WORLD ECONOMIC FORUM

Advancing Sustainable Industrial Value Chains

BRIEFING PAPER
WORKING DOCUMENT

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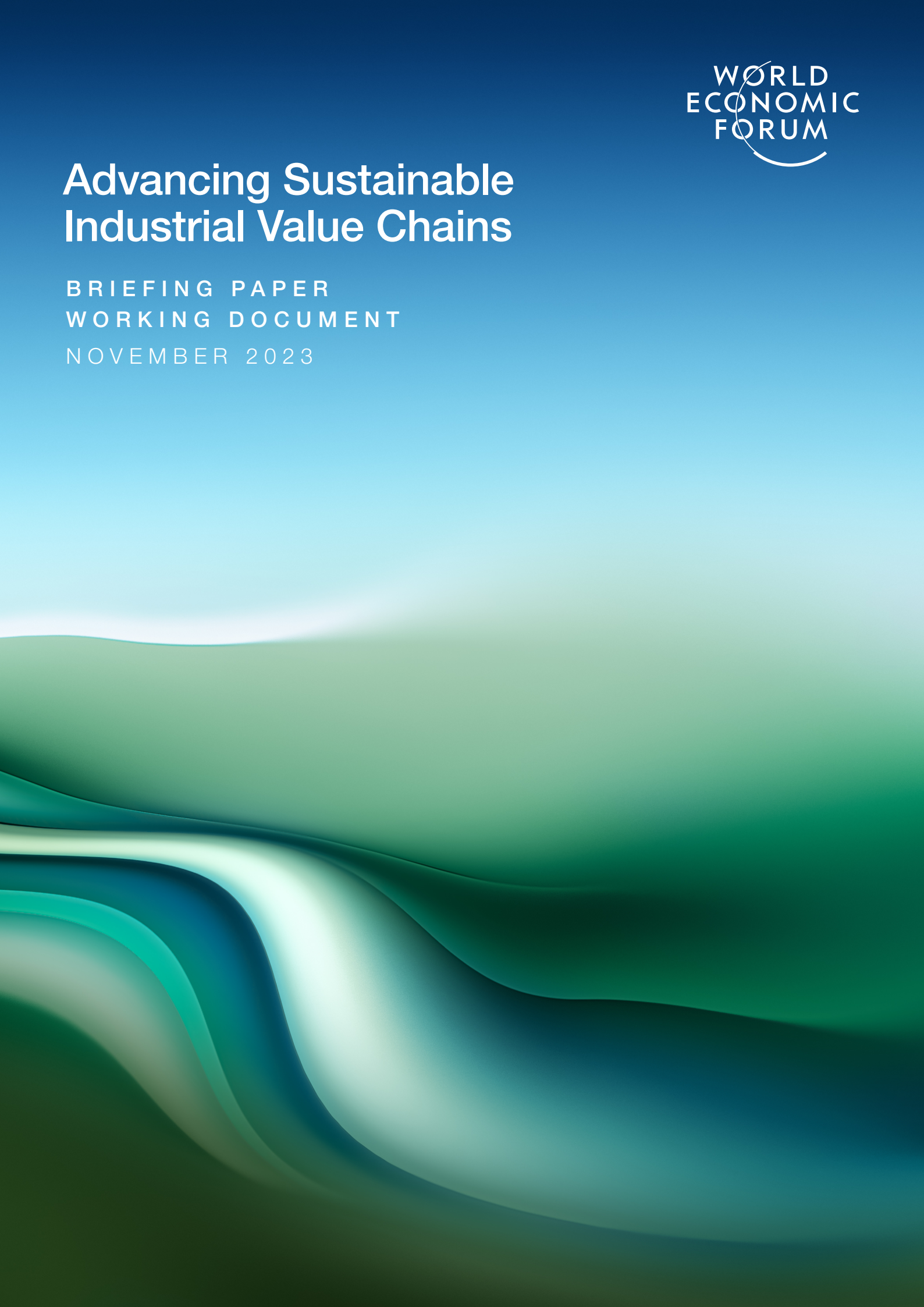


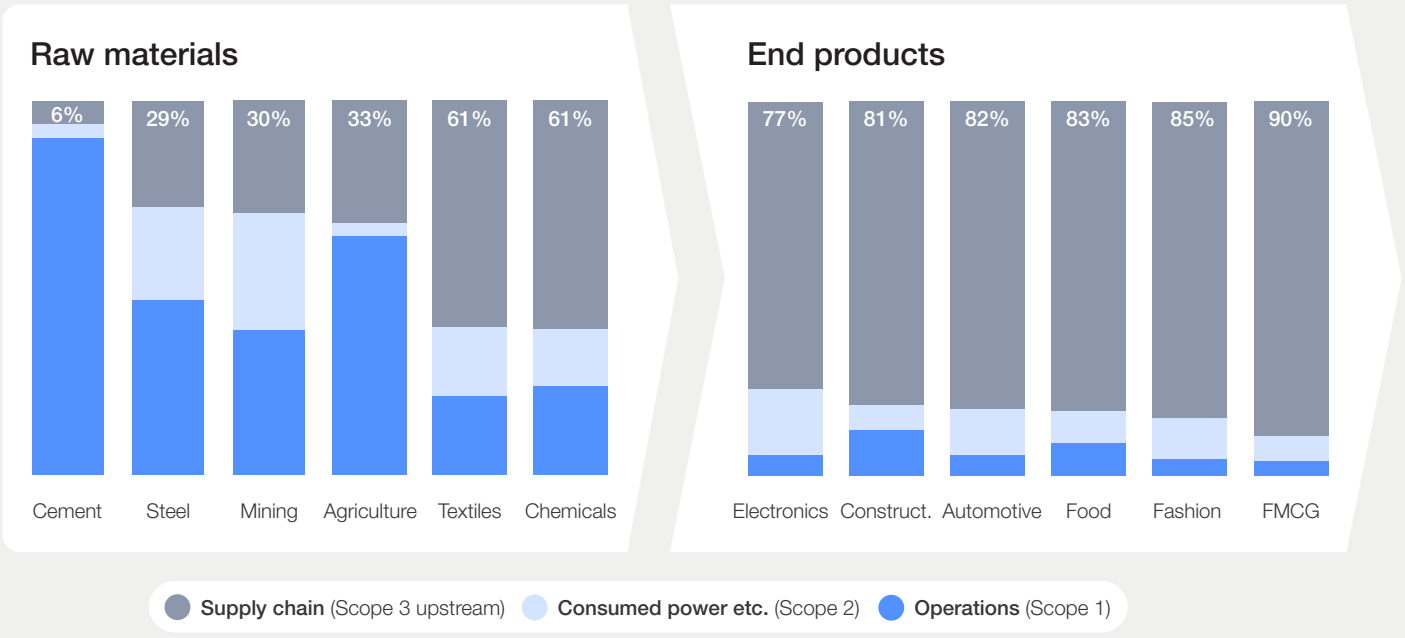
Images: Getty Images

The first Paris Agreement stocktaking reminds us, once again, that the window for keeping warming to 1.5C is "rapidly narrowing". Although the rise in global greenhouse gas emissions has notably slowed, the assessment says the current climate pledges would put the world on track for a significantly more hazardous 2.5C-2.9C temperature rise by 2100. Predicted 2030 emissions must be cut by at least 28%-42% compared to current policy scenarios to get on track for the 2C and 1.5C goals of the Paris Agreement respectively.

A key agenda item of the COP28 is to cluster policy-makers, business leaders and investors around doubling energy efficiency and tripling renewable energy installations by 2030, while enhancing climate resilience and expanding inclusive and equitable but green and clean growth opportunity to benefit people and local communities. Industrial transformation holds a key to turning those ambitions into reality. On the one hand, industrial revolution is boosting human manufacturing capability to turn clean energy and material technologies into products and services; and on the other, when done with clean energy and highest-level of efficiency, they become the steadfast economic pillar for sustainable development.

When zooming in on industrial value chain decarbonization, it offers a clear-win opportunity to bridge the gap. According to the World Economic Forum's report, Net Zero Challenge: The Supply Chain Opportunity (2021), food, construction, fashion, fast-moving consumer goods, electronics, automotive, professional services and freight supply chains account for more than 50% of global emissions. That is to say, the largest innovations lie with those that are aimed towards the value chains.

FIGURE 1 **Emission Split in Scopes 1, 2 and 3 Upstream for Selected Industries** (CO_2e, 2019)

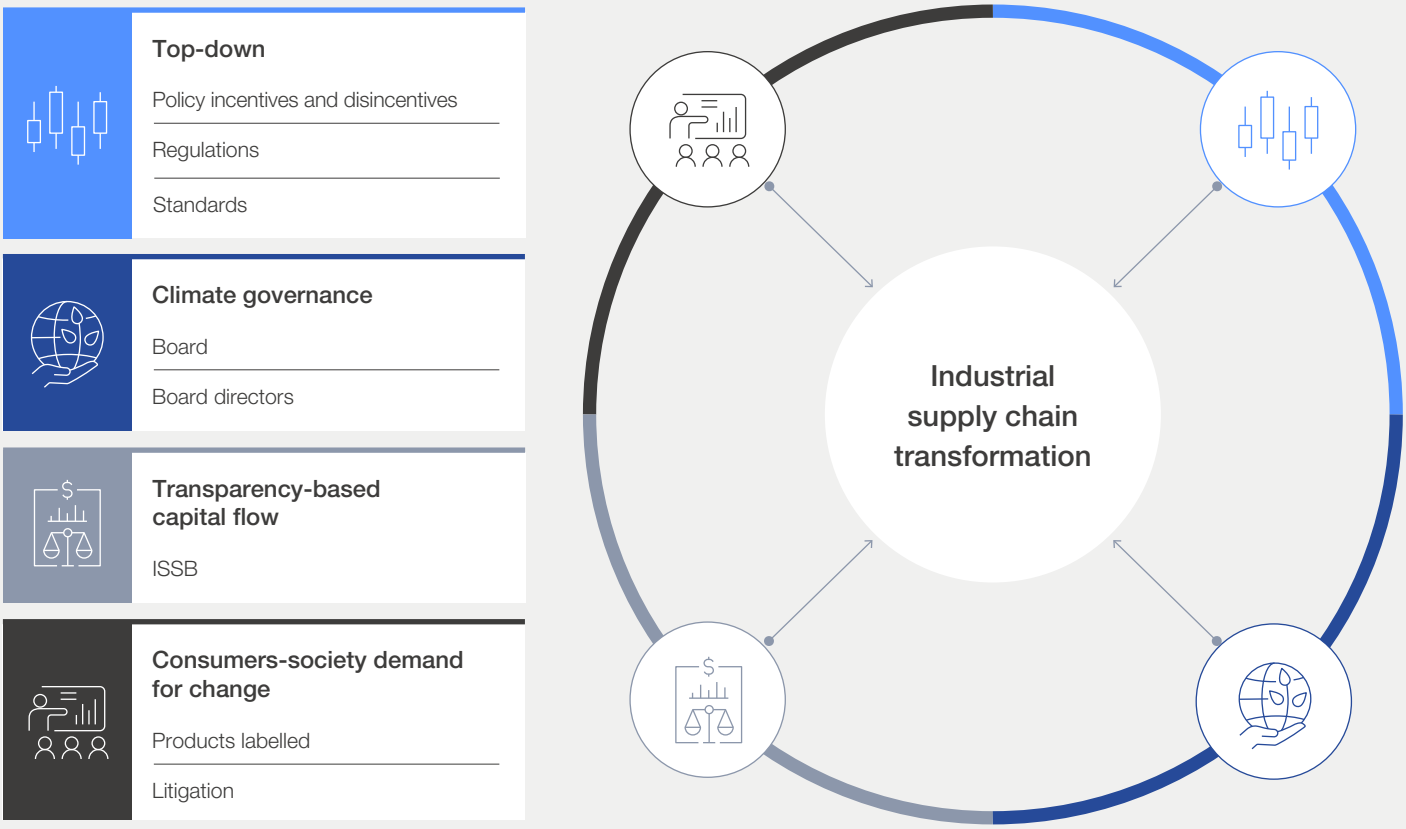


The Interconnected Drivers for Change: Harmonizing Disclosure Frameworks

Regulators in key economic geographies are stepping up efforts to level the playing field while driving down emissions, especially embedded emissions, and scope 3 emissions, aligned with committed targets within the selected timeframes.

Investors are expecting companies to disclose this information. Customers want business to play a role in reducing emissions. And suppliers and business partners are more likely converging on a similar path to reduce their own carbon footprints and looking to work together on sustainable sourcing and identifying cost savings and inefficiencies across their value chain.

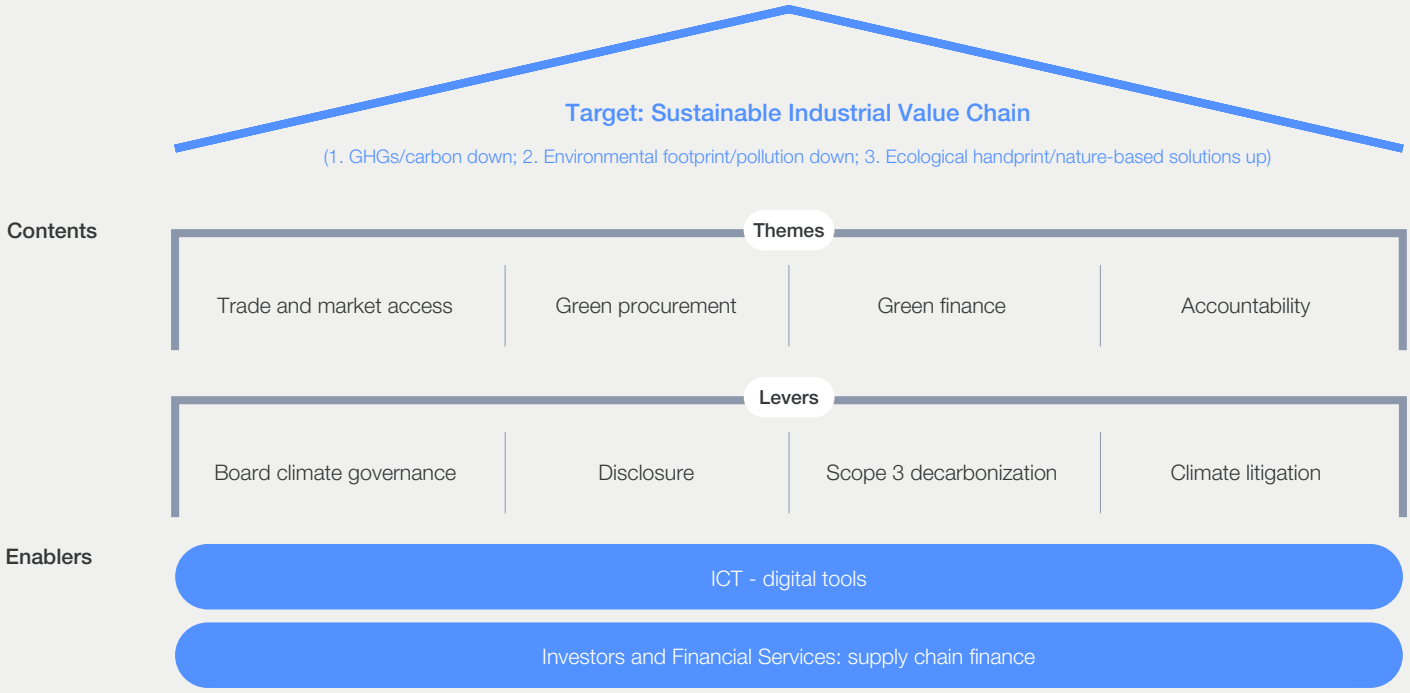
FIGURE 2 **Seizing Interconnected Drivers for Change**



The implementation and enforcement of existing regulations and frameworks continues to bump into challenges, let alone more rules to come. Many leading companies, though having set their net-zero science-based targets, are often burdened with inadequate understanding of their supplier data inputs. Some often asked questions gathered by consultancies, include:

- How is the data reported? What frameworks are being used?
- Does supplier data reporting match the timeframes for the company's reporting? Do you need to fill in gaps or make any estimations?
- Is supplier data complete, accurate and verified?
- How granular is the data? Do suppliers have the capabilities to provide data at the product level? Can they provide inputs such as emissions by truckload, mode of transport, mileage and fuel data?

FIGURE 3 | **Industries and Enablers of Scope 3 Decarbonization**



At least three perspectives are driving disclosure and transparency of corporate climate actions now – regulatory changes, industry sectors coalescing around frameworks, and inter-framework consolidation. All indicate the imperative to harmonize frameworks across geographies, sectors and value chains. Only by doing so will the industries and investors be able to act in sync to decarbonize and transform the supply chain systematically.

On the regulatory front, different geographies seem to have their own pace. Led by the European Union, the shifting regulatory landscape is converging on mandatory disclosure and reporting to include scope 3 emissions. For instance, the EU Corporate Sustainability Reporting Directive (CSRD), effective from 5 January 2023, requires in-scope companies to disclose information both about how sustainability-related factors, such as climate change, affect their operations and information about how their business model impacts sustainability factors. The environmental factors include not only climate (including scope 1 & 2, and 3 GHG emissions) but also water/marine resources, circular economy, pollution and biodiversity.

Ten sector-specific standards under the evolving European Sustainability Reporting Standards will cover additional disclosures from companies in sectors that are high-impact and/or energy-intensive, including agriculture, coal mining, mining, oil and gas (upstream), oil and gas (midstream and downstream), energy production, road transportation, motor vehicle production, food/beverages and textiles.

Looking at the United States, very recently, the chair of the SEC is still declining to give a timeline for when public companies in the US might move forward the rule that requires extensive climate-related disclosures. The rule was proposed in 2022 that would require public companies to provide investors with information on their climate-related risks and an accounting of carbon emissions stemming from their operations. And some companies would have to report on scope 3 emissions. The cited reason is that the aspect of the proposed rule related to the reporting of indirect emissions/scope 3 could be changed. Then on 7 October 2023, Governor Newsom of California signed into law Senate Bill (SB) 253 and SB 261, both of which expand corporate climate disclosures for private and public companies doing business in the state to disclose emissions tied to operations and supply chain.

It's crucial to find common ground in the existing standards to ensure global alignment and direct investment towards the ramp up of green and digital technologies at scale. A harmonized disclosure and measuring standards are essential in providing high-quality and transparent information while ensuring efficiency.

Furthermore, customized financial products have the potential to allocate financial resources more effectively across the diverse spectrum of sustainability. Diversification of financial products is crucial in addressing the diverse needs of stakeholders and tackling sustainable challenges. Unlike conventional financial instruments, sustainable financial products face drawbacks such as longer profit return periods and uncertain risk profiles. Presently, debt instruments such as green bonds, transition bonds and sustainability-linked bonds dominate the sustainable financial product landscape.

However, the equity market has not fully tapped into its potential, and the investment community is eagerly anticipating more projects and assets that align with the Sustainable Development Goals.

The China Opportunity: Decarbonize Industrial Value Chain

On trade, the EU Carbon Border Adjustment Mechanism regulation (CBAM) came into effect on 1 October 2023 to level the playing field for both EU producers and EU importers of such goods as partner countries are encouraged to decarbonize their production processes. Designed to counter the risk of carbon leakage, the CBAM imposes a charge on the embedded carbon content of certain imports that is equal to the charge imposed on domestic goods under the EU Emissions Trading Scheme (ETS). It is linked with the European Green Deal and "Fit for 55" – an emissions reduction commitment of 55% down by 2030 over the 1990 level. But adjustments are to be made to this charge to take into account any mandatory carbon prices in the exporting country.

China faces new challenges but more opportunities. It is uniquely positioned to lead the transformation of supply chains. Firstly, China leads the manufacturing of global clean energy technology. According to the International Energy Agency's *Energy Technology Perspectives 2023*, China currently dominates the manufacturing and trade of most clean energy technologies. China's investment in clean energy supply chains has been instrumental in bringing down costs worldwide for key technologies, with multiple benefits for clean energy transition. And when decarbonization is embedded at the core of the investment strategy, it becomes one of the biggest-ever opportunities of transformation.

A closer look at the announced projects for the processing and refining of key critical minerals shows that the majority are set to be located in China. And material production and technology manufacturing typically account for over 90% of the emissions.

Secondly, China has embraced a strategic pathway of "1+N" to drive an accelerated transition to deliver the "duel 2030-2060 targets", which puts the decarbonization goal as the thread to pull an economy-wide systemic change, cross-region, cross-sector, and cross-value chain. As reflected in the country's 14th Five-year Plan (2021-2025) and its implementation midway review, China is overachieving in such objectives and targets as solar and wind energy, as well as EVs and battery, while facing hurdles in the pace of phasing down coal.

Thirdly, acceleration of global alignment of standards has been adopted as a key strategy to enhance clean and green transition. China, in October 2022, set goals to build a standards system that is "structurally optimal, advanced and rational, and internationally compatible" – to build a modernized, high-quality, and globally leading economy by 2035. Its interim target is that, by 2025, China will align 85% of its domestic standards with global ones, on all fronts. And this provides a vehicle to bridge the differences of markets and facilitate trade flow and collaboration to accelerate scaling of sustainable solutions, products and investments.

And last but not the least, strengthening transparency and accountability has become a powerful instrument to drive transition. The progresses can be witnessed in the decade-long tracking of corporate climate information transparency (CITI, 2014-2023) from China – that decline of pollution and emission of supply chain well matches the country's journey to enhancing its environmental governance. And a strong case has been made that greening supply chain can create co-benefit for transition and emissions reduction.

As part of efforts to shift to a lower-carbon economy, Chinese regulators are mulling mandatory ESG disclosure for domestic public firms. Led by the Ministry of Environment and Ecology, the "Measures for the Administration of Legal Disclosure of Enterprise Environmental Information", which came into force on 8 February 2022, represent the country's push to standardize and mandate ESG reporting for companies as it works to reach climate emissions and other environmental targets.

Industrial Readiness

Enhance Accountability and Leverage the Scope 3 Opportunity

How to incentivize corporate leadership in accelerating clean transition remains a daunting task. The World Economic Forum 2023 white paper, Winning in Green Markets, sheds some light on the existing gaps to bridge in order to reduce the cost premium. For instance, while many green technologies have already achieved market parity

in many parts of the world, others, particularly in the industrial sector, still come at a cost premium of 50% or more.

On the demand side, the white paper concludes that despite the outlook of significantly increasing demand in green markets, suppliers in many sectors are not addressing it at the required pace. Across most major value chains, the market share of downstream players with science-based value chain decarbonization targets far surpasses the share of upstream players who would need to supply green materials to achieve these commitments. In some cases, this market share gap is more than 20 percentage points. As a result, green markets for materials like plastics, chemicals, aluminium, glass, concrete and steel will likely be short.

Given that China is the main trading partner of more than 140 countries, it is one of the most powerful countries to define the pace and speed of global supply chain green transition, in particular, when it comes to the key producers of low-carbon transition products, such as solar, EV, etc.

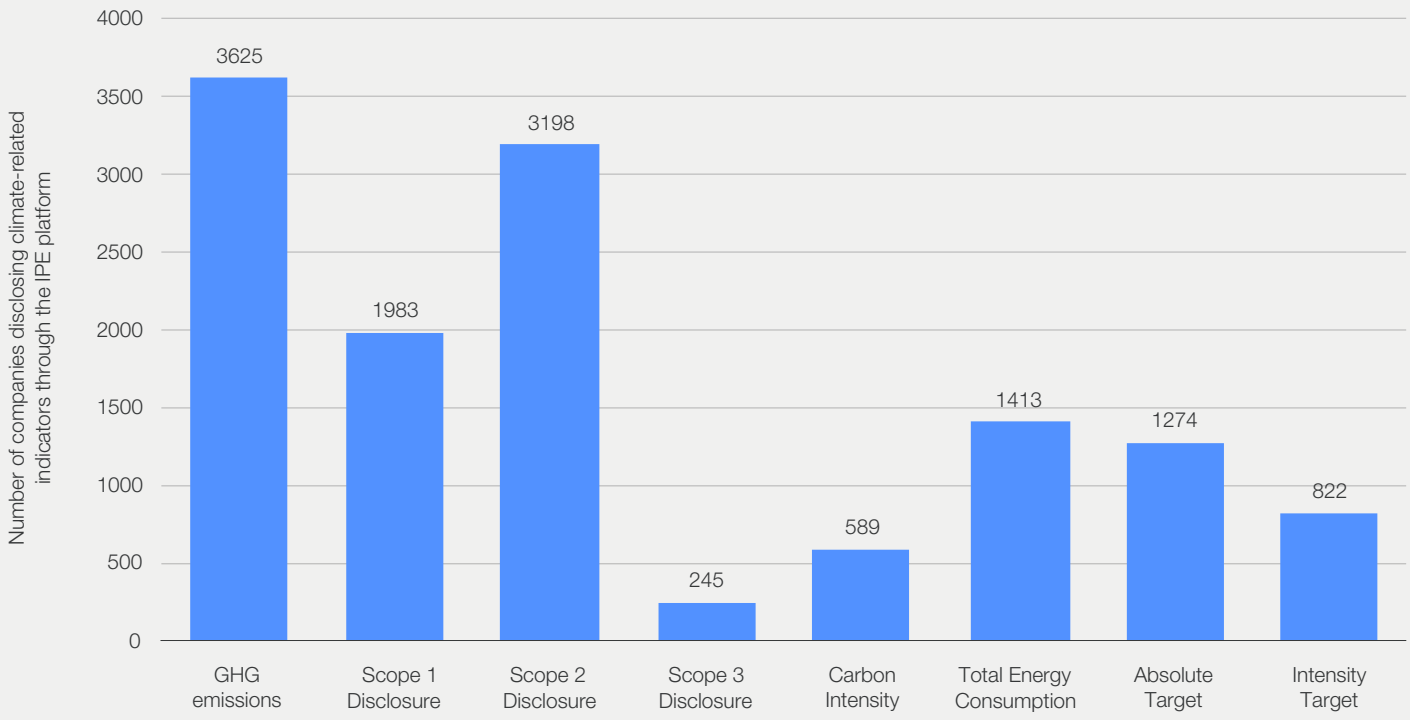
Besides green market opportunities, enhanced transparency and accountability are becoming another important incentive for corporations to lead supply chain transformation. It's also a core indicator to measure the industrial preparedness of climate actions.

Large Chinese companies are responding to the pressure and opportunity to tackle their supply chain emissions as they seek to become carbon neutral. In China, more than 800 large companies have set carbon neutrality by 2050 targets – some even aim to reach this by 2030. Especially across ICT, textile and manufacturing sectors, businesses seek to reach carbon neutrality ahead of national climate targets.

The next question to ask is – how have these companies been performing? The Corporate Climate Action Transparency Index (CATI) provides a window to examine the progressing endeavour to drive disclosure. Led and managed by the Institute of Public and Environmental Affairs (IPE), the 2023 CATI report, the sixth annual release, includes a total of 742 companies of 22 industrial sectors in its assessment in 2023, a sharp rise from 2018 at the beginning of the journey to deploy the Index.

Six years apart, more than 3,625 supply chain companies have elevated their capability from estimating GHG emissions primarily based on integrated energy consumption data to applying digital tools for carbon emissions accounting in accordance with mainstream GHG accounting standards. Corporate carbon emissions disclosure has also evolved from total GHG emissions to cover scopes 1, 2 and 3, and more comprehensive disclosure system that includes facility-level and product LCA carbon footprint disclosures. The transparency also includes carbon intensity, energy use and climate action targets.

FIGURE 4 **Number of Companies that Cover Key Disclosure Indicators in Their Core Climate Goals**



Other findings include:

- Supply chain is often energy-intensive, and scope 3 emissions account for a large proportion of the emissions of many companies
- Some 153 companies have made specific scope-3-covered carbon neutrality commitments but without clarity in supply chain decarbonization action plans, as yet
- Only 5% of participating companies can actually implement supply chain emissions accounting and forecasting, disclose supply chain emissions and set emission targets while tracing progress in emission reduction
- And some companies seem to be retreating from supply chain carbon emissions.

Such gaps identified and sized offer unprecedented urgency and opportunity for stronger partnership and collaboration of policymakers, industrial players, financial institutions and NGOs to tackle these hurdles, thus achieving the desired acceleration of decarbonization and seal the gaps.

Opportunities: Accelerate Industrial Value Chain Transformation

At the World Economic Forum, the Alliance of CEO Climate Leaders re-emphasize the criticality of scope 3 emissions and encourage members to kick-start a journey to accelerate the decarbonizing process. Alliance members have made individual emission reduction targets amounting to an estimated 1.0 Gt CO_2e by 2030.

As articulated in this briefing paper, transforming China's supply chains can redefine a global industrial landscape that is solidly built on sustainability, have a powerful effect on the scope 3 emissions and accelerate the desired transition to cut emissions globally.

The kick-start is based on the Forum's scope 3 action cards and some pioneering practices by leading companies that actively engage their suppliers and work together on shared goals and actions to achieve collective success. The approach is to invite business executives and experts to share their practices and cases in a sustainable industrial value chain to help more companies take climate actions and achieve scale and identity strategic priorities to collectively accelerate decarbonization and win the green markets.

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