Lythouse

Path to Net-Zero

Curious Case of Scope 3 Emissions

Content

sub-tiers. Supply chain teams are not equipped with right policies and knowledge to manage Scope 3 emissions. Scope 3 emissions is mostly viewed as data collection exercise and is not well integrated into supply chain systems to inform decision making. Digital capabilities to measure and manage Scope 3 emissions are limited.

Companies should take a pragmatic phased approach to overcome these challenges and manage Scope 3 emissions more strategically. Companies can start by assessing their baseline using spend-based or average-data based methods, identify hotspots and top categories/suppliers, set targets and strategy. Subsequently data collection from top suppliers will help in refining the baseline and targets. Scope 3 emissions management needs to be embedded in all supply chain processes and across supplier lifecycle stages. Companies must educate and create capabilities within their own supply chain teams and extend support to suppliers as well. They must identify and prioritize emissions reduction initiatives. As companies mature in this journey, they can focus more on emissions reduction with supplier collaboration projects and industry collaborative initiatives.

Robust digital capabilities should underpin this entire journey. Given the complexities of Scope 3 emissions agenda, companies should invest in creating right digital capabilities that can empower them to seamlessly collect information from multiple sources, establish emissions profile and use analytics to draw actionable insights, drive collaboration and easily manage compliance & reporting requirements. These capabilities should be well integrated into supply chain and ESG platforms.

Managing Scope 3 emissions requires a great level of collaboration across the value chain. Leveraging technology is critical to address multiple complexities surrounding this topic. With a strategic approach supported by right capabilities and technologies, companies can make Scope 3 emissions management less daunting, and more value driven.

Executive Summary

60%

Supply chain emissions of global emissions

Limiting global temperature rise to 1.5oC is critical to avoid irreversible damage to climate systems. Supply chain emissions account for around 60% of global emissions. Addressing Scope 3 (value chains) emissions is therefore a game changer for decarbonization.

GHG reporting requirements primarily focused on Scope 1&2 emissions covering large emission sources. As the need for more comprehensive corporate sustainability reporting evolved, compliance requirements on sustainability and GHG reporting are increasing. Focus is placed on 'materiality', and this requires companies to report on Scope 3 emissions or explain for not doing so. There are also many reporting frameworks like GHG Protocol, GRI, TCFD, CDP, SBTi that companies use for disclosing their climate-related plans, risks & opportunities, and targets & performance. SBTi for example, requires companies to set science-based targets for Scope 3 emissions if they constitute 40% or more of company's aggregate emissions.

Despite these frameworks, companies generally struggle to measure and manage their Scope 3 emissions. Methodologies are complex and require multiple sources of data, including primary data from suppliers. Managing to collect supplier data from thousands of suppliers of different sizes and across regions is a key challenge. Accuracy significantly varies based on the method of calculation chosen. Suppliers might have limited capabilities to calculate and report their own emissions and face similar challenges of data collection in their

Addressing Scope 3 emissions is a game changer for decarbonization

Climate Change is one of the greatest existential threats that humanity is facing in recent history. Limiting global temperature rise to 1.5oC is crucial for addressing climate change and avoiding irreversible damage to climate systems, and with current 1.1oC temperature rise the impacts are already quite severe. Industrial activity is at the core of emissions growth and the need for businesses to decarbonize is immediate.

Greenhouse Gas (GHG) Emissions for corporates and organizations can be categorized under three scopes .

Scope 1:

Direct GHG Emissions – GHG emissions from sources that companies own or control

Scope 2:

Electricity Indirect GHG Emissions – GHG emissions from the generation of purchased electricity that is consumed in company's owned or controlled equipment and operations

Scope 3:

Other Indirect GHG Emissions – all other indirect GHG emissions that occur in company's value chain (both upstream and downstream)

Greenhouse Gas (GHG) Emissions for corporates and organizations can be categorized under three scopes .

Upstream Scope 3 emissions

1: Purchased goods & services
2. Capital goods
3. Fuel-and-energy related activities
4. Upstream transportation and distribution
5. Waste generated in operations
6. Business travel
7. Employee commuting
8. Upstream leased assets

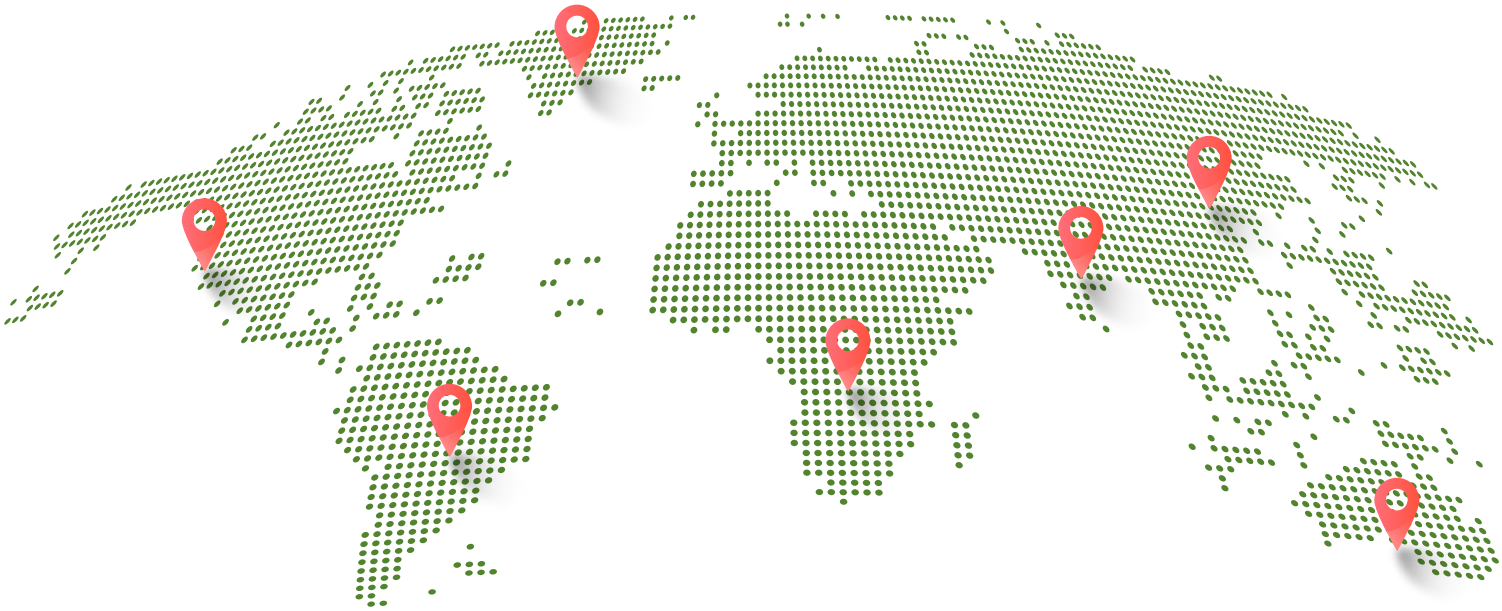
Downstream Scope 3 emissions

9: Downstream transportation and distribution
10: Processing of sold products
11: Use of sold products
12: End-of-life treatment of sold products
13: Downstream leased assets
14: Franchises
15: Investments

Many companies increasingly rely on complex global supply chains to source, manufacture and serve their customers. Supply chains generate around 60% of global emissions and just eight supply chains together account for more than 50% of global emissions . Supply chain emissions are on an average 11.4 times higher than operational emissions , and for many companies Scope 3 emissions account for 80% of their overall emissions . Addressing Scope 3 emissions is therefore a game-changer for decarbonization.

Reporting and compliance requirements for Scope 3 emissions are on a rise

Compliance requirements for GHG reporting over the period focused on Scope 1&2 emissions covering large emissions sources which included large companies, sites, and facilities in certain sectors. These served countries to establish their national GHG inventories. As the need for more comprehensive sustainability information continues to evolve to meet multiple stakeholders' needs, compliance requirements around sustainability reporting are starting to grow. Focus is now placed on 'materiality', and companies are increasingly required to report on Scope 3 emissions.



Australia

National Greenhouse and Energy Reporting (NGER) mandates companies meeting threshold requirements to annually report on GHG emissions data. While Scope 3 emissions is not reported under NGER, the data can be used to prepare Australian National Greenhouse Accounts.

Canada

Proposed National Instrument 51-107 Disclosure of Climate Related Matters issued by Canadian securities regulator requires issuers to disclose climate-related information largely consistent with TCFD recommendations. Issuers would be required to disclose their Scope 1, Scope 2 and Scope 3 GHG emissions and the related risks, or their reasons for not doing so.

Australia

China's Ministry of Ecology and Environment (MEE) issued the Measures for the Administration of Legal Disclosure of Enterprise Environmental Information . This requires companies to submit an annual report detailing environmental information, including carbon emissions.

EU

Current Non-Financial Reporting Directive (NFRD) requires large public-interest companies and companies with 500+ employees to publish 'non-financial report' in their management report including indicators such as carbon emissions, if material. NFRD will be replaced by Corporate Sustainability Reporting Directive (CSRD) from 1 January 2024, and requires qualifying companies to report on sustainability, guided by European Sustainability Reporting Standards (ESRS). These standards include detailed disclosures on carbon emissions including Scope 3 emissions.

India

Business Responsibility & Sustainability Reporting (BRSR) mandate by Securities and Exchange Board of India (SEBI) requires top 1000 listed companies to report on business responsibility and sustainability metrics including Scope 3 emissions.

UK

Streamlined Energy and Carbon Reporting (SECR) is a UK framework that requires large organizations to report on their GHG emissions. The mandatory requirements focus on Scope 1&2 emissions, but organizations are encouraged to voluntarily report on Scope 3 emissions from material sources.

South Africa

National Greenhouse Gas Emission Reporting mandate requires certain companies to report on GHG emissions.

US

U.S. Environmental Protection Agency (EPA) Greenhouse Gas Reporting Program (GHGRP) requires reporting of GHG emissions for certain facilities. U.S. Securities and Exchange Commission (SEC) proposed rule requires companies to report on Scope 3 emissions, if material or if the company has set a goal or target that includes Scope 3 emissions.

There are also multiple reporting frameworks that define requirements for Scope 3 emissions as part of GHG reporting or sustainability reporting / assessment. Many of these frameworks refer to GHG Protocol Scope 3 emissions calculation standard. In addition to Scope 3 emissions, most of these frameworks require companies to disclose their climate-related strategy, risks and opportunities, and governance. These are global frameworks applicable to companies of all sizes and across regions. Some frameworks have additional sectoral supplements to support sector specific reporting.

Key global frameworks for Scope 3 emissions reporting

Framework	Key Scope 3 Emissions Reporting Requirements
GHG Protocol	→ Organizational boundary → Scope 3 emissions activities covered → Base year, with rationale → Emissions data for all six GHGs separately in metric tons and in tons CO2e, for all years between base year and reporting year → Emissions intensity metrics → Methodologies used to calculate or measure emissions → Specific exclusions of sources, facilities and/or operations → Context for any significant emissions changes
GRI	→ Gross Scope 3 emissions in metric tons of CO2e → Gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all → Biogenic CO2 emissions in metric tons of CO2e → Scope 3 emissions intensity ratio → Scope 3 emissions categories and activities (upstream and downstream) included in the calculation → Base year, with rationale and context for any significant changes → Source of emission factors and the global warming potential (GWP) rates used → Standards, methodologies, assumptions, and/or calculation tools used → GHG emissions reduced as a direct result of reduction initiatives, in metric tons of CO2e
CDP	→ Reporting boundary →]Relevance of emissions (direct operations or in other parts of your value chain) to → business activities → Value chain (upstream and downstream) climate-related risks and opportunities → Scope 3 emissions coverage (by category and overall) in emissions target (absolute/intensity) – base year, target year, % emissions in reporting year covered by target, % target achieved → Emissions reduction initiatives by applicable Scope 3 category → Scope 3 emissions data in metric tons of CO2e – by category. Include emissions calculation methodology, % of emissions calculated using data obtained from suppliers or value chain partners

Framework	Key Scope 3 Emissions Reporting Requirements
CDP	→ % change in Scope 3 emissions compared to previous year and reason for any change → Allocation of Scope 3 emissions (by category) to customers (for companies responding to CDP Supply Chain Questionnaire)
GRI	→ Scope 3 emissions (if appropriate) and related risks → Data for historical periods to allow for trend analysis → GHG emissions targets (absolute or intensity based, time frame, base year, KPI used to assess progress)
ISSB	→ Absolute gross Scope 3 emissions in CO2e → Measurement approach → Categories included in Scope 3 emissions → Scope 3 emissions coverage in emissions targets (base year, target year, absolute target or intensity target, approach to setting and reviewing targets)
EcoVadis	→ Scope 3 emissions target, if Scope 3 emissions is 40% or more of overall emissions → GHG emissions inventory, target and progress reported annually
SBTi	→ Gross Scope 3 upstream emissions in metric tons CO2e → Gross Scope 3 downstream emissions in metric tons CO2e
S&P Corporate Sustainability Assessment	→ Scope 3 emissions for top three categories (absolute emissions in metric tons CO2e, emissions calculation methodology, % of emissions calculated using data obtained from suppliers or value chain partners)

Scope 3 emissions calculation is a complex effort-intensive task

Measuring emissions is the first step to establish a baseline and identify opportunities to reduce emissions. Calculating Scope 3 emissions is a complex effort-intensive task given the dependency on multiple value chain partners for reliable data and low availability of accurate data both upstream and downstream. Methodologies to calculate Scope 3 emissions are primarily dependent on activity data and emission factors, and type of Scope 3 categories.

At high level, Emissions = Activity data X Emission Factor.

Activity data could be a combination of multiple data points that provide the quantity of underlying consumption parameter. Consumption parameter varies for different Scope 3 categories and further depends on the calculation method deployed. The type of calculation method used impacts accuracy of emissions calculation and efforts needed to collect such data points.

A spend-based method uses spend data for purchased goods and services as underlying consumption parameter. It may be relatively easy to gather this information using finance systems but has lower accuracy for emissions calculation.

Average-data based method or Fuel based method requires the quantity of purchased goods or services, or fuel or waste (by mass or volume). Transportation category can use distance travelled as another activity data point for distance-based method. These data points can be gathered through invoices or supplier supplied information or systems such as Transportation Management System. This method has better accuracy compared to spend-based method but requires more efforts if such information is not readily available.

Hybrid method is based on supplier activity (sourcing, manufacturing and operations, transportation) data. Scope 1&2 emissions of suppliers are proportionally attributed and emissions corresponding to input materials, transportation and waste data for supplier activities are added. Data required from suppliers for this method is significant and needs suppliers to have established their Scope 1&2 emissions and provide data on other activities. This is relevant for 'purchased goods & services' and 'capital goods' categories, but similar methods are used for calculating site/asset/investment/franchise specific emissions. Accuracy is higher than previous two methods but needs seamless information flow from suppliers on their activities, which is not easy to establish for all purchased goods & services/capital goods.

Supplier-specific method can be used where suppliers have established emissions factors for goods & services, and business activities using Life Cycle Assessment (LCA) approaches. Estimating emissions from use of sold products requires establishing energy consumed (direct and indirect) and emissions directly emitted during product use phase. This activity data may be available through supplier provided product specification details.

Emission factors also vary depending on the calculation method and type of category. Supplier provided emission factors established through LCA studies have the highest accuracy. However, conducting LCA studies is an elaborate undertaking and not all suppliers might have resources to do so. Product specification details (eg, energy intensity of product use) can help to calculate product use phase emissions. Companies and their suppliers can also use industry relevant emission factors published by credible agencies. These emission factors are derived through industry research and analysis. Environmentally-Extended Input-Output (EEIO) models can provide emissions factors for spend-based method, i.e emissions per unit of economic output. EEIO or industry emission factors have limitations such as low availability of emission factors for all relevant categories and/or all regions. While emission factors for few categories/regions are available for free, emission factors based on LCA approaches/industry analysis might have to be commercially purchased.

In addition to the activity data and emission factors, companies must consider the boundary conditions based on the level of control and influence they have on value chain activities. This impacts the completeness of Scope 3 emissions profile.

Summary of Scope 3 emissions calculation methods

	Scope 3 categories														
Calculation Method	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Asset-specific								X					X		
Average-data	X	X	X	X	X		X	X	X	X			X	X	X
Distance-based				X		X	X		X						
Franchise-specific														X	
Fuel-based				X		X	X		X		X				
GHG emitted during product use											X				
Hybrid	X	X													
Investment-specific															X
Intermediate products that directly consume energy during use											X				
essee-specific													X		
Lessor-specific								X							
Products that directly consume energy during use											X				
Products that indirectly consume energy during use											X				
Project-specific															X
Site-specific				X	X				X	X					
Spend-based	X	X		X					X						
Supplier-specific	X	X	X												
Waste-type-specific					X							X			

Despite the reporting frameworks, companies often struggle to calculate, report and manage Scope 3 emissions

Multiple methodologies and disparate data sources make Scope 3 emissions calculation challenging

based on category and calculation method. Defining appropriate methodologies for each category is not easy and boundary conditions adds another layer of complexity. Accuracy of emissions calculations can significantly vary based on data sources - primary or secondary or proxy. Spend based method, even though with lower accuracy, can provide a starting point in emissions calculation, but many company struggle with spend transparency and analytics to make meaningful decisions. Supplier-specific method relies on high maturity of suppliers on emissions management which generally is not the case with many suppliers. Average-data based methods rely on many primary data points being collected from suppliers. Collecting reliable and consistent data from thousands of suppliers of different sizes and across regions is a herculean task. This is resource and effort intensive. Managing disparate data sources to create meaningful insights for emissions baseline and strategies is another key challenge.

Suppliers generally lack capabilities to estimate and accurately report their own emissions as well as that of their sub-tiers

The global supply chains of many companies consist of thousands of suppliers, operating under different business conditions. Suppliers, especially small and medium enterprises, have limited capabilities to measure their own emissions and hence are unable to provide accurate reporting. Conducting LCA studies is a resource intensive exercise and fewer companies invest in such emission mapping exercises. Many data points required from suppliers also relate to their operations and production data which they might be hesitant to share or are limited by local regulations to provide to customers. Suppliers have multiple sub-tiers and these become fragmented as they move down the chain. Data collection beyond tier 1 is even more challenging and integrity of data is not robust. Tier 1 suppliers face similar challenges of complex data and limited sub-suppliers capabilities to calculate emissions. The level of influence that companies exert on tier 1 suppliers and beyond could be another key limiting factor in this endeavor.

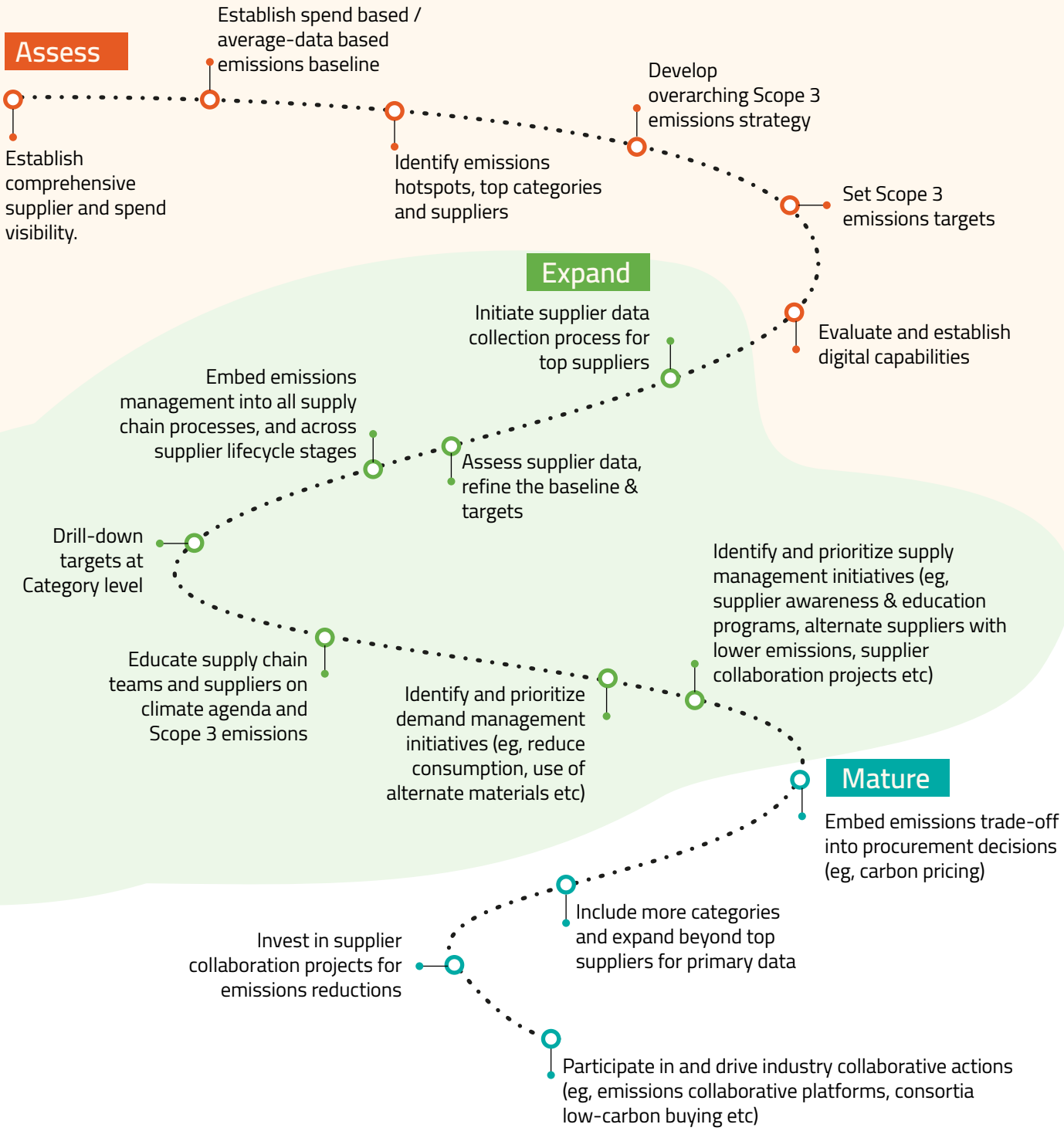
Organizations under invest in their own capabilities to manage Scope 3 emissions

Supply chain functions generally lack ESG capabilities. They struggle with competing priorities of cost, quality, delivery, and lower emissions even though in some cases lower emissions might support their cost agenda. ESG or climate agenda is not embedded across supplier lifecycle stages, thereby making Scope 3 emissions agenda a transactional data collection exercise rather strategic supplier collaboration topic. Data collection and analysis becomes time consuming and resource intensive activity if companies use excel or webform based data collection techniques. This is time consuming and not sustainable as they expand to more Scope 3 categories. Emissions targets are generally not translated into category and supplier level targets. Supply chain digital capabilities are not geared towards embedding Scope 3 emissions visibility, analytics, and management.

Overall, lack of comprehensive Scope 3 approach results in piece-meal efforts and under invested capabilities. This translates into poor quality and incomplete Scope 3 emissions data, impacting the creditability of data and does not support organizational decarbonization goals. Garnering suppliers' support becomes difficult and potential for collaborative action is not realized.

Pragmatic phased approach underpinned by robust digital capabilities is required to comprehensively address Scope 3 emissions

Companies should take a phased approach to track, report and manage Scope 3 emissions.



Underpinning this entire journey should be robust digital capabilities to seamlessly track, report and manage Scope 3 emissions. Given the complexities of managing Scope 3 emissions, companies can no longer afford to view this as data collection exercise over emails, excel /webform surveys. Scope 3 emissions should inform decisions across supply chain processes, especially sourcing & procurement. This requires intelligent interaction of complex ecosystem partners both internally and externally. Digital capabilities for Scope 3 emissions should empower companies to:

- Seamlessly collect relevant data across internal systems and value chain partners, especially from suppliers
- Integrate various relevant data sources for emissions factors
- Establish Scope 3 emissions baseline
- Power advance analytics to identify hotspots and reduction opportunities
- Educate and create awareness both internally within supply chain teams and externally with suppliers
- Facilitate ongoing data flow and enable collaboration
- Manage emissions reduction initiatives
- Track the progress against targets
- Drill-down targets at category and supplier level
- Manage Scope 3 reporting requirements
- Feed into overall ESG management platform

Conclusion

There is increasing pressure from customers, investors, regulators, and civil society for companies to act on climate agenda with sense of urgency. As the race to 'net-zero' is intensifying, companies must demonstrate credible action to decarbonize their businesses and can no longer afford to ignore Scope 3 emissions.
Companies cannot manage Scope 3 emissions all by themselves. This requires a great level of collaboration with multiple partners, internally and across the value chain. Companies should create a clear proposition with transparent communication on Scope 3 agenda to rally the support of all partners. This also requires companies to invest in the right capabilities and technologies to support Scope 3 management. Supplier and industry collaboration is key to achieving success. Leveraging technology is critical to address multiple complexities surrounding this topic and drive meaningful impact through actionable insights.

Scope 3 emissions seems like an overwhelmingly complex topic, but companies should not lose sight of the end goal – mitigate climate risks in value chain by pursuing decarbonization efforts. Companies can make Scope 3 emissions management less daunting, and more value driven, with the right strategic approach, capabilities, and technologies.

Source: IPCC AR6 Report
Source: GHG Protocol – Corporate Accounting and Reporting Standard
Source: GHG Protocol – Corporate Value Chain (Scope 3) Accounting and Reporting Standard
Source: Accenture UNCG Study
Source: WEF BCG Report
Source: CDP Report
Source: McKinsey Report
Based on GHG Protocol – Technical Guidance for Calculating Scope 3 Emissions
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