Gartner Research

Apply Digital Business to Sustainability

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Digital business can be used to accelerate sustainability outcomes. Executive leaders should establish sustainability technology governance, share relevant data and apply digital to material (important) issues.

Overview

Key Findings

- Sustainability initiatives often begin with spreadsheets and tracking software.
- Digital business can be used to go beyond compliance by helping enterprises reach targets and enabling new business models and revenue streams.

Recommendations

Executives leading digital business transformation should:

- Establish a sustainability technology council with cross-functional leadership. Prioritize tech projects based on their ability to meet sustainability KPIs, goals and payback periods.
- Share relevant sustainability data by funding a self-service data platform. Upskill data literacy.
- Apply technology to material issues by directing the digital platform to the enterprise's most pressing material issues.

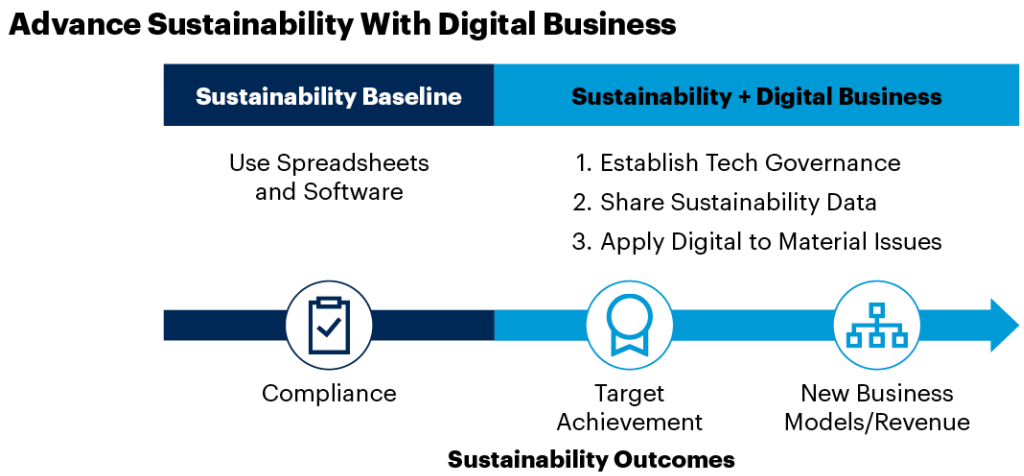
Introduction

Digital business has a carbon footprint. Executives are using cloud to improve efficiency. But cloud computing providers are some of the largest electricity consumers in the world (though most are investing in renewables, carbon offsets and carbon neutrality). Executives are using AI to improve customer engagement. But the carbon footprint of training even one AI is substantial. [1]

Digital business can drive sustainability outcomes despite its carbon footprint. And the reverse is also true: sustainability can drive digital business outcomes. For example, Internet of Things (IoT), data and analytics can optimize wind turbines. This reduces costs (a digital business outcome) and greenhouse gas (GHG) emissions (a sustainability outcome). A mobile app can help customers measure and reduce their GHGs. This improves customer engagement (a digital business outcome) and supports sustainability targets like achieving net-zero emissions. A circular economy platform creates new revenue, a business outcome for both digital business and sustainability.

Sustainability programs in industries like retail, manufacturing, energy and others often begin without digital business. This baseline includes spreadsheets and software that can help achieve tracking, compliance, risk avoidance and isolated projects for cost savings. The focus of this research is how digital business can advance sustainability beyond compliance to reach sustainability goals and unleash new revenue (see Figure 1). Here's what executives leading digital business should do next if their enterprise has a sustainability program.

Figure 1: Advance Sustainability With Digital Business



Source: Gartner
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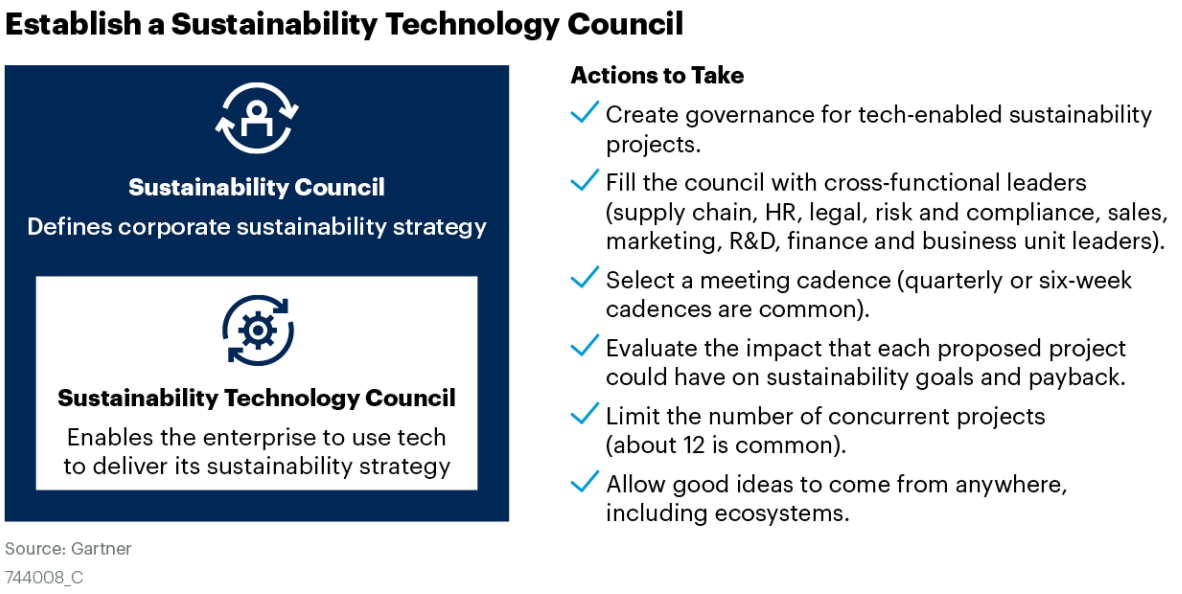
Note: Sustainability is an objective that guides decision making by incorporating economic, social and environmental impacts. This analysis emphasizes environmental sustainability. But we do not ignore its implicit connection with social and economic sustainability.

Analysis

Establish a Sustainability Technology Council

Figure 2: Establish a Sustainability Technology Council



"I probably get 100 sustainability ideas a day, and most of them are terrible." A senior executive shared this with us while discussing how to leverage digital business as a foundation for sustainability. It's the quintessential challenge of taking innovation from idea to value. Passionate sustainability projects happen all over the place without governance. Projects are often won by who shouts loudest rather than what is material and important to the enterprise. But executive leaders need a program to select, prioritize and govern the most important information and technology-enabled sustainability activities. Leading-edge sustainability companies are using a sustainability technology council to concentrate efforts on projects that will have maximum return and impact on performance (see Figure 2).

Create a sustainability technology council that governs tech-enabled economic, social and environmental projects (see Figure 3). Executives leading digital business already have tech governance in place. Use this as a blueprint to create governance focused specifically on tech-enabled sustainability projects. Selecting an AI project to predict and respond to severe weather is within scope. Planting mangroves to prevent flooding is not information and technology-related and is not within the remit of a sustainability technology council.

Figure 3: The Sustainability Technology Council

Source: Gartner
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Fill the council with cross-functional leaders. This council is a subset of corporate governance and is ultimately the responsibility of the CEO and the board. Appoint the CIO/CTO and head of sustainability to co-lead the council. Solicit CEOs to set the tone, lead by example and operationalize behavior (for example, by tying progress to remuneration). Include supply chain, HR, legal, risk and compliance, sales, marketing, R&D, finance, IT and business unit leaders. Use ethics policies to guide what the council focuses on. Ensure a strong link with risk management and investor relations.

Select a meeting cadence. Quarterly or six-week cadences are common.

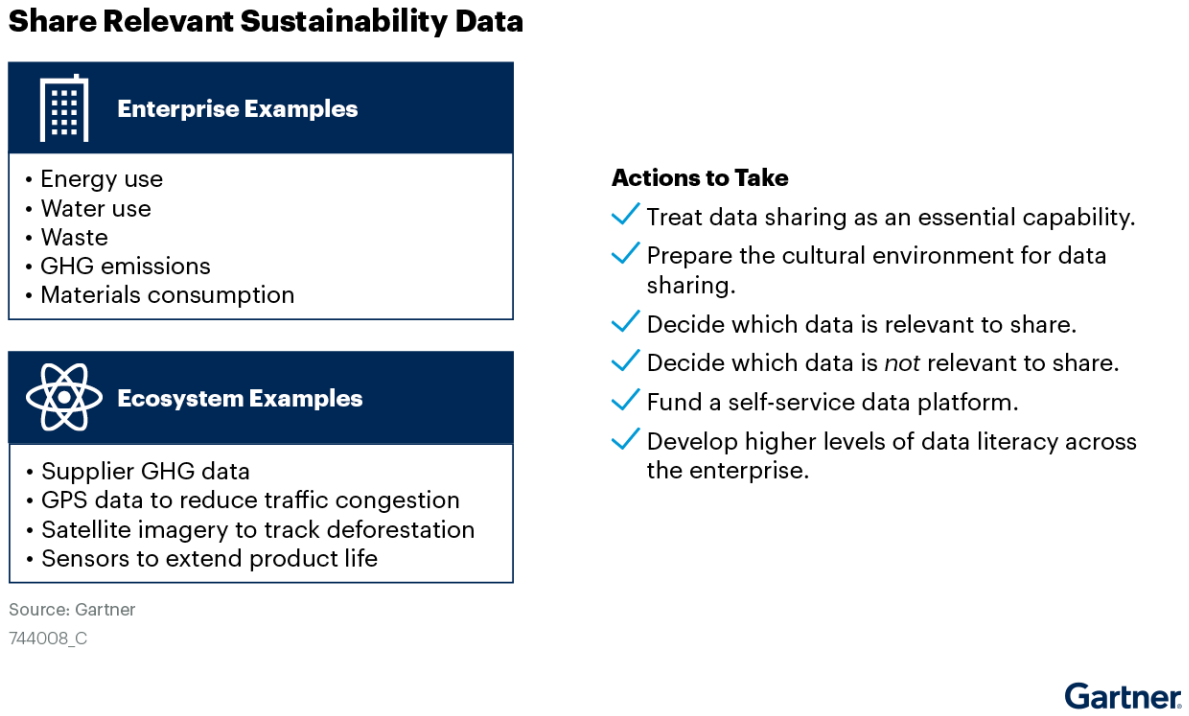
Evaluate the impact that each proposed project could have on sustainability goals. Include the ability of each project to meet sustainability goals. Define the payback period required; three years or faster is common.

Limit the number of concurrent tech-enabled sustainability projects to a manageable size. Around 12 is common for large enterprises.

Allow good ideas to come from anywhere within and beyond the enterprise, including ecosystem partners. Centralized governance can easily become heavy-handed and create bureaucratic pollution. It must be balanced with local empowerment, delegation and agile exploration. For those looking for an alternative to centralization, put a governance model in place that dynamically tracks against KPIs. Create an executive traffic light system based on sustainability goals embedded into the assessments.

Share Relevant Sustainability Data

Figure 4: Share Relevant Sustainability Data



Treat data sharing as an essential capability for accelerating sustainability outcomes. Executives leading digital business already have an intelligence platform in place that includes data and analytics, AI, machine learning (ML) and other technologies. Use this as a foundation to empower sustainability leaders.

Sustainability leaders need a range of data to track, plan, reduce risk and deliver efficiency and growth. Sustainability data, or GHG emissions, fall into three categories: Scope 1, Scope 2 and Scope 3. See Define Sustainability and Leverage Materiality to Drive More Effective Strategy for more details. Another way to think about data is by enterprise and ecosystem. Enterprise data includes information from internal operations, like materials consumption. Ecosystem data includes information from external operations or sources, like early-warning systems for natural disasters or soil quality monitoring.

The problem is that more than 70% of respondents to a survey conducted by the Harvard Business Review acknowledged they were not very effective at data sharing. [2] Sustainability teams often waste inordinate amounts of time calculating and integrating data. Data isn't just siloed between business units; it's fragmented within business units. Growth in demand leads to higher energy cost, leads to higher emissions and so on. Without combined data you cannot even make those calculations. Shared finance, supply chain and R&D data are particularly critical given the central role they play in sustainability.

Prepare the cultural environment for data sharing. Define data sharing as a "business necessity," a legal concept that justifies business decision making that may otherwise lead to potential legal liability. Work with allies such as CFOs who will usually welcome alignment to cost savings and revenue creation. Stress the importance of data collaboration, not data hoarding. Ensure every business leader has a sustainability goal that can only be reached by collaborating and sharing. Identify master data management maturity and gaps that should be closed. Merge enterprise data with relevant ecosystem data using AI or ML for optimization or improvement.

Decide which sustainability data is relevant to share. For example, operational data in manufacturing or supply chain GHG data is often useful to centralize and apply ML and AI to it. This type of data is material and significant in terms of representing the organization's impact. It can also be useful to have the ability to break data down to assess where to invest, such as a plant manager being able to identify poor performance of a kit and need for replacement. Another example is energy usage. This can include using data to track procured and consumed energy, which directly aligns with cost. It can also include shadow energy such as end-user device consumption and recycling. Annual reporting processes and sustainability reports benefit from centralization.

Decide which data is not relevant to share. For example, autonomous vehicles are still under development. Even if an enterprise has full-scale adoption of autonomous vehicles, it probably doesn't need five-second interval data centralized for sustainability purposes. Instead, it could centralize the beginning and end of a journey, and distance traveled. Some data will be competitively sensitive and may create a moral hazard if shared inappropriately. Data can be used to "gamify" internal behaviors, such as travel, meeting times or canteen consumption of red meat alternatives. Balance the impact of storing, transporting, managing sustainability data versus its usefulness to make improvement.

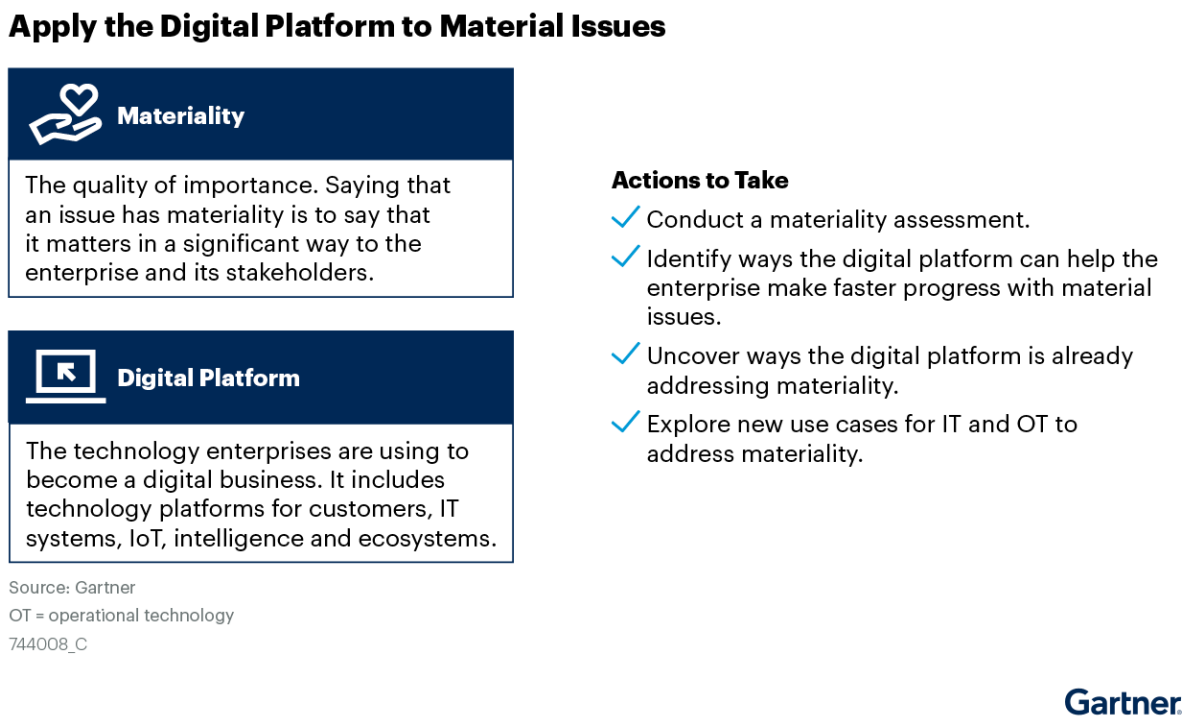
Fund a self-service data platform. On average more than 40% of all end users are business technologists. Empower business technologists focused on sustainability with:

- Self-service data products
- Curated data best practices, artifacts and patterns
- Deep technical support

Develop higher levels of data literacy across the enterprise. The Virginia Department of Transportation (VDOT) is focusing on sustainability issues like connected vehicles, charging stations, smart infrastructure and dynamic electric vehicle charging. [3] The agency provides training tools for employees to develop the skills needed to deliver data-driven decisions and solutions.

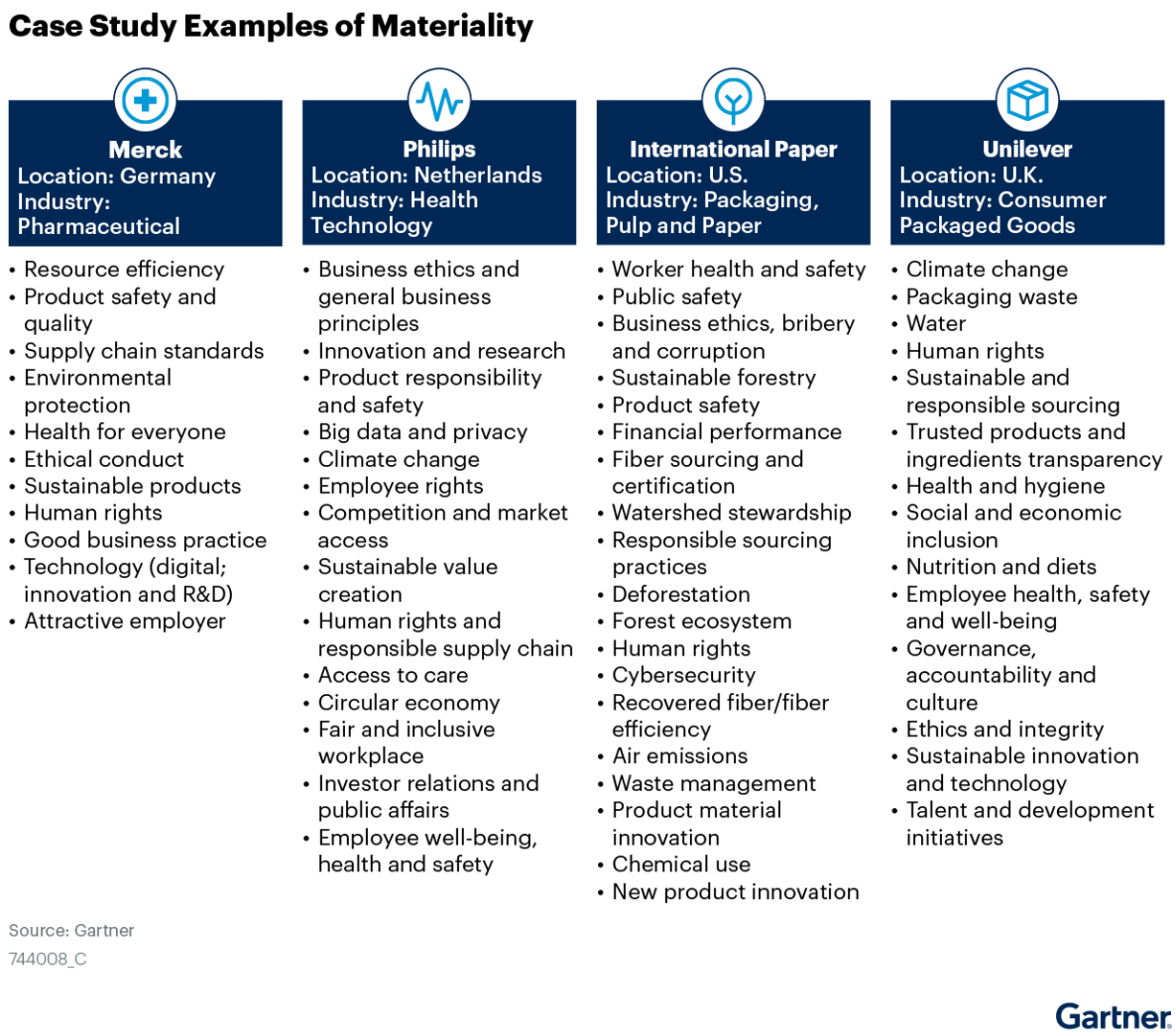
Apply the Digital Platform to Material Issues

Figure 5: Apply the Digital Platform to Material Issues



Conduct a materiality assessment. Saying that an issue has materiality is to say that it matters in a significant way to the enterprise and its stakeholder. Merck, Philips, International Paper and Unilever demonstrate that every enterprise will have its own unique set of material issues (see Figure 6).

Figure 6: Case Study Examples of Materiality



Identify ways the digital platform can address material issues (see Table 1). Executives leading digital business already have a digital platform. This typically includes customers, IT systems, intelligence, IoT and ecosystems. Apply the digital platform to material issues. For example, smart traffic management powered by IoT can reduce congestion and carbon dioxide (CO_2). Circular economy marketplaces and ecosystems match a product seller with a product buyer to extend product use. IoT can support circular product design. Mobile apps and blockchain can enable food traceability.

Table 1: How the Digital Platform Can Support Materiality

(Enlarged table in Appendix)

Material Issues Examples	*Digital Business Technology Platform Examples*				
↓	IoT ↓	Intelligence ↓	Ecosystems ↓	IT Systems ↓	Customers ↓
Climate Change	Smart traffic management reduces congestion and CO_2	AI optimizes wind turbine efficiency	GHG data marketplace connects people, business and government	Accounting systems track carbon emissions	Mobile app enables employees/consumers to track CO_2 footprint
Packaging Waste	Sensors monitor freshness and temperature	Big data catalogs ways packaging can be reduced	Ecosystem technology collaboration creates new recycling models (e.g., pyrolysis)	3D printing a product reduces packaging waste	Mobile app scans package-free items for in-store purchase
Sustainable Sourcing	Wearable devices detect and warn employees of danger	AI enables sustainable commodity sourcing	APIs enable ecosystem integration to real-time supply chain, inventory, and order-status information	ERP tracks loss and waste	Supplier relationship management improves collaboration
Water	Sensors detect water leakage	NLP determines if a project will pose a threat to water or wildlife	Water futures trading enables pricing transparency and risk mitigation	ERP enables process control for water treatment, waste	Chatbots support energy-saving habits
Biodiversity	Geospatial data and AI recommend conservation practices	Machine learning predicts where poaching may occur	Biodiversity offsets support conservation	Satellite imaging, cloud and AI reduce deforestation	Mobile app links consumption to impacts on biodiversity
Product Transparency	Sensors track product provenance	AI signals when and where to restock product	Circular economy marketplaces and blockchain show product history (origin, owners, maintenance)	ERP enables product recalls	Mobile apps and blockchain enable food traceability
Product Life Cycle Management	Sensors in products indicate the need for preventative maintenance	NLP drives change management decisions and service optimization	Circular economy platforms and marketplaces match a product seller with a product buyer	Circular cloud extends life cycle of servers	Chatbots clarify steps, use and reuse

NLP = natural language processing

Source: Gartner (February 2021)

Uncover ways the digital platform is already addressing materiality. Digital may already be advancing material issues beyond the purview of executive leaders due to the large number of business technologists within business units. Identify ways that digital has already been applied to materiality, including the business outcomes achieved.

Explore new use cases for IT and operational technology (OT) to address materiality. These use cases should be evaluated and prioritized by the sustainability technology council. Focus on their ability to address material issues, meet sustainability goals and deliver business outcomes (per the process we have laid out above).

Conclusion

Digital business can enable sustainability to go beyond spreadsheets and endless data excavation. This will create new value for the enterprise and ensure digital does more good than harm.

Evidence

[1] AI's Carbon Footprint Problem, Stanford University.

[2] An Inflection Point for the Data-Driven Enterprise, Harvard Business Review.

[3] How the Agency Is Looking Forward, Virginia Department of Transportation.

Merck, Philips, International Paper and Unilever are case studies that show how diverse material issues can be.

Sources:

Materiality Analysis, Merck.

Philips Annual Report 2019, Philips.

Global Citizenship Report — 2019, International Paper.

Unilever Materiality Matrix, 2019/2020 — Issues and Topics, Unilever.

Recommended by the Authors

Available only to Gartner clients and depending on subscription.

Sustainability: What to Do When Stakeholders Want You to Save the World

Define Sustainability and Leverage Materiality to Drive More Effective Strategy

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