

Why net-zero supply chains are the next big opportunity for business

Mapping a sustainable future

The EY logo consists of the letters 'EY' in a bold, white, sans-serif font. A yellow diagonal line is positioned behind the 'Y', extending from the top right towards the bottom left.

Building a better working world

COOs navigating the complexities of a changed and volatile world are rebuilding their operations from the ground up to thrive in the future.

Until recently, chief operating officers (COOs) have focused primarily on fine-tuning the value chain for speed to market, efficiency and profitability. But the world has changed – at first gradually and now suddenly.

Over the last several years, empowered consumers, employees and investors; climate change; geopolitics; and technology innovations have disrupted organizations, pushing them to change how they operate. Over the last 18 months, the COVID-19 pandemic turned that slow push into a giant, forceful shove. And COOs have had to figure out on the fly how to operate in this changed environment.

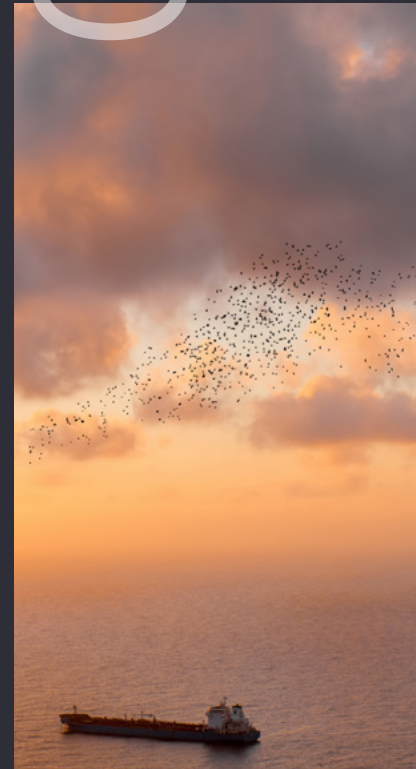
Organizations may still be making similar products and services, but everything about how these products and services are designed, manufactured and delivered to customers is different. This shift is forcing COOs to reimagine their supply chains for agility and sustainability as much as optimization.

Across the enterprise, technology innovations are helping COOs transform how the business operates to meet multiple, simultaneous demands from a range of stakeholders – and increasing the chances of cyber infection. Reskilling and upskilling the workforce can help accelerate digital transformations and address cyber risks. All of this is happening in the context of economic and techno nationalism.

To help COOs determine where to start and how best to navigate operational resilience and sustainability, we break these action items down in three e-books.



01



E-book 1

Setting a course for sustainable and resilient operations

As COOs navigate this increasingly complex and volatile world, they need to cast their gaze across the entire value chain as they seek to reframe their future for operational resilience and sustainability.

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02



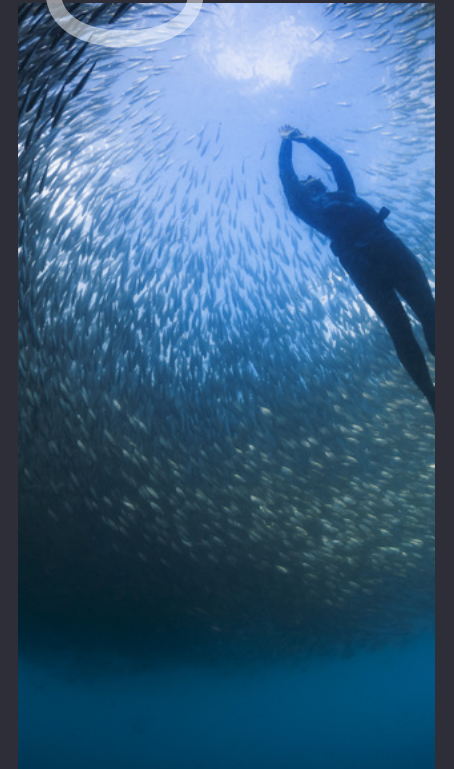
E-book 2

Mapping a sustainable future

Increasing pressure from consumers, employees, investors, governments and regulators is pushing COOs to consider the future of their operations in the dual context of what's best for the business, society and the planet.

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03



E-book 3

Building resilience to move full speed ahead

After a year of disruption, organizations need to transform to build resilience for themselves, for their teams and across the enterprise to improve agility and the ability to pivot at speed.

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Mapping a sustainable future

Increasing pressure from consumers, employees, investors, governments and regulators is pushing COOs to consider the future of their operations in the dual context of what's best for the business, society and the planet.

Companies are moving to reduce their carbon emissions, with some stating ambitious goals to be carbon neutral in the next 5 to 10 years – yet these goals can be more theoretical than concrete. Bridging the gap between intention and reality won't necessarily be easy, but what's good for business and the planet doesn't need to be in conflict: optimization and simplification across the supply chain can reduce emissions, and advances in technology are making the economics of renewable energy and electric vehicles much more favorable every year.

78%

of institutional investors say they conduct structured, methodical evaluations of nonfinancial disclosures.¹

(up from 72% a year ago and a significant jump from 32% in 2018)

As a COO, here are three ways you can rethink your operations for a sustainable future and gain favor from a broad group of stakeholders.



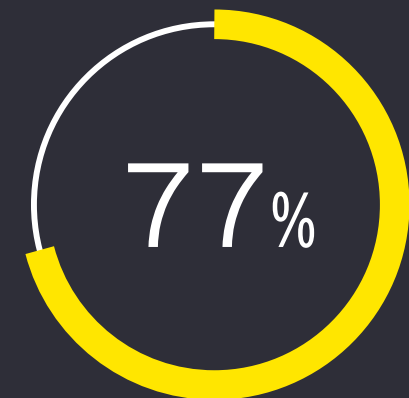
¹ [Is your ESG data unlocking long-term value? EY, November 2021](#)

01

Plot your net-zero future today

As companies set carbon neutral or carbon negative goals, supply chains are a natural target for reduced emissions, particularly through optimized manufacturing and vehicle electrification in logistics.

But the opportunities run deeper for those who scrutinize how their products are made and used – and potentially reused.



of investors say they will devote considerable time and attention to evaluating the physical risk implications of climate change when they make asset allocation and selection decisions.²



of consumers say they will prioritize the environment and climate change in how they live and the products they buy.³

The changing landscape

Environmental, social and corporate governance (ESG) is not a new topic on C-suite agendas, and the business case for action is well-established. For example, supply chain sourcing and manufacturing has long focused on human rights aspects – such as child labor and working conditions. Some large companies have closely monitored their suppliers for their carbon footprint and sustainability key performance indicators. Forward-thinking retailers have targeted energy savings tied to operating their physical stores to reduce their overall environmental impact, and they have improved transportation routes and leveraged hybrid vehicles for last-mile delivery. Consumer packaged goods companies have focused on reducing their packaging and their water usage. And even health systems are looking to improve energy efficiency of their hospitals and power their generators with on-site solar panels.

Yet regulatory action this year in the US, with new momentum from the Biden Administration, has added greater urgency to the debate, as well as the need to consider ESG more broadly within supply chains. For instance, the SEC hosted a public consultation

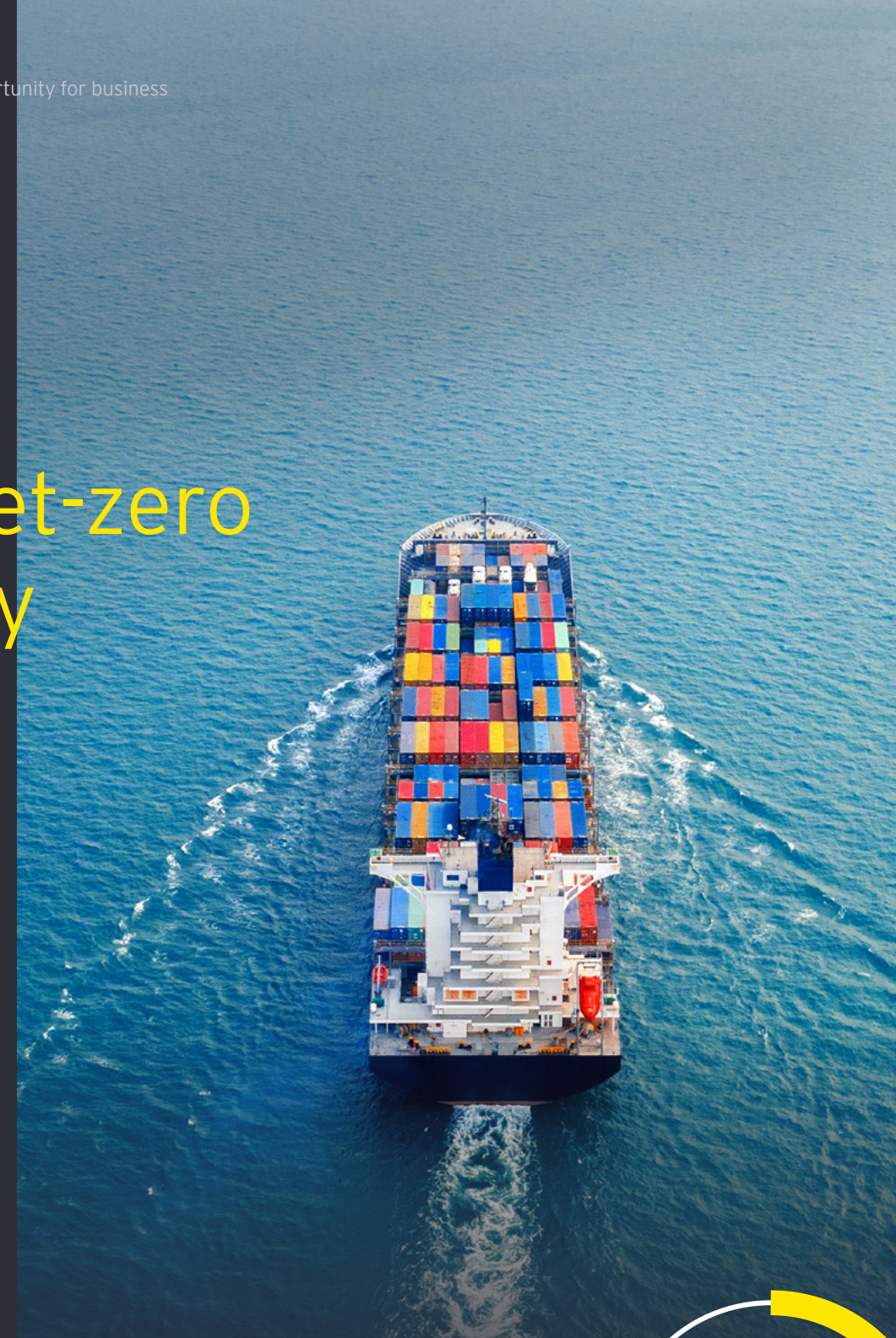
process on climate-related disclosures, and its spring 2021 rulemaking list includes a proposed rule on climate change disclosure, among other ESG topics. More change is on the horizon in what companies will need to provide not just in their operations but in their supply chains. The Biden administration has also issued executive orders on environmental sustainability and its impact on the economy, most recently to drive more responsibility among financial institutions on climate disclosures and financing.

Globally, during the first week of COP 26, the Glasgow Financial Alliance for Net-Zero (GFANZ), announced the launch of the new International Sustainability Standards Board (ISSB) by the IFRS Foundation. GFANZ is a forum uniting over 450 financial service providers from 45 nations to accelerate the transition to a net-zero global economy by 2050. The alliance is responsible for \$130 trillion of assets, a significant proportion of the global total.

Investors and consumers are also compounding the pressure to act. In an EY survey of global institutional investors from 2021, 77% of respondents said they will devote considerable time and attention to evaluating the physical risk implications of climate change when they make asset allocation and selection decisions, and 79% said the same of transitional risks. Among consumers, 49% say they will prioritize the environment and climate change in how they live and the products they buy, according to the EY Future Consumer Index in March 2021. (And 26% say sustainability will be their most important purchase criterion three years from now.)

² *Is your ESG data unlocking long-term value?* EY, November 2021

³ *EY Future Consumer Index*, March 2021



The path forward

Companies today have more levers to pull across the value chain, and the key groups are all making decisions that have implications for each other. For instance, one manufacturer sets a goal of having a net-zero fleet by 2025, so they need to engage with the third-party logistics suppliers to support that effort. The pressure to fulfill such an environment mandate then spreads to auto manufacturers, affecting demand – which partly explains why some of them have made pledges to go all electric as soon as 2030. Here’s what we recommend:

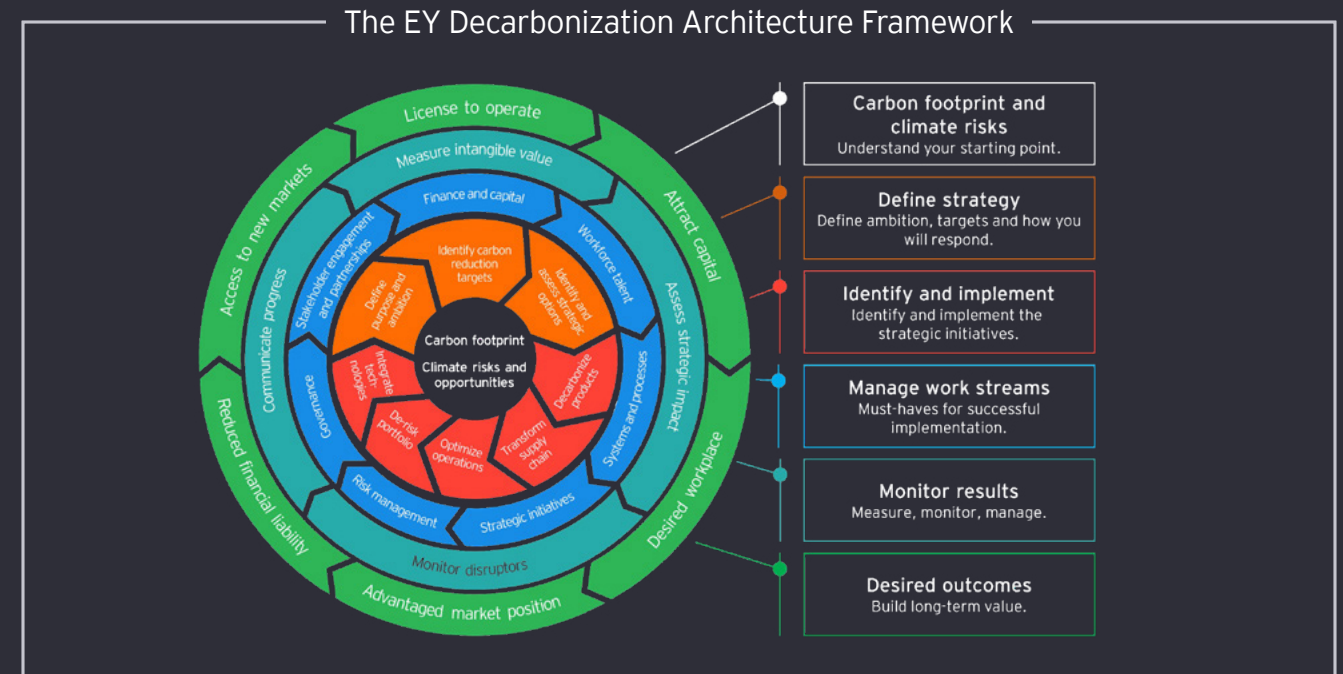
1. Define the direction - don't just set a goal

Many companies today are announcing that they've set a net-zero target for a certain year, but there may be more hope than concrete specifics behind those proclamations. Renewables offsets and virtual power agreements are useful today, but determining how to effect meaningful emissions reductions should drive your debate from the beginning, and scrutiny of your supply chain is imperative across sourcing, manufacturing and transportation.

The EY Decarbonization Architecture offers a framework for understanding where to start, what tools are at your disposal, and how to align metrics with outcomes. This is not a reporting framework, although similarities exist when compared with the Task Force on Climate-related Financial Disclosures – instead, it is intended to provide suggested capabilities or competency areas for discussion.

2. Benchmark and baseline your data

As our framework notes, knowing what your carbon footprint looks like now, and to what extent the supply chain makes up that footprint, is a crucial first step toward defining your roadmap. To gain this understanding, you will need to know where your Scope 1, 2 and 3 emissions are coming from. You are then equipped to focus on the decarbonization methods and levers best suited for your business, and to think about the metrics to embed to track that activity. To meet market standards, these plans should include a short-term target of 2025 or 2030 and a framework to obtain accreditation by the SBTi (Science Based Targets Initiative) across all three scopes.



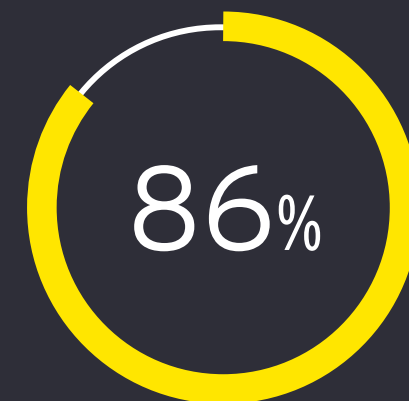
3. Rethink how you engage with suppliers

When you're identifying the levers to pull, think about which players are impacting those levers and engage with them – you may be surprised by how much they have in place already amid greater pressure from stakeholders such as investors and consumers, as well as advances in electrification. Collaboration across the

value chain is vital for meeting goals and commitments. Companies should feel empowered to demand data-based targets from their suppliers, rather than merely asking them to reduce emissions. Consider adding different criteria to your scorecards for suppliers and third-party logistics providers with those goals in mind.



of investors say that, since the COVID-19 pandemic, they attach greater importance to corporates' ESG performance when it comes to their investment strategy and decision-making.⁴



of investors say that a corporation having a strong ESG program and performance would have a significant and direct impact on analyst recommendations today.⁴

4. Scrutinize the full life cycle of your products

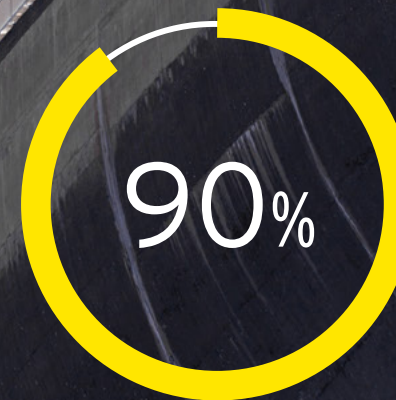
You can make a large impact in reducing emissions through innovation up front during product development – for instance, through product and packaging design centered around greater energy efficiency, recycling and more sustainable materials. In sustainable manufacturing, a view of the whole product cycle is crucial for optimizing manufacturing systems, products and services. And even if you don't use much energy to manufacture a product, perhaps the end consumer will use it in a way that strains environmental resources, creating Scope 3 (indirect) emissions in your sustainability reporting. Through a full-life-cycle view, you can drive positive change through adapting what raw materials you use, which suppliers you rely on, and when and where manufacturing can take place, with the effects of climate change in mind from the beginning.

5. Focus on logistics

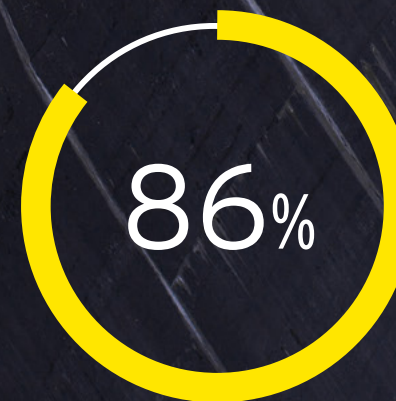
The traditional way toward a more sustainable supply chain has been through procurement. Now you should also be looking at the fulfillment side – from ocean freight, to the distribution centers, to last-mile delivery – for more impact, as decarbonization efforts in transportation are picking up momentum.

Thanks to cheaper battery technology, the economics of fleet electrification are making more and more sense, and some automakers are moving away from internal combustion engine vehicles altogether. While perhaps considered a niche product for the affluent and environmentally focused today, electric vehicles are expected to achieve cost parity with internal-combustion engine vehicles in about five to six years in most regions, and government incentives (and regulation) are fueling the transition. Separately, implementing a digital twin – a virtual replica of your full supply chain – provides a way for you to experiment virtually with new logistics routes and warehouse picking/truck loading for greater optimization.

Planning effectively for tomorrow (or 2035) means taking steps today, and while a net-zero supply chain isn't easy to achieve, a smarter use of resources can have a big impact on both your bottom line and the health of the planet.



of investors say that ensuring how they assess climate risk takes account of specific decarbonization plans and approaches, such as the use of alternate energy sources or reforestation are central to their decision-making today.⁵



of investors say they are investing in companies that have aggressive carbon reduction strategies or low carbon footprint.⁵

02

Close the supply chain loop to open the door to long-term value

Today's linear economy of "take-make-use-dispose" has led to our throwaway society, where product life cycles are short and replacement is often cheaper than reuse or repair.

While efforts to recycle can generate good feelings, that alone won't make a dent in the amount of nonrenewable natural resources consumed and discarded.

COOs will want to consider another approach as they reframe their operations for the future – one that closes the loop of a product life cycle, replacing disposition with

collect and reuse. In a circular economy, economic growth is decoupled from material consumption. Value chain members take ownership of their products and services throughout their supply chains, designing strategies to bring resources full circle for reuse without quality degradation – and with an aim of zero waste.

The circular economy is not just positive for the environment. Businesses that have embraced the model are benefitting through cost and tax reduction, energy savings, valuations, and favorable consumer and investor goodwill toward their brands.

The circular economy and supply chains

Currently, the global economy is only 8.6% circular, meaning only 8.6% of the 100 billion tonnes of minerals, fossil fuels, metals and biomass that enter the economy are reused annually.⁶ That means there are plenty of opportunities for businesses to embrace circular strategies to reduce material consumption, which in turn reduces carbon emissions – it's estimated that the circular economy has the potential to cut emissions by 39%.⁶

While circular economy initiatives are more widespread outside of the United States, American companies are increasingly getting on board. Sixty-two percent of American companies have plans to move toward circularity, according to a 2019 survey of 300 executives.⁷ Another 16% currently use circular strategies.

The most common circular approaches that affect supply chains include:

- ▶ Designing products that use fewer resources and are easy to disassemble for reuse
- ▶ Redesigning product packaging that encourages reuse rather than disposal
- ▶ Adopting incentive-driven take-back programs that return an end-of-life product to the original manufacturer or designated ecosystem partner, providing the resources needed for new products
- ▶ Repurposing recycled materials such as ocean plastic to make products more sustainable
- ▶ Dematerializing product offerings, such as using cloud-based software licensing instead of manufacturing and delivering hard copies to consumers

Only **8.6%** of the global economy is currently circular

The circular economy has the potential to cut emissions by **39%**

62% of US companies have plans for circularity per a 2019 survey of 300 executives

6 The Circularity Gap Report 2021, Circularity Gap Reporting Initiative, 2021

7 How circular thinking could change US business models, ING

Case studies

Circularity in action

1. A recyclable carpet that cleans the air

In addition to offering a leasing option for its products, a European carpet company that embraced circularity a decade ago redesigned its products by:

- ▶ **Simplifying disassembly and recyclability without quality loss.** Carpet tiles are designed to keep the products circulating in closed loops for years. In addition to recyclable fibers, the carpet backings can be recycled – a difficult task with traditional carpet. When a leased carpet wears out, the company replaces it, collecting the worn sections for recycling and reuse.
- ▶ **Improving air quality.** Indoor air quality is often worse than the air outdoors due to concentration of fine-dust particles. One of the company's carpet lines is designed to trap these particles, resulting in eight times lower fine-dust concentration in the air than with hard floors and four times lower than standard carpet. The outcome creates a positive environmental impact rather than just reducing a negative footprint – one of the main goals of circular initiatives.

2. A recyclable sneaker made from plastic bottles

A sneaker brand encourages its customers to return its sneakers for recycling by paying for their return shipping. Designed for easy disassembly, the shoes themselves are made from recycled plastic bottles, carbon neutral rubber and recycled yoga mat material. Customers are provided a prepaid shipping label to return the shoes and a credit toward their next pair. If the shoes have life left in them, the company cleans and donates them. Otherwise, the materials are recycled for reuse.

3. Circular economy marketplace

The Materials Marketplace (established by the United States Business Council for Sustainable Development) aims to create a closed-loop network of collaborative businesses. It connects manufacturers, recycling companies, entrepreneurs and other sellers to develop and scale new reuse and recycling market opportunities. Over 2,200 companies, academic institutions, and nonprofit organizations across North America are using the marketplace. As of June 2020, over 5,300 tons of material has been diverted to higher and better use.⁸

⁸ *Can repurposing drive your purpose?*, EY, September 2021



Building your supply chain for the circular economy

For COOs, circular thinking demands a shift in organizational culture, as the traditional view of how a business operates and makes money is turned upside down. Circular models require a longer-term view and ample patience – sometimes cash flow might not be realized until the second iteration of a product when resources finally get reused.

For a circular strategy to work, COOs will need to make sure that all the ecosystem partners – including suppliers and manufacturing partners – commit to the process. One of the biggest obstacles is bringing all the participants of a value chain together and having them act as one company. Often, it's a matter of "who goes first," as each supplier may feel they're in the wrong position in the value chain to launch the effort.

Then there's the added complexity of the supply chain. From start to restart, a circular supply chain is larger and much more complicated than a traditional linear model. COOs must see that designs account for durability and consistency to keep components in play longer and for ease of disassembly to efficiently reuse resources. Tracking all the parts of a product and their histories is necessary to determine which parts need to be replaced and when. Reverse logistics are an added link in the chain to make sure parts get returned to the original manufacturer for recycling or reuse.

Other supply chain implications to consider include:

- ▶ Who will certify that a product uses non-virgin materials?

- ▶ If a company runs short of a recycled product, will they delay delivery or fill the order with a product that uses fossil fuels?
- ▶ Where will repair or disassembly centers be located to minimize emissions generated from a product's return?
- ▶ Is there a clear plan to manage and cut carbon emissions in the supply chain?

Getting started

1. **Start simple.** Choose a product that uses a raw material known to maintain quality upon recycling.
2. **Determine how the strategy can make a positive impact on the environment.** Consider product design, the business model, operating model, the use phase, partner ecosystem and the process for return.
3. **Promote positive change.** Cultural transformation may be even harder to address than the business strategy. COOs must promote a positive attitude of change to persuade employees and partners to rethink the way they do business. This means collaborating across the C-suite to make changes in all functions, including research and development, sales, purchasing and manufacturing, and finance. Traditional cash flows and key performance indicators will not work in a circular model.

Adopting a circular model typically requires a multiyear transformation. While it is fine to start small with initial efforts, don't be afraid to move quickly and then to scale. There is much riding on the shift to a circular economy – start your planning now.

Key benefits

1. **Value-led sustainability for all stakeholders.** Successful companies are shifting their attention to protect and create new sources of value from sustainability. For all stakeholders, including customers, employees, suppliers, communities, investors and society as a whole
2. **Cost reduction.** The circular economy allows businesses to grow without using more resources, since material is always in flow. Closed loop models can increase their profitability while sheltering themselves from resource price fluctuations.
3. **Boost in sales.** Startups as diverse as rentals of baby clothing and maternity wear to consumer electronics are boosting revenues as subscription services for everyday items gain traction.
4. **Regulatory compliance.** The circular economy is a building block of the European Green Deal, which forces companies to go circular in certain areas such as packaging, batteries and reparability of products, among others. Countries with circular economy legislation or guidelines include China, Japan, Canada, France, Germany, Finland, the Netherlands and the UK.

A circular economy could unlock GDP growth of

\$4.5 trillion

by 2030.⁹

03

Work with tax to design your sustainable supply chain

Tax penalties and incentives around sustainability and the environment are forcing a radical rethink of global supply chains.

Many countries around the world are pursuing a two-pronged approach to sustainability. This includes introducing incentives – in the form of grants, credits and rebates – as well as penalties.

While the EU is the front runner in green incentives, others are following. In the US, IRC Section 48C has allocated \$2.3 billion in tax credits to clean energy manufacturing projects and looks set to expand the provision. And while most developing countries don't yet offer sustainability-specific incentives, they are likely to follow suit in due course.



68% of respondents said that ESG policies in their organization would have a medium or high impact on their approach to transfer pricing; 74% said supply chain change would have a similar medium or high impact.¹⁰

When it comes to penalties, many governments are introducing carbon taxes and other pricing mechanisms to reduce coal use, carbon emissions and waste in the supply chain and to drive investment in more sustainable manufacturing.

It's set to get even more complex with the introduction of plastic packaging tax, extended producer responsibility, and other waste-related pricing tools. Water preservation and biodiversity pricing measures are expected to rise up the international agenda too.



80% of G20 jurisdictions have already implemented, scheduled or are currently considering a carbon pricing initiative.¹¹

COOs and chief supply chain officers (CSCOs) will have their work cut out. In the pursuit of resilience, they'll need to embed end-to-end visibility and risk monitoring in their supply chains; design versatile and agile networks; develop solid operating models and workforces; and secure alternative sources of supply.

To that list, they can add the demands of sustainability – ensuring sustainable supplies, whether moving closer to customers or exchanging materials for those that won't incur tax or duty; decarbonizing the value chain; and establishing a culture of traceability, visibility and disclosure across the supply chain.



55% of revenue generated by carbon pricing initiatives in G20 jurisdictions is earmarked for specific environmental or broader development projects.¹¹

¹⁰ The 2021 EY International Tax and Transfer Pricing survey, EY, October 2021

¹¹ EY Climate Cash and Tax Barometer, EY, November 2021

The role of the tax function

While these shifts put pressure on COOs and CSCOs, the tax function has a key role to play in the shift too. The rise of sustainability means new products bringing new value, or new value being placed on existing processes and products because they're sustainable. And this "value-led sustainability" will have tax implications.

In the latest EY Transfer Pricing Survey, published in October 2021, 68% of respondents said that ESG policies in their organization would have a medium or high impact on their approach to transfer pricing. And 74% said supply chain change would have a similar medium or high impact.

To deliver added sustainability and sell products at a higher price, the business will make investments in its supply chain, for which its R&D function needs to be compensated. This may fundamentally shift the weighting of value across the organization.

Often, companies deal with sustainability like it's business as usual, with a theoretical understanding that it's sparked a change in value drivers. However, they haven't always thought it through, and they haven't changed their profit allocation to fit.

Plotting the way forward

Transfer pricing is just one area in which, having rethought its supply chain, COOs may find their organizations exposed. Although greater sustainability brings potential opportunities, organizations will need to minimize exposure to the aforementioned sustainability taxes and penalties, and boost their potential to capitalize on the abundant incentives.

Restructuring and future-proofing the supply chain should reduce exposure to many of the taxes now being introduced. It should also mitigate business risk, in both reputation and supply chain security.

Businesses stand to gain a lot by striking this balance. To achieve it, the C-suite and tax leaders should consider the following key steps:

- ▶ **Understand the emerging green legislation and taxes, as well as the changing incentives landscape.** Where are these tools and measures already in place? Where are they anticipated? And what do they look like?
- ▶ **Know who owns sustainability.** Green taxes are called tax, but in nature they're operational in that they're looking to change behaviors. Responsibility needs to rest with a single function with the executive power to get things moving. The owner will need to be responsible for collecting the necessary data from across the supply chain – providing the insight to the supply chain to be able to react to anticipated costs from pricing and other related measures; and reporting to the various authorities.

- ▶ **Convert that understanding into what it means for the business in financial terms.** Establish supply chain sustainability goals that apply to the entire ecosystem.
- ▶ **Keep the tax function close to operations.** The tax department must be connected to the COO, CSCO and chief procurement officer (CPO) from as early in the process as possible, because many sustainability measures in the supply chain may take three to five years to have any effect. It's the job of the tax function to feed the latest information around incentives, tax and other pricing measures into high-level planning. Failure to do so will invite extra costs.
- ▶ **Take a holistic view.** Sustainability is a major undertaking and may require the company to adopt a new approach to collaborating across functions.

Sustainability needs clear ownership

With governments seeking to change companies' behavior around emissions and waste, we can expect the use of more penalties in tax and pricing mechanisms. And, by necessity, more incentives to enable countries to soften the blow and remain attractive as a business location.

As such, the tax function has a significant role to play in supply chain change. If a company doesn't know its tax footprint, or how it's set to change, it may be exposed to unnecessary costs, or it could under-utilize tax incentives.

To succeed, sustainability needs clear ownership. Additionally, the tax function needs to remain in close step with operations to feed its insights into broader strategic planning from the start.



of tax executives say they are either not at all involved (3%), involved in some but not all (24%) or involved only on a reactionary basis (30%) in key business decision-making.¹²

¹² The 2021 EY International Tax and Transfer Pricing survey, EY, October 2021

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