PwC and Microsoft

Overcoming the climate transition challenge: How PwC and Microsoft transform sustainability into a growth driver

A new era: Sustainability emerges as a growth driver

Business executives frequently view sustainability as an obligation stemming from rapidly evolving disclosure requirements and demands from shareholders, consumers, business partners and regulators. While organizations may take initial steps to reduce their carbon footprint, particularly Scope 1 and 2 emissions, and more recently Scope 3, they often miss the opportunity to use sustainability as a strategic growth driver.

With the appropriate investments underpinned by a strategic approach to sustainability, organizations can not only meet the moment with regards to ESG reporting, decarbonization and the like, but also innovate and create new sustainable products, boost investor confidence, mitigate supply chain risk, streamline operations, reduce waste and ultimately achieve sustainable growth. Action today can also help attract top talent as workers increasingly seek out companies that align with their values.

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Fortunately, sliding the dial from tactical to strategic isn't as daunting as it might seem. The key is to establish a business and technology model that enables sustainability as a cross-functional imperative as opposed to a reporting focused silo. This approach infuses success in products, services — the overall business — through an intelligent infrastructure, automation, the appropriate combination of solutions and data, and a labor force with the appropriate skills.

The currency of this intelligent enterprise is data of all stripes. Decision-makers require high-quality data along with consolidated reporting that extends across many aspects of the business, from the supply chain out to the customer. When blended with the appropriate sustainability data, such operations-focused data can unlock insights that can help track emissions and progress on decarbonization, while also addressing wider sustainability issues such as water, labor and biodiversity. The true potential of such data though, lies in business value creation. With greater visibility into operations, the value chain, suppliers and consumers, you may be better equipped to navigate climate change and highly disruptive business conditions while fueling business growth and higher revenues.

But that's only possible if you have confidence in the data that is supporting your capital allocation process and fueling calculations to measure progress, such as emissions reductions over time and the return you realize on your sustainability investments. PwC has laid out the controls and processes you should have to help generate thorough and consistent ESG data. With precise and thorough data, your executive team can potentially spot risks earlier, diversify its supplier base and realize gains in areas such as water, biodiversity and even human rights issues that map back to sustainable development.

The takeaway? Although many organizations have made progress on the sustainability front, there's still a lot of work to be done. Where adoption lags, opportunity arises.

Beyond the basics: How technology can deliver a growth path through the climate transition

PwC and Microsoft have developed a tech and data architecture for strategic sustainability that can support both short-term and long-term climate challenges. It first addresses the technical challenge of aggregating ever more granular data — think individual sites, shipments, purchases of material — from enterprise operations and the value chain. This includes data originating from third parties.

Second, it aims to provide actionable insights based on the more complete snapshot of the enterprise that can help unlock value by proactively modeling climate change variables using machine learning, predictive analytics, digital twins and AI. It can engage in realistic what-if scenarios and adapt in real time to risks extending across the value chain. It's also possible to explore new or improved sourcing opportunities, reformulate existing products, and create novel products and services. Finally, you're able to work with industry peers to help build a better sustainability ecosystem.

1 **Address the technical challenge of aggregating ever more granular data from enterprise operations and the value chain.**

2 **Aim to provide actionable insights based on the more complete snapshot of the enterprise.**

3 **Be able to work with industry peers.**

Further, by taking a modular approach to design and the inherent interoperability of Microsoft's solutions, it's also flexible and lets you start an incremental journey of transformation. If conditions change — for better or worse — your organization can adapt its sustainability strategy and tactics on the fly.

Across both the short and long term of the climate transition, clear themes — or problem statements — emerge that this solution can help address:

- **Decarbonizing and improving enterprise operations.** Confirming that decarbonization is being achieved in the most effective possible way while hitting your targets.

- **Developing a sustainable, transparent and resilient supply chain.** Working to expand reporting visibility to Scope 3 emissions and building out capabilities to help address long-term sourcing and supply chain challenges.

- **Designing (and reengineering) products and services** so that they are inherently sustainable and hence, promote sustainable growth.

- **Addressing the human element**, including ownership, management and skills required to promote growth through sustainability.

# Getting to decarbonization: Designing a strategy that's agile and adaptable

Today, no organization remains untouched by the impact of climate change and other sustainability issues, including water shortages, energy sourcing, fair labor and biodiversity. Most medium and large businesses already track Scope 1 and Scope 2 emissions to some extent, and Scope 3 more recently. What's more, some have already adopted science-based targets for emissions.

That's a positive. However, a rapidly changing world demands a more intelligent and long-term approach to sustainability. Achieving 2030 and 2050 emission reduction goals is critically important. But your business shouldn't overlook how decarbonization can also unlock productivity gains. These areas serve as a crucial starting point for any climate transition strategy. Still, the real power of sustainability — call it the rocket fuel for top tier companies — is leveraging technology to generate long-term value and growth.
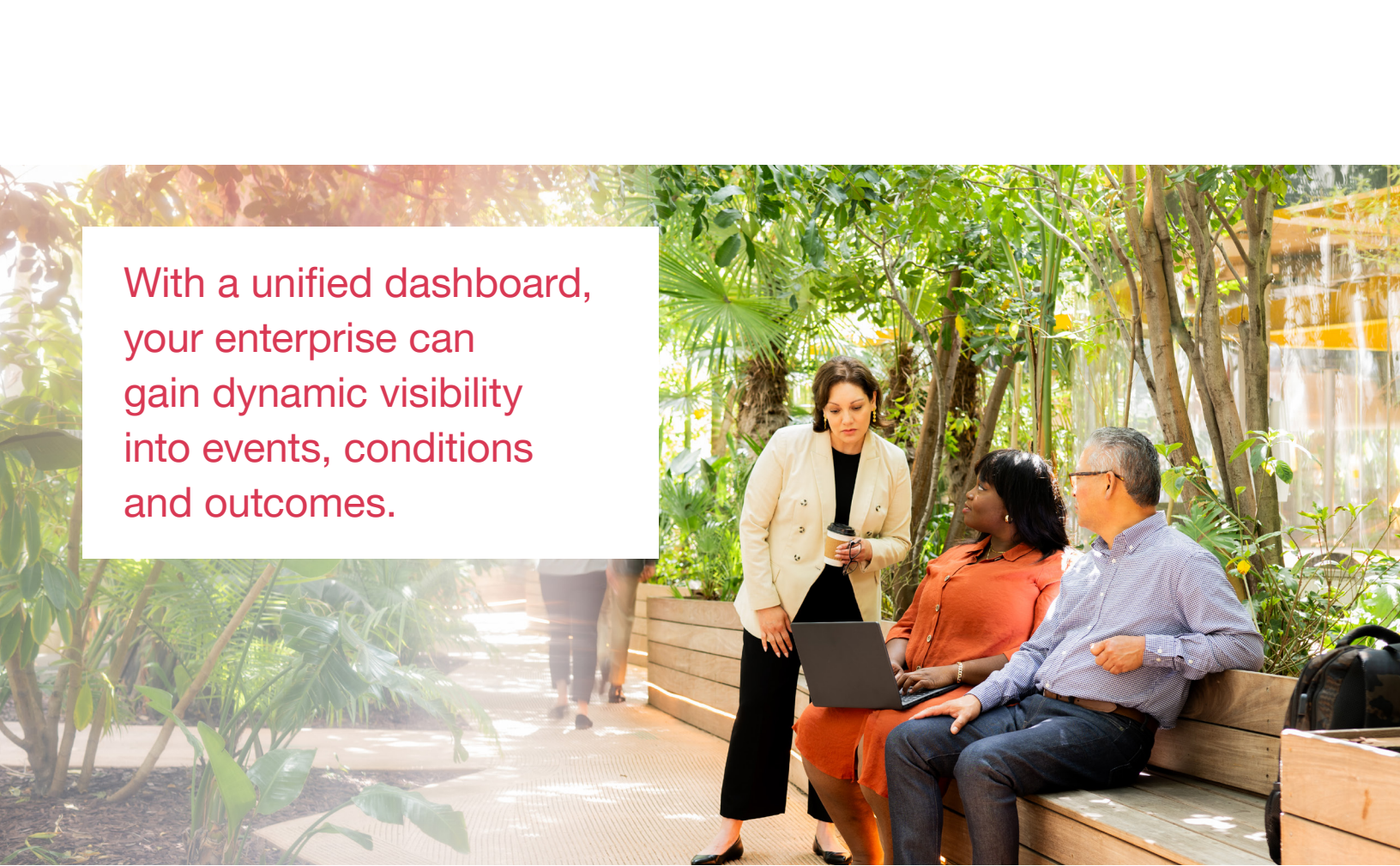
The concept isn't arbitrary. PwC's Consumer Intelligence Series Survey on ESG found that 86% of employees prefer to support or work for companies that care about the same issues they do. Equally important, 83% of consumers think companies should be actively involved in shaping ESG best practices.
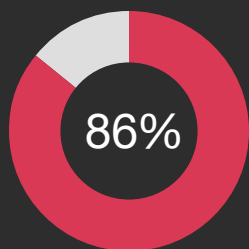
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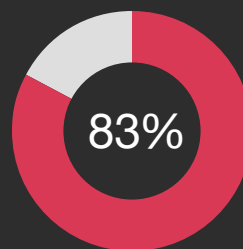
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With a unified dashboard, your enterprise can gain dynamic visibility into events, conditions and outcomes.

This underscores an important fact: A traditional approach that simply involves layering on tools, products and solutions may be flawed. A typical CFO or CSO may not have an IT team directly tied to sustainability efforts, so various groups choose sustainability solutions and technologies based on their immediate needs. This results in an ineffective framework that's ill equipped for climate change challenges.

With a unified dashboard, your enterprise can gain dynamic visibility into events, conditions and outcomes. It becomes possible to meet societal expectations along with regulatory requirements, including regulations such as the SEC's climate disclosure rules, the EU's Corporate Sustainability Reporting Directive (CSRD) and California's climate disclosure requirements.

At this point, your executives can gain greater confidence that they're selecting strategic and targeted actions that can produce tangible outcomes. They can track events and outcomes quarter-over-quarter or even in real time. And with this level of oversight, they can also see what's working, what isn't working and what levers to pull to adapt a strategy and change course.

Decarbonization hinges on three key factors:

Designing, managing and modernizing a framework with Azure. Organizations require a modern cloud framework like Microsoft Cloud, which delivers solutions that collect, sort, integrate and view data from across the enterprise, including information residing in purchase orders, meters and sensors in factories. With data available in a standard format and within a single platform, it's possible to obtain a consistent view of emissions data. This central source can also connect to generative AI (GenAI) solutions such as Microsoft Copilot, which can summarize critical data and answer important questions.

Together, Azure and Microsoft Cloud deliver storage and computing at scale, a highly flexible and secure data architecture along with data repositories linked via containers and APIs. This cloud framework supports critical digital components like the Internet of Things (IoT), robotics, machine vision, additive manufacturing, predictive analytics and advanced modeling solutions like digital twins, AI and GenAI. It also makes it easier to collect, sort and integrate data from varied sources, including finance and operations systems, sensors and invoice or purchase order data.

Making data accessible. An intelligent platform, such as Microsoft Cloud for Sustainability, slides the dial from reactive to proactive through AI and automation. The data collected from IoT sensors and other digital sources, business partners, third parties (such as energy and travel providers) and NGOs boost insights and makes data actionable. With cumbersome spreadsheets vanquished and a single and accurate window into sustainability, an organization's climate transition journey evolves from reactive to predictive.

Strategic support. Although technology is at the foundation of a successful sustainability strategy, it doesn't represent the overall picture. An enterprise should define processes, workflows and frameworks that directly map to sustainability requirements, particularly in an area like supplier engagement. Getting to this more evolved state requires a centralized portal or hub, such as Microsoft Supplier Dashboard. It manages communications with suppliers and buyers, including syncing efforts internally and externally. It also supports sharing industry leading practices and achieving deeper buy-in across the value chain.

Engaging suppliers: How to effectively collect, store and cleanse ESG data

Supply chains that stretch across thousands of companies and involve billions of constantly changing data points are the new normal. Companies often find it difficult to incorporate Scope 1 and Scope 2 information, and to leverage critical Scope 3 data that can account for somewhere between 65% and 95% of carbon emissions.[1] Equally problematic: Collecting and sharing consistent and complete data.

By contrast, an agile cloud framework guides an organization away from guesstimates and vague information through enhanced data automation, data management and AI. This data-centric, fact-based structure allows for accountability across suppliers at all tiers of the value chain. With this intelligent platform in place, business leaders can better pinpoint the precise data they need at any moment. The company can monetize the real-time nature of data.

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1   https://www.pwc.com/gx/en/issues/climate/scope-three-challenge.html

Four key components comprise an intelligent architecture:

A supplier engagement platform purpose built for sustainability.

Suppliers may use different criteria to track emissions. Rather than settling on a fragmented reporting approach that delivers localized insight after the fact, a centralized platform tracks the environmental footprint across the value chain. Built-in tools, including GenAI solutions like Microsoft Copilot, can help verify the accuracy of data. An industry leading supplier engagement platform like Microsoft Supplier Dashboard connects diverse components.

Strong data collection technology.

Sensors and low-latency edge networks can help organizations peer deeper into the supply chain and track emissions more precisely. Newer ambient IoT devices that don't require external power sources and transmit data in real-time using Bluetooth Low Energy are further altering the playing field. In addition, satellites, robots and drones, computer vision systems and verification technologies such as blockchain can aid in data collection.

Analytics solutions that are up to the task.

Business intelligence solutions such as Microsoft Power BI unify diverse data sets, scrub and convert data, and identify subtle patterns and trends involving resource consumption, emissions, waste generation, supply chain efficiency and other important metrics.

AI to gain deeper insights.

AI and machine learning allow organizations to automate and enhance data collection. GenAI, trained on language models, can parse through mountains of text and provide succinct summaries and trend analysis. It can also translate reports and information between languages. These insights can help companies understand what to prioritize and where to monetize. Strategically leveraging AI can allow companies to connect data around customers, sustainable products and trends to enhance go-to-market sustainability themes.

Circularity: Embedding sustainability into every stage of product and service design

Sustainability is rapidly evolving from an ESG-driven task to a holistic ecosystem that unlocks growth and monetary gains. It's possible to tap sustainability for innovation and even mitigating market disruption. In some cases, businesses introduce cosmetic and functional improvements to existing products. In other cases, they invent or introduce entirely new products and services. There is a powerful incentive to reduce packaging or manufacture a more sustainable product. PwC's Voice of the Consumer Survey 2024 found respondents would be willing to pay 9.7% above the average price for sustainably produced or sourced goods. Some consumers were even prepared to pay as much as 30% above the average if the products were made from recycled materials, biodegradable or from a company with a reputation for ethical practices.

To unlock value, businesses are turning to digital technologies like 3D printing and additive manufacturing to reinvent production. They are weaving recycled fabrics and plant-based materials into shirts, pants, skirts, shoes, furniture and even automobiles. They're also developing highly modular systems with replaceable components.

With advanced analytics and modeling, including digital twins and GenAI, a business can examine how even small changes in a formula or fabrication method impact carbon output, costs, risks, sales and margins. A company can explore how complex factors associated with climate change and energy sourcing change business dynamics. Together, they can investigate opportunities for low carbon sourcing and more effective manufacturing and distribution. They can design closed-loop systems that reduce waste through products that are easier to repair, upgrade, recycle and remanufacture.

Organizations can also model how different decisions impact consumers, shareholders, employees, suppliers and regulatory entities. This might include divesting assets that don't contribute to sustainability or incentivizing behavior through bonuses tied to carbon reduction metrics — something Microsoft and other companies have had enormous success with over the last few years. The result is a workforce that's more tightly aligned with enterprise goals and objectives.

How AI changes the sustainability equation and helps drive transformation

One way to think about AI — and its transformational capabilities in the sustainability space — is that it's the newest member of the workforce. It can automate tasks that generate overhead but produce little practical value. It can reduce tasks that otherwise would require manual processing, freeing employees to concentrate on high value business and sustainability tasks.

For example, AI can track food or medicine shipments across a supply chain and determine if environmental conditions, such as temperature or humidity, have introduced spoilage risks. Digital twins can cycle through product and packaging permutations to determine how they impact sustainability as well as costs and revenue models. A vintner or clothing manufacturer might use a digital twin to model how climate change can impact crops or fibers used to produce wine or knit sustainable garments. They can also use AI to reduce costs by decreasing inventory waste and potentially generate higher revenues by focusing on the right products for certain market segments. But ultimately, a human should remain in charge of these processes and interpret the information.

Like human workers, AI requires ownership, oversight and guardrails.

Like human workers, AI requires ownership, oversight and guardrails. Someone in the C-suite should oversee AI-based sustainability solutions, including how technology-related tasks map to human roles and workflows. An organization should also understand when it needs to upgrade or hire new talent.

Finally, it's paramount to use AI in responsible, unbiased and secure ways. This includes masking or anonymizing sensitive data and intellectual property. GenAI can also introduce accuracy and relevancy challenges, including a need to train systems on relevant internal data and facilitate communication among various groups, including data scientists, engineers, IT staff, human resources and developers.

Building a sustainable future that can deliver growth

Sustainability isn't just about being a good global citizen and producing high quality ESG reports. Sustainability is simply smart business.

It cuts costs, boosts supply chain efficiency and lowers long-term risks associated with climate change and business disruption — all while simultaneously introducing opportunities to improve or invent new products and services that align with shifting customer demands.

Wherever your organization resides in its sustainability journey, PwC can play an important role in helping you unlock value and growth. This includes establishing a viable strategy, designing a Microsoft Cloud architecture that's equipped for the climate transition economy and integrating essential technologies, including AI, into your business.
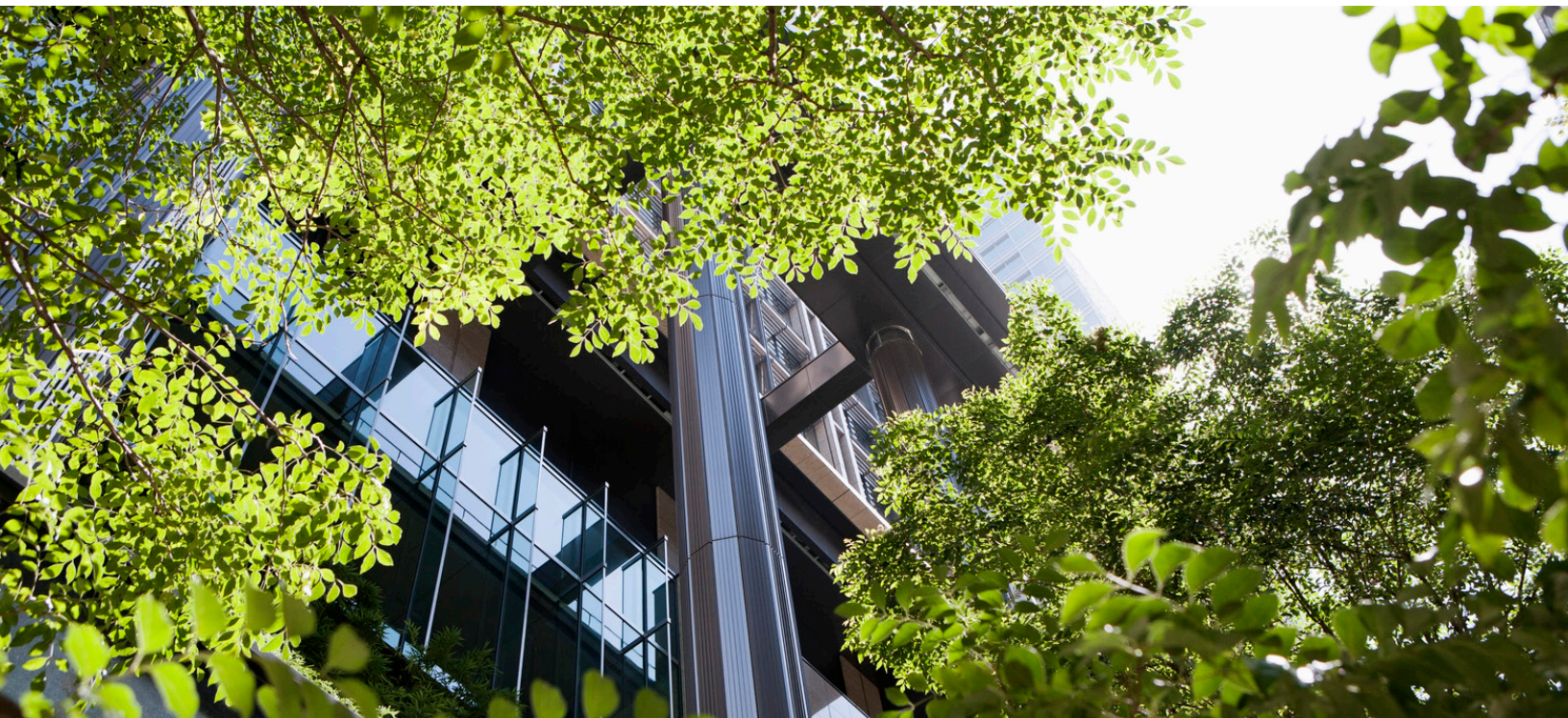
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