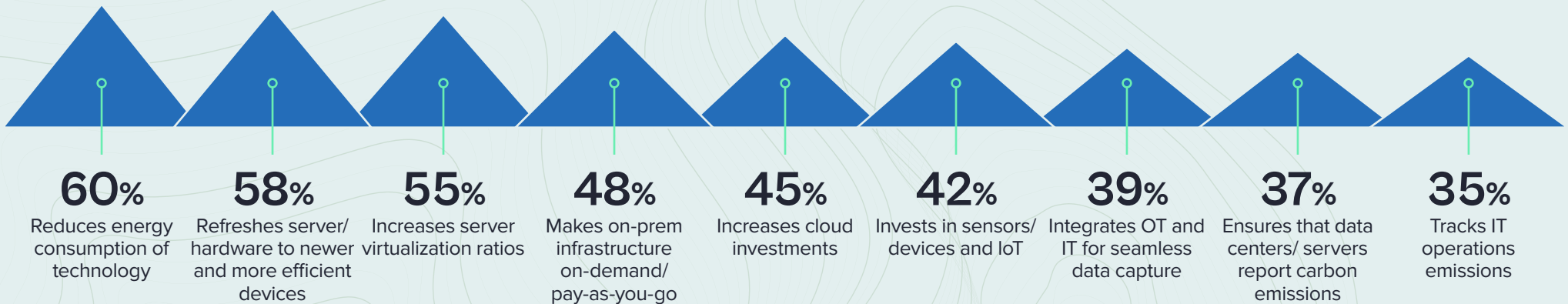
Only 21% of organizations globally recognize technology's dual role in reducing their carbon footprints and advancing broader sustainability goals. Technology is essential to business transformation, and sustainability must be a key part of that roadmap. While 63% of tech teams are not focused on broader sustainability goals, 38% are focused on their own environmental impact.

#2 Empowering Tech Teams to Achieve Sustainability Goals

Organizations' leadership should support technology teams in achieving sustainability goals and adopting sustainable practices, ensuring greater buy-in.

Modernizing tech is essential for competitiveness and efficiency. However, those with sustainability ambitions must look beyond the latest trends. Sustainable tech modernization requires prioritizing sustainability as a business value driver. This means evaluating and integrating environmental technologies, cradle-to-cradle concepts, investing in energy-efficient solutions, and using data-driven approaches to optimize resource consumption and minimize waste.

Beyond Infrastructure: Sustainability Across the IT Lifecycle



Q: What actions does your IT/technology team take to reduce their carbon footprint?

While hardware refreshes, cloud adoption, and server virtualization are positive steps, the growing digital footprint of organizations requires a comprehensive approach spanning the entire technology lifecycle. 'Green IT' initiatives should extend beyond reducing carbon emissions from infrastructure to include emissions related to procurement, management systems and processes, and IT operations disposals.

#3 Unlocking Data for Business Transformation

Organizations today access vast data across enterprise systems, asset management tools, and ESG dashboards, but data fragmentation challenges sustainability assessment and reporting. By integrating these sources, they can gain comprehensive insights into their environmental impact, driving informed decisions to accelerate sustainability goals. This interconnected data identifies environmental hotspots, tracks progress with data-driven metrics and enhances stakeholder communication by building trust and transparency.

Going Beyond Reporting: Sustainability Optimization & Innovation



5%

We do not use data to track or measure our sustainability efforts



26%

We collect some data on our sustainability initiatives, but we don't use it for analysis or decision-making



35%

We use data to track key sustainability metrics for reporting



19%

We use data to track, analyze, and optimize our sustainability performance across business applications



15%

We use data from our sustainability initiatives to guide the organization's transformation journey

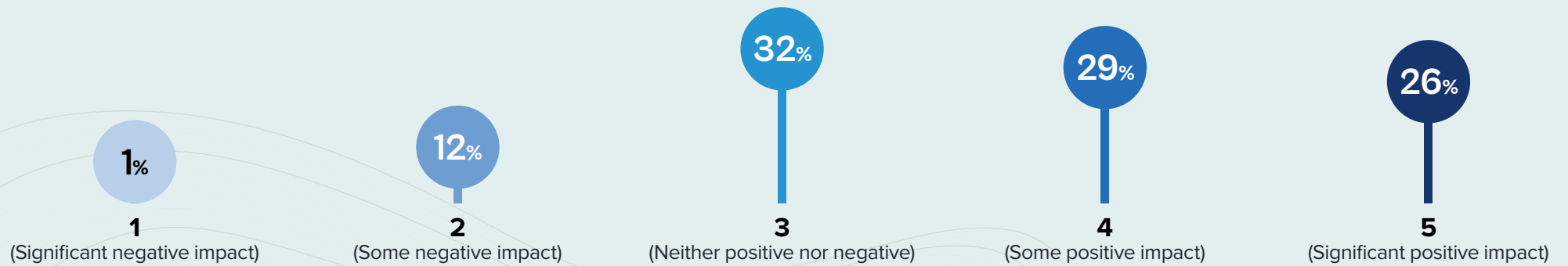
Q: To what extent does your organization leverage data to inform and support its sustainability initiatives?

While automation is a crucial tool for streamlining operations and reducing human error, many organizations overlook the transformative potential of data in sustainability management. Only 34% are leveraging data-driven insights to drive performance and transform their business.

#4 Leveraging AI for Sustainable Decision-Making

AI has the potential to transform sustainability efforts. By analyzing vast organizational and external datasets, AI tools reveal hidden patterns such as forecasting, managing risks, improving resiliency, and driving new growth opportunities. This helps organizations optimize resources, enhance energy efficiency, and proactively address challenges.

AI Expected to Positively Impact Sustainability Journeys



Q: Please indicate the expected scale of impact of AI on achieving sustainability goals

55% of organizations believe AI will significantly impact their sustainability goals. However, they are not fully leveraging AI capabilities, often limiting initiatives to descriptive and interpretive analytics.

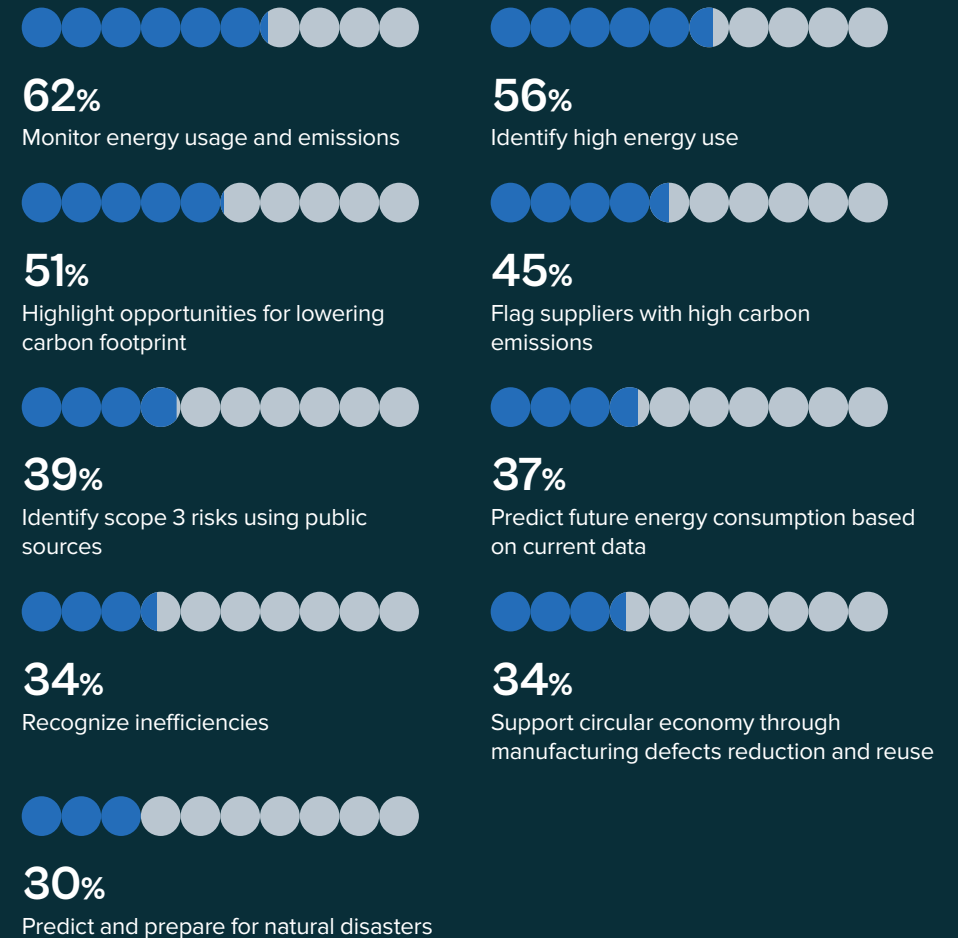


The Future of Sustainability Hinges on Predictive AI

Predictive AI enables organizations to foresee and mitigate risks linked to Scope 3 emissions, accurately forecast future energy consumption, and prepare for natural disasters more effectively.

Predictive AI can transform multiple aspects of a sustainability program. For instance, AI-powered customer segmentation can identify distinct groups of consumers based on their environmental preferences and behaviors, enabling companies to tailor their sustainability offerings and marketing strategies accordingly. AI can be employed to conduct Life Cycle Assessments (LCAs) for products, evaluating the environmental impact of different materials and components. Beyond reducing environmental footprints, predictive AI assesses climate risks, guiding strategies to protect operations and ensure business continuity. It also evaluates the entire value chain for climate risk, promoting a holistic approach to environmental responsibility and readiness for future challenges.

AI for Impact: A Proactive Approach



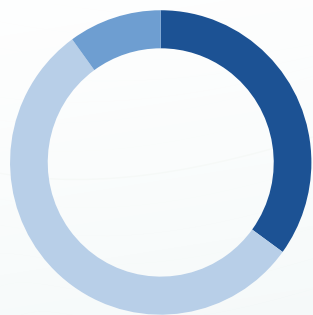
Q: How does your organization use data and AI to reduce, manage and report on global environmental footprint?

Many organizations are using AI for monitoring and reporting but falling short when it comes to proactive action. For example, while 62% use AI to monitor energy consumption, only 37% leverage predictive AI to forecast future energy needs based on current trends and patterns.

#5 Assessing the Environmental Cost of Innovation

The rapid advancement of AI has raised concerns about its environmental impact. As AI models become more complex and data-intensive, their training and operation may require significant energy and water, with data centers consuming substantial amounts. This energy use contributes significantly to greenhouse gas emissions, challenging the sustainability of AI model training and deployment.

Beyond Performance: The Sustainability of AI Tech



35%
Yes

55%
No

10%
Unsure

Q: Does your organization consider the environmental impact (e.g., energy consumption, carbon footprint) when implementing AI solutions?

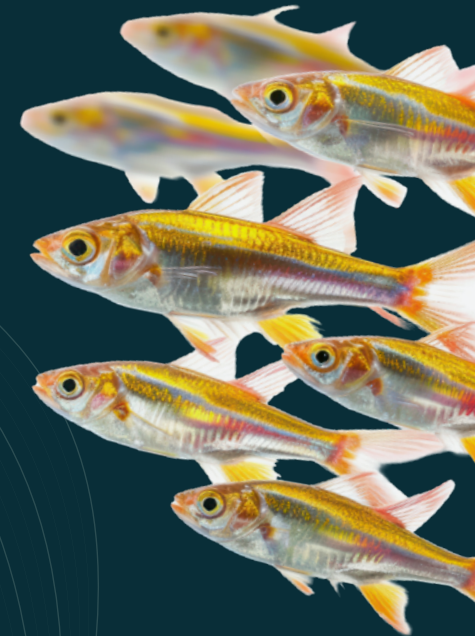
This involves leveraging specialized processors like Graphics Processing Units (GPUs) and Tensor Processing Units (TPUs), adopting efficient training methods such as transfer learning, using smaller language models, and implementing edge inferencing to reduce data processing needs. They must also consider trade-offs between cloud-based training and on-prem solutions. Organizations are increasingly training AI models on public cloud providers with strong green credentials and renewable energy commitments. This aligns with sustainable practices, achieving both environmental and financial goals. These providers invest in renewable energy sources and energy-efficient data centers, offsetting the environmental footprint associated with cloud.

While AI can streamline processes and enhance decision-making, organizations aspiring to be sustainability leaders must consider its environmental impact. To mitigate this, they should optimize AI architectures for efficiency.



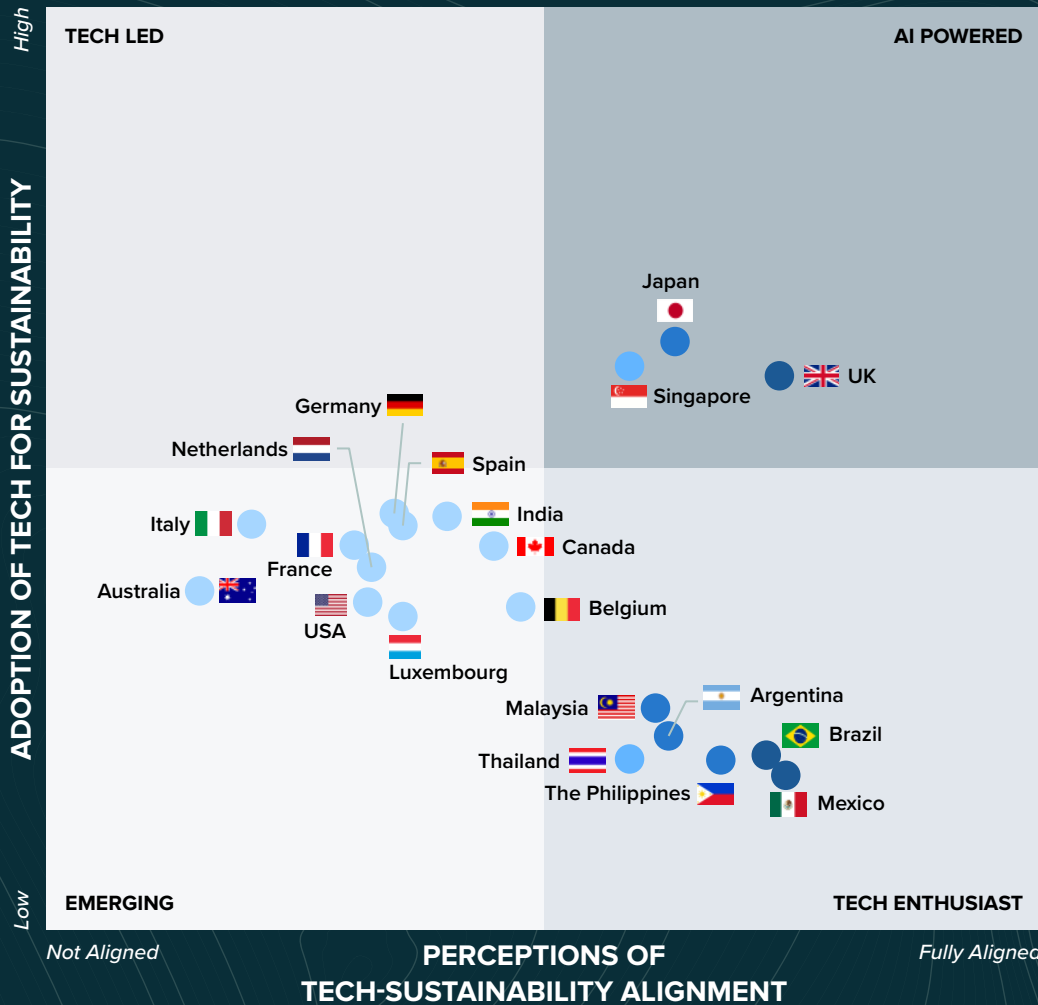
AI Core to Sustainable Transformation

- 1 Building a Strong Data Foundation for AI**
Automate data capture from various sources and standardize formats for consistency. Improve data quality with regular audits and normalize information across systems for effective analysis. Implement a unified data management system, like a data fabric, for centralized access to all organizational data.
- 2 Using AI to Set and Assess Sustainability Goals**
Leverage AI to define and evaluate sustainability goals precisely. Analyze large datasets to identify trends and establish targeted, measurable objectives. Continuously review sustainability initiatives to optimize resources and track progress effectively.
- 3 Advancing Predictive AI Use**
Go beyond compliance with predictive AI. Forecast climate scenarios and pinpoint vulnerabilities. Set achievable emissions reduction targets and devise proactive strategies to mitigate climate-related risks, enhancing operational resilience.
- 4 Refining ESG Reporting with AI**
Streamline ESG reporting to enhance data accuracy using AI. Simplify compliance processes with workflow tools and employ AI-driven data simulation to generate synthetic data when real data is limited. This approach helps identify risks and opportunities throughout your sustainability journey.
- 5 Leveraging Expertise for an AI-Led Sustainability Roadmap**
Create a strategic sustainability roadmap tailored to your organization. Use AI to discover new sustainable practices and business models while fostering collaboration for knowledge sharing. Partner with consulting firms and systems integrators to gain the expertise necessary for effective strategy development, objective setting, and sustainable practice implementation.



SPOTLIGHT

Global Perspectives: Tech Adoption for Sustainability by Countries



The Parameters

PERCEPTIONS OF TECH-SUSTAINABILITY ALIGNMENT

How the use of technology for sustainability is viewed (*x-axis*)

ADOPTION OF TECH FOR SUSTAINABILITY

Real adoption of tech for sustainability (*y-axis*)

ORGANIZATION'S SUSTAINABILITY STRATEGY

The extent to which organizations focus on sustainability strategy (*color of bubble*)



AI POWERED. At the forefront of sustainability, using AI to optimize operations, predict future trends, and drive innovation.

TECH LED. Have adopted a data-centric approach to sustainability, using data analytics to inform decision-making and measure progress.

TECH ENTHUSIAST. Strong desire to leverage technology for sustainability but may have limited resources or expertise.

EMERGING. Beginning their sustainability journey, focusing on basic strategies and limited technology adoption.

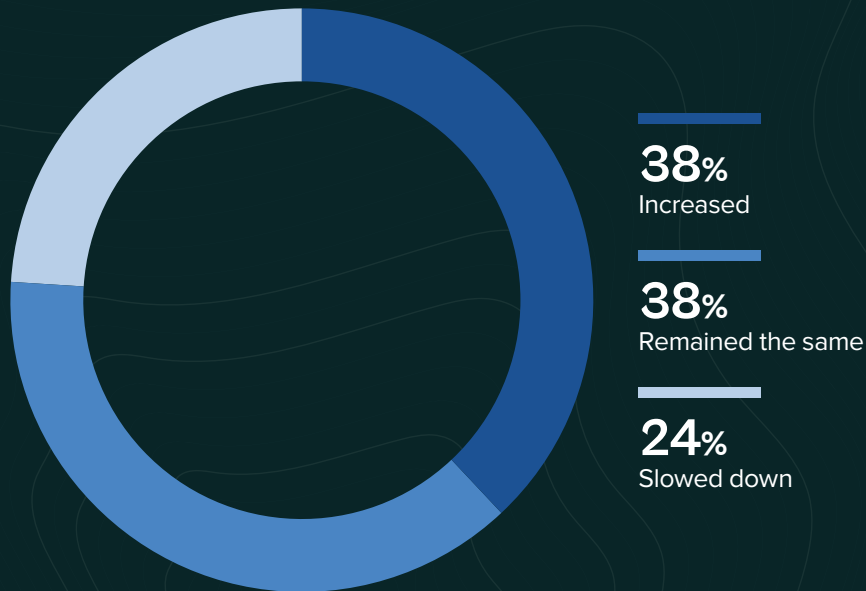
Modeled based on responses to multiple questions

SPOTLIGHT

Moving The Needle: Shifting Pace of Sustainability Programs

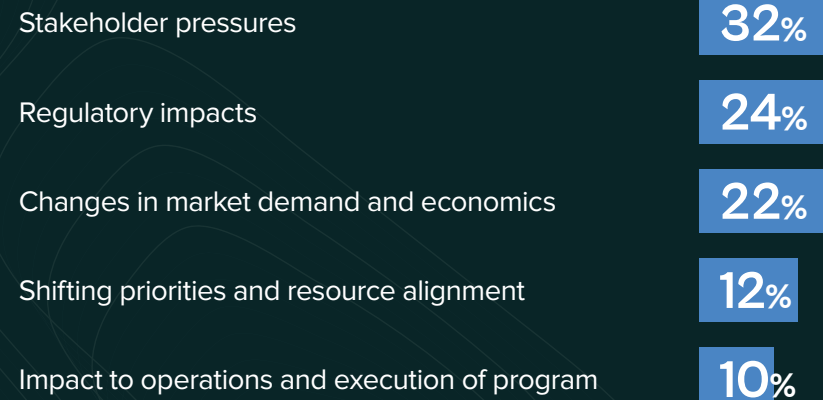
In the last year, 76% organizations have stayed the same or increased their sustainability goals and program execution.

A Growing Commitment to Sustainability



Q: Have your sustainability goals and execution slowed down or increased over the last year?

Driving Forces: Accelerating Sustainability Actions



Q: What is the main reason for the change in pace of your Sustainability goals and execution?

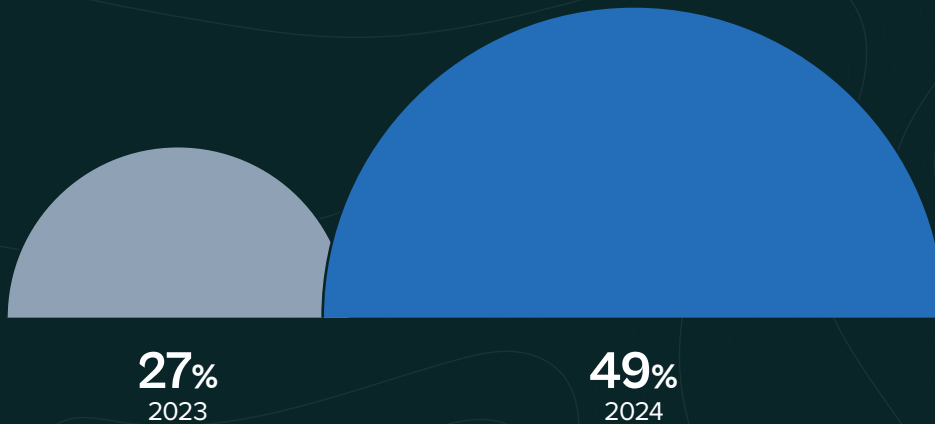
The surge in sustainability initiatives is driven by stakeholder pressures, market demands, and regulatory impacts. Market forces, including consumer preferences for sustainable products and investor prioritization of ESG factors, compel organizations to adopt robust sustainability practices. Regulatory developments, such as the Corporate Sustainability Reporting Directive (CSRD), the International Sustainability Standards Board (ISSB), and the Securities and Exchange Commission (SEC), impose stricter sustainability reporting and disclosure requirements. These combined pressures make sustainability a strategic imperative.

SPOTLIGHT

Moving The Needle: Advances in Sustainability Efforts

Increase in Sustainability Leadership

CSOs Driving Sustainability Vision



Q: Which roles define sustainability vision in your organization?

While CEOs were more actively involved in shaping sustainability visions last year, there's a growing trend of delegating these responsibilities to specialized ESG/Sustainability teams.

Tech-Powered Sustainability: A Growing Trend



Q: How does the IT/technology team support the organization's sustainability goals?

Most organizations are increasingly leveraging technology to advance their sustainability goals. This trend is particularly evident in areas such as reducing environmental footprint, enhancing data use for reporting, and adopting innovative technologies for sustainable operations and supply chains.

SPOTLIGHT

A Global Plea: Businesses Urge Government Action on Sustainability

Organizations will boost their sustainability efforts if governments show more leadership and provide clearer directions. Governments shape the business landscape through regulations and policies that influence corporate behavior. Clear and consistent sustainability targets, along with supportive legislation, create a compelling environment for businesses to adopt sustainable practices. Incentives like tax breaks or grants for eco-friendly initiatives encourage investment in green technologies and carbon footprint reduction. Promoting education and awareness programs highlights the benefits of responsible business practices.

What Companies Expect from Policymakers

**70%**

Mandate change and reporting

**64%**

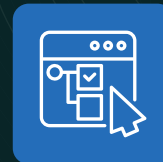
Provide detailed action plans with clear accountability

**54%**

Improve incentives for organizations

**52%**

Endorse industry standards and benchmarks

**50%**

Promote an ecosystem that supports sustainable practices

**39%**

Innovate on design and delivery of green initiatives

**36%**

Increase funding for sustainability innovation

**31%**

Increase training and upskilling opportunities for employees

**27%**

Act as a role model for other organizations

Q: How, according to you, can governments improve the adoption of sustainability initiatives?

Strong government leadership and direction can level the playing field, making sustainability a competitive advantage for companies rather than a burden.

Conclusion

Organizations worldwide are accelerating their sustainability initiatives, driven by increasing expectations from customers, investors, and employees. While challenges remain, there's a growing momentum toward a greener future. Regulations and government support are crucial, but organizations are also taking proactive steps to implement sustainable practices. This includes leveraging technologies, integrating and managing data, and prioritizing cross business engagement in sustainability initiatives.

Despite challenges like data management and interdepartmental alignment, a clear trend shows organizations recognizing sustainability as a strategic business driver. As a result, we're witnessing a surge in innovation and collaboration across industries to develop sustainable solutions. Technology, particularly AI, is playing a pivotal role in enabling organizations to achieve their sustainability goals. By leveraging AI-powered solutions, businesses can optimize resource consumption, reduce waste, and enhance their overall environmental impact.

The convergence of technological innovation, resolute leadership, and a global commitment to net zero emissions is paving the way for a more sustainable future. To achieve our ambitious climate goals, we must foster collaboration across sectors and borders. By uniting our efforts, we can develop the transformative solutions needed to create a resilient and equitable world for generations to come.

About Ecosystem

Ecosystem is a Digital Research and Advisory Company with its global headquarters in Singapore. We bring together tech buyers, tech vendors and analysts onto one integrated platform to enable the best decision-making in the evolving digital economy. Ecosystem has moved away from the highly inefficient business models of traditional research firms and instead focuses on research democratisation, with an emphasis on accessibility, transparency, and autonomy. Ecosystem's broad portfolio of advisory services is provided by a team of Analysts from a variety of backgrounds that include career analysts, CIOs and business leaders, and domain experts with decades of experience in their field. Visit ecosystem.io

About Kyndryl

Kyndryl (NYSE: KD) is the world's largest IT infrastructure services provider serving thousands of enterprise customers in more than 60 countries. The company designs, builds, manages and modernizes the complex, mission-critical information systems that the world depends on every day. For more information, visit www.kyndryl.com

About Microsoft

Microsoft (Nasdaq "MSFT" @microsoft) enables digital transformation for the era of an intelligent cloud and an intelligent edge. Its mission is to empower every person and every organization on the planet to achieve more.

This eBook is sponsored by Kyndryl and Microsoft. The insights presented are based on data from the Global Sustainability Barometer Study. It also represents the Ecosystem analysts' subject matter expertise in the area of coverage in addition to specific research based on interactions with technology buyers from multiple industries and technology vendors, industry events, and secondary research.