



HSBC

Delivering Net Zero Supply Chains

The Multi-Trillion Dollar Key to Beat Climate Change

October 2021

Key takeaways

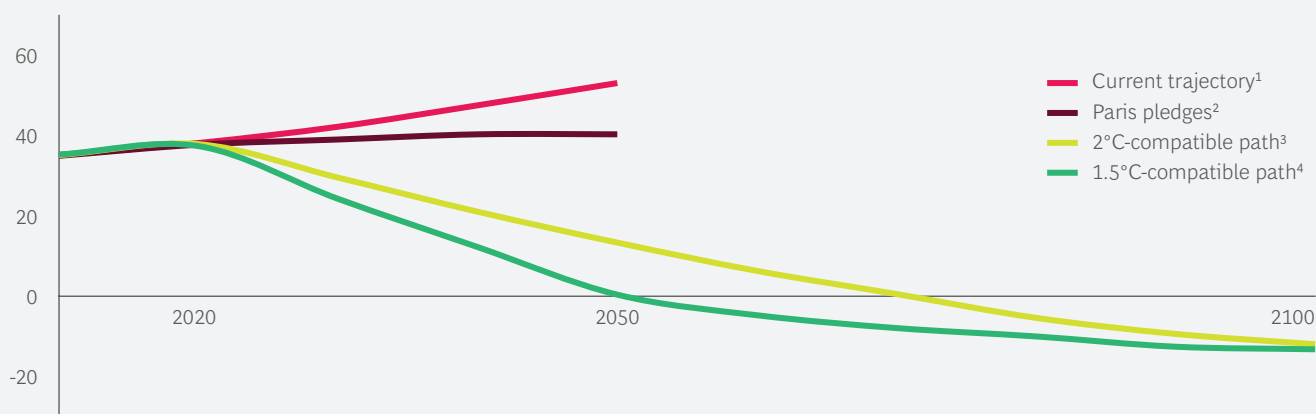
- Global supply chains – which according to BCG analysis account for as much as 80% of the world’s total carbon emissions – will need to decarbonize to deliver net zero outcomes
- Organizations will need to start to rapidly address not only their direct emissions, but also their indirect emissions – that is, the emissions arising from their suppliers, as well as the usage and disposal of their products
- An estimated \$25-50T of the c. \$100T+ investment needed to deliver net zero supply chains will have to be directed towards SMEs – which represents a substantial challenge in terms of market access and risk appetite, as well as the education, incentives, technology, and other resources to use these funds effectively
- Based on analysis of the automotive and textiles sectors, BCG & HSBC observe seven principles that should be applied to virtually all supply chains in their journey to net zero
- In practice, a ‘leadership crucible’ involving multiple actors working together within and across supply chains is needed; these actors include corporates, governments and policymakers, industry bodies and NGOs, and banks and other financial institutions
- We understand more and more about the ‘why’ and ‘how’ of enabling net zero supply chains. But we cannot afford to lose sight of the third critical factor: the ‘when’. The pace of change is incredibly important, and the data clearly shows that the answer is ‘now’

The need to mitigate climate change is clearer than it has ever been. According to the [International Panel for Climate Change](#), to meet the goal of limiting global warming to 1.5° Celsius above pre-industrial levels – believed to be an upper limit for maintaining much of human civilization – the atmosphere has capacity for only 400-500 billion more tons of greenhouse gas (GHG) emissions. This carbon budget could easily be exhausted by 2030 or earlier. And current pledges to reduce emissions, such as those struck at the Paris Climate Accords in 2015, are far from the level of ambition needed to reach the agreement’s goal of net zero emissions by mid-century. (See exhibit 1)

Most political and business decision-makers understand the urgency. But it’s much harder to translate this net zero commitment into tangible real-world change. To actually reduce the impact of climate change, two stringent measures are needed. First, annual industrial emissions must be reduced in line with the scientific estimates, which means dropping them in half by 2030. Then the impact of past human activity must be reduced further, ideally by removing greenhouse gases from the atmosphere, and getting closer to pre-industrial levels by 2050 or sooner.

Exhibit 1 | Global net CO₂ equivalent emissions pathways

Gigatonnes per year



1. Assumes CO₂ emissions grow from 2018 at same rate as the “current policies” scenario in UNEP 2019 emissions gap report (1.1% CAGR) 2. Assumes countries decarbonize at the same annual rate that was required to achieve their intended nationally determined contributions from 2020-2030 3. Assumes 25% reduction by 2030 and net zero by 2070 4. Assumes 45% reduction by 2030 and net zero by 2050
 Note: Emissions of non CO₂ forcers are also to be reduced by more than 50% in pathways limiting global warming to 1.5°C
 Source: IPCC: UNEP emissions gap report; BCG analysis

Exhibit 2 | The three scopes of greenhouse gas emissions

The GHG Protocol is a framework developed by the [World Resources Institute](#) and the [World Business Council for Sustainable Development](#). It defines three scopes: metrics and criteria for a company to use in measuring and managing its emissions.

Scope 1: Direct emissions: from facilities and vehicles owned and operated by the primary company;

Scope 2: Indirect emissions: from the use of energy or electricity purchased by the primary company;

Scope 3: Indirect emissions that occur in the primary company’s value chain, including operations by suppliers, distribution, logistics, business travel, investment by the company in the supply chain, and the use of sold products.

In this report, we use these definitions. Most activity described in the report is in Scope 3

Source: [Greenhouse Gas Protocol](#); BCG Analysis

Global supply chains – which according to BCG analysis account for as much as 80% of the world’s total carbon emissions – are a critical enabler of climate action. Many organizations have started to rapidly address their direct emissions, but not enough has been done to reduce their indirect emissions, including the emissions arising from their suppliers, as well as the usage and disposal of their products.

Taking a supply chain approach would allow organizations to have a more holistic focus in their decarbonization and general sustainability strategies. As exhibit 2 shows, there are three general categories of emissions to manage, labeled Scopes 1, 2, and 3 in the Greenhouse Gas Protocol, a global framework for measuring and managing GHG emissions. Scope 3 is the category of supply chain-related activities: typically the largest category in GHG volume and in complexity.

In researching this white paper, BCG and HSBC teamed up to understand what it will take for global supply chains to most effectively transition to net zero. Our two firms have based this report on our internal knowledge and on secondary research, surveying over 100 clients to gather direct feedback from the market. We began with an estimate, developed by BCG and the Global Financial Markets Association, that it will require more than \$100T in total investment to reach a net-zero economy by 2050. The longer this investment is delayed, the greater the amount required, and the more extreme the damage from storms, fires, droughts, and ecosystem harm (to cite only a few forms of damage) in the meantime.

Our analysis found that as much as \$25-50T – between a quarter and half of the total global investment – will need to be directed to small and medium-sized enterprises (SMEs). Exhibit 3 shows the estimated range of investment required. While not necessarily household names, BCG analysis estimates that SMEs can represent more than 90% of the organizations in any given supply chain. Delivering this investment to millions of fragmented SMEs represents a substantial challenge in terms of market access and risk appetite. Moreover, SMEs need to be provided with education, incentives, technology, and other resources to use these funds in the most effective ways to decarbonize their emissions.

SMEs are also often of such small scale that they tend not to reach the participation threshold for carbon pricing schemes recognized by government tax regimes. This means that SMEs are typically under the radar for country- or sector-wide targeted reductions.

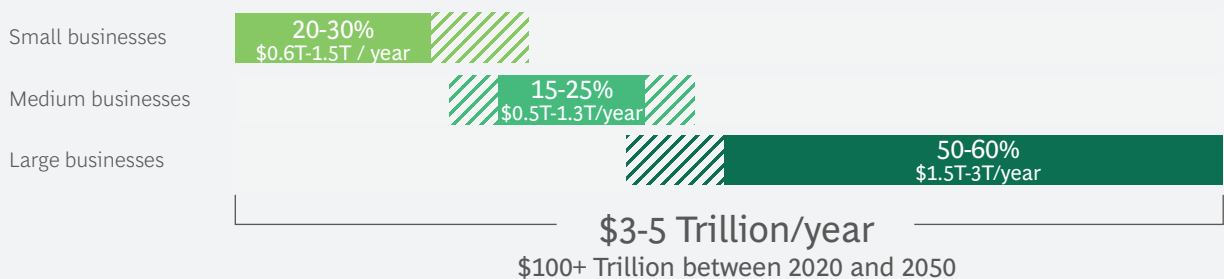
The importance and opportunity for SMEs to progress the climate change agenda is gradually becoming more widely acknowledged, particularly through initiatives such as the [SME Climate Hub](#), but there is still much more to do.

In this report we looked closely at two typical industries that rely on global supply chains. They are in some ways ‘book-end’ archetypes, opposites in many respects. the highly fragmented and SME-heavy textiles industry, and the more consolidated corporate-heavy automotive industry. Together, they gave us a better idea of the supply chain opportunity, and the levers we can use to foster change.

Exhibit 3 | Estimated investment needed to reach net zero across global supply chains



All global supply chains



Sources: WEF & BCG report on net zero supply chains, GFMA & BCG report on the 100-150 Trillion opportunity, Orbis database, literature review, BCG analysis
 Note: Segmentation of businesses is defined as follows; small businesses have <50 employees/<\$10M turnover, medium businesses have 50-250 employees/<\$50M turnover, large businesses have >250 employees and over \$50M in turnover

Textiles and automobiles

The challenge is not only a matter of cost or technology. It involves changes in business models and organizational culture. SMEs need incentives to move toward a smaller carbon footprint, resources to cover the costs, training to make it work, the technological platforms to help them overcome hurdles. Most of all, they need to work collaboratively to marshal all the necessary factors – technology, resources, and know-how – and turn them into action.

The supply chain is key to this because it already connects millions of companies around the world, all of whom depend on those links for their own supplies and access to their customers. According to [Elm Analytics](#), in the US auto industry alone, there are 140 branded manufacturers, about 5,000 tier 1 suppliers, about 25,000 tier 2 suppliers, and more than 200,000 other suppliers. If all of these companies reduced emissions, the aggregate effect would be dramatic.

Supply chains are rich with operational data and offer potential – once hurdles are overcome – to be closely monitored for efficiency and other carbon-related factors. They are also vulnerable to climate effects – they falter during severe storms, floods, droughts, and fires – and thus provide constant reminders of the need for urgent action. Because global supply chains traverse long distances, they can be used to compare actions in different places and see how the outcomes vary.

Their interdependence also serves as a motivating factor: there are huge opportunities for interconnected buyers, suppliers and peers to partner to collaborate and reach common ambitions. While varying materially across supply chains, Scope 3 emissions are often substantial – with BCG estimates as high as 85% of total emissions across the automotive supply chain, and as much as 95% for textiles. Addressing SME emissions in supply chains will not only substantially move the needle in terms of total emissions, but also increase the relative visibility of larger corporates' own Scope 1 and 2 emissions, fueling more change.

Finally, supply chains are ideal vehicles for exchanging information and ideas, particularly when linked with digital platforms. Large companies tend to have funding, product design, and technological insight at their disposal. They can use logistics and information connections to work closely with smaller companies and ensure that there is a concerted common effort to decarbonize.

To understand the potential impact of supply chains on carbon emissions, two industries are particularly revealing: textiles and automobiles. They are both important consumer products. Together, BCG estimates they comprise about 5% of global GDP, and each produces a significant amount of carbon emissions. Yet, they vary significantly from each other in ways that affect their potential for change.

Textile manufacturing tends to organize itself around a value chain with seven steps, each concentrated in a different region. The first step, raw materials sourcing, might typically take place in China, India or Brazil. Textile production, the second step, would be sourced to India or Bangladesh. Garment manufacturing (along with design) might happen in Bangladesh, India, China or Vietnam – or, for retailers like Inditex, in their own factories near headquarters (in this case, in northern Spain). The next three steps – distribution and transport, retailing, and customer use – typically happen near to the country where the clothing is purchased. And final step, end-of-use (often discarding old clothing, but with an increasing push towards recycling), will either occur locally, or sometimes quite problematically in developing markets (for example, they might be dumped or go into landfill).

Automotive manufacturing is concentrated around the original equipment manufacturers (OEMs) that produce and sell completed automobiles. Each OEM has its own network of suppliers, with manufacturing plants often clustered near each other. The result is an industry located in hub-like centers in the U.S., Germany, Japan, South Korea, Thailand, Spain, Brazil, and (more recently) Mexico, China and India. Because these hubs tend to be relatively self-contained, much of a car's manufacturing process often takes place within a single region, and though the industry has many suppliers, they are generally linked in close-knit long-term relationships with one or two OEMs.

Reducing the carbon footprint in each of these two industries requires very different strategies. In recent years, decarbonization levers across the automotive and textiles supply chains have not only become clearer, but also more feasible. Most are spread across the full product life cycle, from manufacturing raw materials to delivering the end-product to consumers, and even extending to the disposal of products.

In the **textile industry**, there is great leverage in addressing small and medium-sized companies. As shown in exhibit 4, whether measured by their economic impact (gross value added to the economy), or by their net zero investment (the amount of financial resources needed to change their emissions profile), they contribute almost half of the economic value and the emissions in this industry.

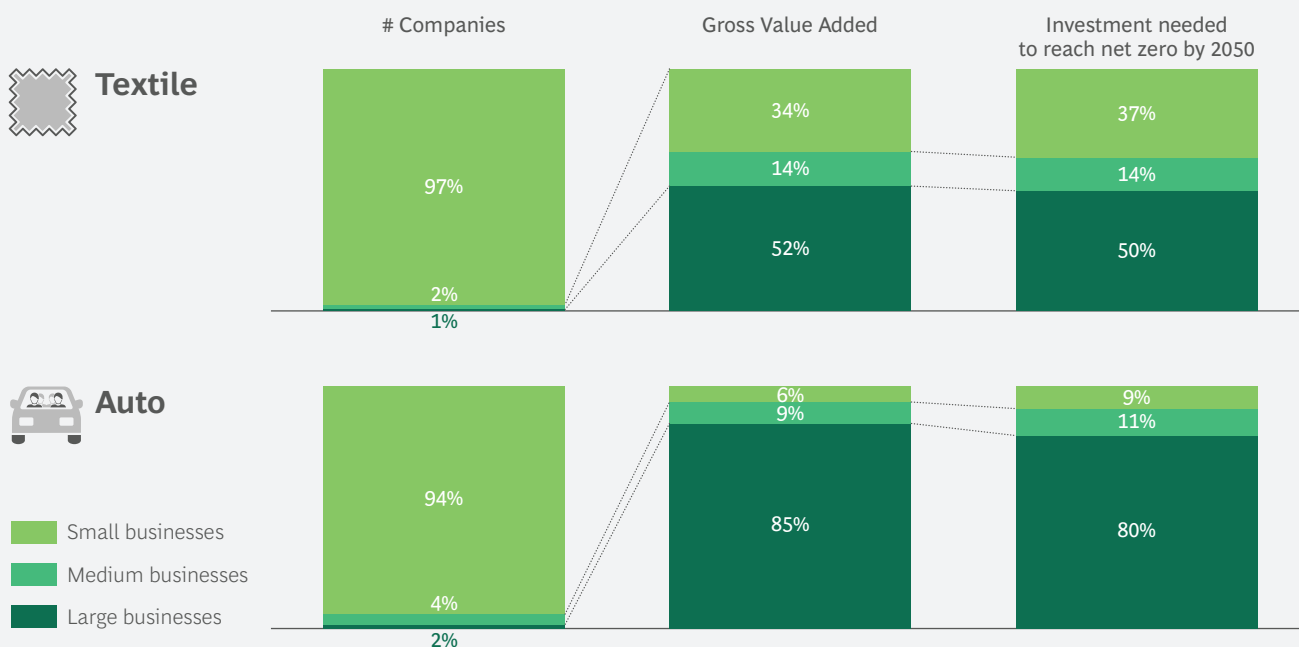
The challenge comes in convincing them to change. A textile mill in Bangladesh is one of many, supplying dozens of apparel makers, and often competing on price. There is little incentive to reduce emissions as a single company, especially if it is expected to make that decision on its own. A few of its customers may appreciate the gesture, but probably not enough to switch suppliers. The supply chain must be shifted at a broader level.

it involves several high-energy processes such as bleaching, dyeing, finishing and assembly. Use represents another 25-35% share, mainly generated by washing and drying clothes. There is also a carbon footprint attached to the original raw materials. Swapping polyester for recycled polyester, for example, can substantially reduce the energy required in production, reducing CO2 emissions.

Exhibit 5 shows a range of activities that could be used to reduce carbon emissions in a textile supply chain. Since the industry is fragmented, many of these measures should take place as shared activities: decarbonization of the utility grid that supplies electric power to textile companies, training for company leaders about the virtuous cycles inherent with efficiency, and an emphasis on data collection & transparency. More sustainable sourcing options can

Exhibit 4: Companies by size in Textiles and Automotive supply chains

Different breakdowns Split across global supply chain by business size











Sources: WEF & BCG report on net zero supply chains, GFMA & BCG report on the 100-150 Trillion opportunity, Orbis database, literature review, BCG analysis
 Note: Segmentation of businesses is defined as follows; small businesses have <50 employees/<\$10M turnover, medium businesses have 50-250 employees/<\$50M turnover, large businesses have >250 employees and over \$50M in turnover

That shift would yield great rewards in climate terms. Prior BCG analysis estimates that the textile industry currently emits 3.3 Bn metric tons of greenhouse gases per year. Surprisingly little of this comes from transportation or retail; fabric is relatively light to ship and other parts of the process are more energy-intensive. The fabric manufacturing process contributes 22% of the emissions from a garment. Making the garment accounts for another 30-40%;









be found for textile fibers, including recycled fibers. With individual companies, the frequency and temperature of textile or apparel washing can be adjusted. Efficiencies can be improved, and some processes, such as dyeing or transportation, can be made more sustainable. With concerted effort, the practices of the industry can shift to greater use of electric vehicles, greater factory efficiency, and more emphasis on recycling and reuse.

Exhibit 5: Emissions and abatement levers across stages of the Textiles supply chain

 Textile		Tier 4	Tier 2&3	Tier 1	Logistics	Tier 0 (OEM)	Downstream	
		Raw materials sourcing	Textile production	Garment manufacturing	Distribution & Transport	Retailing	Use	End-of-use
EXAMPLE ACTIVITIES		Cultivation of fibers, e.g. : Field: Cotton, Animal: leather, Other: oil for polyester						
		Spinning, Twisting, Weaving/ Knitting, Yarn production, Tanning	Dyeing, Finishing, Assembly,	Transport from fields to stores, along the value chain	In-store retailing, Online retailing	Transport to end user, Laundering	Recycling, Re-use / Resale, Disposal: incineration	
GROSS VALUE ADDED		5%	15%	25%	55%		not significant	
EMISSIONS 3.3 Gigatons CO ₂ /Year		5-15%	20-30%	30-40%	not significant		25-35%	not significant
DECARBONATION OPPORTUNITIES	Across : grid decarbonization, education, standardized reporting							
	Prioritize cotton over less sustainable fibers (e.g. leather), switch from oil-based to recycled plastic polyester	Improve energy efficiency of processes	Invest in innovative dyeing processes without heat, and reducing waste	Deploy electric fleet for distribution and transport, increase share of renewable energy for store operations, including lighting		Promote sustainable washing cycles (e.g. reduced heat and water usage)	Promote longer use, re-use and second hand re-selling of garments	

Sources: Literature review, secondary research, BCG analysis

Exhibit 6: Emissions and abatement levers across stages of the Automotive supply chain

 Auto		Tier 4	Tier 2&3	Tier 1	Tier 0 (OEM)	Downstream	
		Raw materials sourcing	Components manufacturing	Parts & Systems finalization	Auto assembly & delivery	Use	End-of-use
EXAMPLE ACTIVITIES		Sourcing of: • Metal, • Plastic, • Oil			 		
		Manufacturing of: • Semiconductors, • Gears • Software	Assembly of auto-specific parts like: • Steering wheels, • Engines, • Windshields, • Batteries	Production of end vehicle: Assembly of parts, Branding, Retailing	Use of the vehicles by individuals & companies (E.g. truck fleet)	Recycling of batteries, Demolition, Re-sale for parts	
GROSS VALUE ADDED		5%	25%	25%	45%	not significant	
EMISSIONS 6.1 Gigatons CO ₂ /Year		20-30%			5-15%	60-70%	
DECARBONATION OPPORTUNITIES	Across : grid decarbonization, education, standardized reporting						
	Source green / recycled materials, Set targets for suppliers	Improve energy efficiency of processes, Switch to innovative, less carbon intensive processes, Use recycled components		Improve energy & operational efficiency, Source certified green energy		Improve energy & operational efficiency, Source certified green energy	Improve battery recycling, Promote longer use of vehicles

Sources: Literature review, secondary research, BCG analysis

In **automobiles**, by contrast, there is less opportunity for change in manufacturing, even with suppliers. Most suppliers serve just a handful of manufacturers, and they tailor their products accordingly. They have already optimized for energy-efficiency, especially after 30 years of lean production. BCG estimates that together manufacturing and auto retail comprise only 5% of all emissions.

There is still some savings available through operations – about 25% of the total emissions from the industry – but it will not be found on the assembly line. Most of it comes from unsustainable materials, such as metals and plastics, sourced further up the value chain. When these materials are incinerated instead of recycled, CO₂ enters the atmosphere. Even better would be to eliminate unnecessary materials or parts altogether, such as the use of certain rare earth metals in battery components.

The much greater opportunity for reducing emissions is in motor vehicle use – shifting to electric vehicles or reducing emissions impact. In exhibit 6, which shows a breakdown of an automotive supply chain, this proportion is included in the figures for the largest companies (specifically the OEMs). They provide 85% of the economic value and account for up to 80% of the investment needed to reduce emissions. Most of that will go towards reducing the carbon footprint of the individual automobile.

More than 70% of automotive emissions occur after manufacturing and retailing – when they are driven. The source is not just CO₂ from internal combustion engine (ICE) vehicles, but also the batteries and other components that are not recycled at the end of the vehicle's life.

Exhibit 6 shows an array of measures that can reduce the carbon footprint in automotive supply chains. The development and commercialization of electric vehicles (EVs) should be the highest priority. Whether powered by fuel cell or battery, the conversion of the installed base of cars will do the most to reduce emissions, assuming the continued drive towards renewable electricity generation in markets.

Even in electric vehicles, there are emissions – partly from the manufacturing of batteries, and the rest from the type of fuel used to generate electric power where the vehicle is charged. In Europe, for example, Norway is best in class, with BCG estimating that 98% of energy for BEVs are generated from clean sources, Germany is behind at 45%, and the Netherlands are far behind at 18%. Full grid decarbonization should be put in place to bring most countries closer to Norway's example. BCG estimates it could reduce carbon emissions by an estimated 27 grams per kilometer driven, out of a total 131 grams per kilometer, representing a c. 20% reduction.

Automakers should also source “green materials” more diligently, reengineering elements of their metals and ores supply chains. They may do this by setting CO₂ targets for suppliers, or using recycled steel and aluminum. There are always further improvements available in lean production and energy efficiency. Further innovation in batteries and synthetic fuels could also make a difference. For example, giving a second life to an auto battery by recycling it into an energy storage system, instead of discarding it, could reduce emissions by 22 grams per kilometer driven with that battery.

Finally, governments and investors should finance and incentivise both the production of BEVs (such as EU funding of the BEV battery industry) and the spread of infrastructure such as charging stations for electric vehicles. With this, many countries should reach a tipping point where electric vehicles are inexpensive, convenient, and fashionable enough for people to switch en masse.

The big picture

Every industrial sector has its own version of the supply chain challenges, and each industry requires its own solutions. But they all have a similar dynamic in common. In all key supply chains, there are small, medium and large enterprises, and each group requires different capabilities and resources.

This was one of the findings in a recent joint survey of BCG and HSBC of business leaders across the automotive and textiles supply chains on their readiness to undergo a net-zero transition: to move their own supply chains to a lower-carbon footprint.

Leaders of large corporations are increasingly eager to change. They know that if they don't, they will struggle to attract investors, employees, and even customers.

Indeed, of the 73 corporations whose leaders were surveyed¹, over half had a net zero transition plan. This is corroborated by the fact that more than 1,000 large corporates worldwide have now set emissions reduction targets through the [Science Based Targets initiative \(SBTi\)](#). These companies are typically the cornerstones of large supply chains.

However, many corporates have not yet determined how they will realize these pledges, and for SMEs, the number is probably much smaller. The vast majority of SMEs surveyed by BCG and HSBC did not have a plan to transition to net zero, and less than a sixth had a defined carbon reduction target for their businesses.

It is clear from our survey that the 'how' is even more challenging for SMEs than the desire to proceed. More than half of the SMEs in the survey mentioned the lack of know-how as one of the top 2 reasons for not having net zero transition plans. The number for large corporates was only half that. As a result, SMEs simply do not feel ready for the transition. Other challenges holding them back include: potentially limited access to finance, lack of incentives, knowledge and resource gaps, and unclear and costly data gathering and reporting methods.

In addition, as supply chains start to transition to a net-zero approach, product standards are often inconsistent between geographies. Suppliers must thus often deal with multiple buyers with different requirements, which drives up complexity and cost. From a technology perspective, many of the technologies needed either do not exist yet, are not available at scale, or are simply too expensive. Within the SME managerial ranks, there can be resistance to change, and an inertia towards changing habitual embedded practices. In the wake of the pandemic, many small businesses are making ends meet month by month, and may be hamstrung by more general supply chain difficulties – particularly when over half of those surveyed feel that transitioning to net zero will either have no positive or a negative financial impact.

The transition to net zero supply chains will likely come with winners and losers, as did previous disruptive and 'paradigm-shifting' innovations in the past. This will involve small companies, which are often the last to change – and often through no fault of their own. For large companies seeking to bring their supply chains along with them, it will not suffice to mandate new standards. One firm's supply chain is another's business, and corporates have a responsibility to support these efforts. Corporates simply 'demanding more' of their suppliers will not move the needle, and lead to limited progress and missed goals. Small suppliers are unlikely to have the knowhow and resources to make the transition. Nor will it be possible to switch to "greener" alternative suppliers; there may well be no alternatives with lower carbon footprints.

In short, there needs to be a net-zero transition of the entire supply chain, where all players have a voice and role to play. Like many complex business challenges, this requires a holistic approach that starts with defining the problem – What does net zero mean in the specific context of the supply chain? – before progressing to the critical 'how'.

¹ BCG and HSBC conducted a survey of about 126 HSBC clients in the automotive and textiles sectors, including 53 SMEs (with less than 250 employees) and 73 large corporations (with more than 250 employees). These companies were headquartered primarily in the UK and Hong Kong.

Roadmap to transition

While levers vary from one sector to the next, seven principles seem to apply to all. Though drawn in part from our study of the textile and automotive industries, they enable any jurisdiction, company, or industry, to build – or at least move towards – emissions-free supply chains.

- 1 Rethink product design.** Go back to the drawing board and revisit product design, rather than optimizing existing processes. Net zero supply chains will not be delivered by tinkering at the edges of a product's carbon footprint, but may require a wholesale re-evaluation of how people use it and how it is made. Does fashion need to be washed daily, with reduced life cycles and leaking microplastics? Do we need to make, sell, and dispose a vehicle for each person who drives, or is the sharing economy the future of mobility? And equally topical, can we pivot back to 'building to last' rather than 'building to replace'? Indeed, this dynamic of defining leaner product designs has yet to pick up in some sectors. While changing end product certifications was put in place in nearly half of automotive clients surveyed, only around a tenth of the textile players surveyed had considered it in as part of their sustainability strategy in the last 3 years.
- 2 Embrace collaboration.** Supply chains are asymmetric. They have a few large corporations with top quality talent, education and resources at one end, and many smaller, less sophisticated SMEs along the chain. These suppliers will need substantial help to enable the transition to occur. They all need to collaborate to succeed: to share knowledge, technology, investment, and resources. For example, both the athletic wear company Puma and retail giant Walmart collaborated with HSBC to launch a financing program that rewards environmental and social standards throughout the supply chain. Collaboration should not be limited to within a corporate's own supply chain either, but needs to be across the whole sector in order to accelerate change. For example, the industry needs to agree on common data standards, share technologies, etc.
- 3 Build the capabilities needed for change.** As suppliers begin the net zero transition, they may find gaps in their skills and knowledge. As mentioned, this is an even bigger issue when considering SMEs. Capability development and training can help accelerate the shift. [BMW has provided emissions-reduction workshops](#) for first and second tier suppliers, covering the use of recycled materials, smarter use of tools, and education of the car purchaser. One explicit goal is competing with electric vehicles for net-zero credibility.
- 4 Invest in technological solutions** (often referred to as 'climate tech') that address GHG-related issues. These include alternative fuels, less energy intensive manufacturing processes, and methods of carbon capture to compensate for or neutralize emissions that the organisation has not yet reduced. Speed up the time it takes to bring an innovation to market. Some of the most effective advances either exist in pilot form, simply have not yet reached the right hands or do not yet exist at scale. Others do not yet exist at all, and the window for R&D investment – given the length of time needed for scaling-up across supply chains, sectors, and countries – is closing. Industry, governments and financial institutions will need to collaborate to not only fund and drive this R&D, but also help accelerate it.
- 5 Develop better data structures.** Net zero supply chains will need transparent, visible and consistent analytics. This in turn requires a robust system for gathering operational data across the supply chain, down to the last mile, and making it sufficiently fit for purpose to be adopted by most participants. It is particularly important to have standards to assess and report the carbon footprint of an organisation across scope 1, 2 and 3. Some data providers already exist. For example, the apparel industry's Higg Index assesses environmental and social sustainability for value chains, including data on water use, carbon emissions, and labor conditions. Specialised data players such as [Coriolis](#) are also growing in this space, using advanced analytics and reporting to help provide end-to-end transparency on environmental, social, and governance metrics across supply chains. Ultimately, access to this data needs to go all the way downstream, and right into the hands of consumers. For example, there's a clear need to have consistent labelling for end consumers that would help with their purchasing decisions, echoing the caloric and ingredient data we have seen in food packaging for many years – except now focusing on the health of the planet, not just of consumers.

6 Think about policy and standards holistically.

This applies to both government and business policy. While we are seeing momentum now, there has been a lack of consistency in policies, standards and market practices. This has resulted in an ever-changing set of requirements that businesses need to comply with simply to meet the requirements of their partners, driving up complexity and cost. Supply chains cross national borders and need policies that hold everyone to a high but workable common standard.

7 Enable financing. Most small businesses don't have the capacity or money to focus on a net zero strategy. Of the SMEs in our survey that have not launched initiatives to reduce emissions, about half report the lack of access to finance as a key preventing factor. The path to net zero is much easier for large corporate entities with access to capital markets than for smaller, unrated suppliers. Targeted, ring-fenced and affordable capital is a key enabler of the net zero supply chain, but banks will not be able to do this alone. Banks need to team together (for example, through syndication), to co-invest with corporates, and form public-private partnerships to help deliver financing to where it is most needed. For this to work in practice, data structures must provide transparency across the supply chain to trace where such funding is being directed, used, and by whom.

A leadership crucible

As we've seen, the net zero transition across supply chains will involve multiple actors. These include large and small companies, banks, investors, governments, policy makers, and non-governmental organizations (NGOs) like the [World Resources Institute](#), the [World Wide Fund for Nature](#), and [CDP](#) (the former Carbon Disclosure Project) which co-founded [SBTi](#).

No one actor can support the incentive structure required to reach net zero in time. Ongoing collaboration across stakeholder groups will be essential. People who can work well across organizational boundaries will find themselves operating at a premium. For every supply chain, many participants have a role to play

Governments and policymakers: Need to accelerate carbon reduction by mandating change through policy, while also ensuring cross-jurisdictional alignment on key dimensions such as how to authenticate green transactions, simplify and standardize disclosures, and agree on the choice of transition activities. In addition, governments will need to establish rewards and incentives to rebalance the economic equation, make change more affordable, improve access to funding by encouraging banks to finance the transition, and put in place safeguards to avoid capital flight from where it is needed most.

Industry bodies and NGOs: Their role is to disseminate knowledge and resources, and to lobby for change. These initiatives will raise the stakes. They should help run programs to support smaller suppliers through the transition. They can also provide technical and industry-specific field expertise to governments and support the development of workable standards for net zero ambitions. In addition, NGOs have the responsibility, along with governments, to establish standards and measurement indicators that emphasize and facilitate real-world change, not portfolio aesthetics.

Large corporations: As the leaders of some of the world's largest supply chains, these major enterprises can help move the transition forward, in a rapid but manageable way. They should work with their suppliers on decarbonization, rather than simply mandating change and passing the problem of implementation to their smaller supply chain cohorts. They can co-invest, provide liquidity through supply chain finance, share knowledge and resources on how to transition, and help propagate innovation and technologies across the supply chain to reach scale.

End users: We should not overlook the role of the people who purchase products and services. While manufacturers try and ensure sustainable products are at least as desirable – if not more so – than their non-sustainable counterparts, there will always be compromises that consumers will need to make, whether that be in price, form, or function. End-users need to vote with their feet and buy from sustainable producers, even if that means changing their habits.

Banks and financial institutions: The obvious role for banks in enabling net zero supply chains is through financing. They can continue to facilitate investment through capital markets and syndicated lending. They can also leverage their unique position to support their clients, big and small, and facilitate their decarbonization efforts.

From a financing perspective, banks can ringfence funds to support the transition. They can also apply their analytics and their accumulated knowledge and experience to better predict the GHG impact of projects and investments, the likelihood of success, and the timeframe of expected returns. This can help add awareness of net zero impact to risk management considerations.

In addition, there is an opportunity for banks to partner with their large corporate customers as co-investors. They can set up sustainable supply chain finance programs, enabling lower borrowing costs for smaller suppliers, and better sharing of risk between banks and corporates. The partnerships developed by HSBC with Walmart and Puma represent an example. Banks can also collaborate with governments and development banks to form much needed public-private partnerships – providing additional lending, investment backing, grants, ‘green banks’ and the like – that help ‘plug’ investment gaps.

For example, HSBC and Temasek will be investing up to \$150M in a platform to support sustainable infrastructure projects across Asia, partnering with the Asian Development Bank (ADB) and Clifford Capital Holdings to manage the platform and benefit from their expertise. Similar partnerships have included HSBC’s collaboration with the ADB to support PPE distribution in the pandemic. Efforts like these, in which commercial banks collaborate with development banks to improve supply chain decarbonization – and ESG priorities more broadly – need to be stepped up further. Most critically, real-world positive impact should be top of mind: tracked, evidenced, and linked to real-world targets so it is clear that this financing is genuinely moving the needle.

Banks and other financial institutions are in a privileged position to help supply chains reach their goals. Those banks with a large global network – spanning the largest corporations and smallest micro-businesses – should use their resources, expertise and networks to share expertise where other global organisations do not reach. This includes leveraging their channels and platforms as education hubs. Businesses in a supply chain typically use financial services as a common point of data entry, access, and sharing in a supply chain. Now these hubs can be sources of sustainability-related insights and data for organisations that do not necessarily have their own dedicated research teams and resources.

The time is now

As we understand more and more about the ‘why’ and ‘how’ of enabling net zero supply chains, we cannot afford to lose sight of the third critical factor: the ‘when’. The pace of change is incredibly important, and the data clearly shows that the answer is ‘now’:

Time to grow and adapt: Suppliers need to start their net zero transition journeys immediately. The time required to perfect new processes and technologies can take decades. Today’s investments will thus pave the way for the future, when the need may be even greater.

Possibility of an Orderly Transition: Starting early will allow suppliers to think and act strategically, and embed sustainability into their operating models and culture, rather than having rapid change forced upon them. Well-made choices, well-designed products and processes, effective partnerships, and a sufficiently long runway for transition can all make a difference. They will mitigate being forced to close redundant business lines, dispose stranded assets, and fight for talent at the eleventh hour.

Early Mover Advantage: In many circumstances, sustainability is not yet seen as a necessity. However, businesses that embrace transition earlier will likely benefit from the ability to change in a more thoughtful and orderly manner. There are already signs that investors would award a liquidity premium to companies that have a strong transition strategy. Consumers are also likely to share some of the burden by choosing sustainable products at slightly higher prices.

The Burning Platform: Simply speaking, climate change is happening all around us. The sooner we reduce carbon emissions, the less damage we will need to ‘undo’ as a population and the easier the net zero transition journey will be.

In short, driving change across global supply chains is imperative to combating climate change. But this will only work if all actors work together, and now. Up to 50% of the investment and effort to realise net zero supply chains needs to be directed to SMEs. While there is momentum on climate change amongst leading corporates, they need to work hand in hand with banks, governments, and their smaller suppliers to make a difference.

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About HSBC Holdings Plc

HSBC Holdings plc, the parent company of HSBC, is headquartered in London. HSBC serves customers worldwide from offices in 64 countries and territories in its geographical regions: Europe, Asia, North America, Latin America, and Middle East and North Africa. With assets of \$2,976bn at 30 June 2021, HSBC is one of the world's largest banking and financial services organisations.

At HSBC, we recognise that our planet urgently needs drastic and lasting action to protect our communities, businesses and natural environment from the damaging effects of climate change. We're mobilising finance and accelerating innovation to make this happen, working in partnership with our customers to realise the opportunity to build a more sustainable, resilient, and prosperous future.

We are transforming our own operations and supply chain to net zero across HSBC by 2030, and asking our suppliers to do the same. We're on the right path and in the past decade we've cut our operational emissions by almost half.

Beyond this, we believe we can make the most significant impact in the global fight against climate change by working with our customers to support their transition to lower carbon emissions. It's a pillar of our ambitions and of our strategy as a business. We are committed to aligning the financed emissions from our portfolio of customers to net zero by 2050 or sooner, in line with the Paris Agreement goals. To help get there, our target by 2030 is to provide between USD750 billion and USD1 trillion of finance and investment towards the transition.

Since 1 January 2020, cumulatively we have provided and facilitated USD87 billion of sustainable finance and investments. In the first half of 2021, we helped raise more Green, Social, Sustainability and Sustainability-linked (GSSS) bonds for clients than we did in the whole of 2020. Those funds pay for green projects and new technology and initiatives that open up new opportunities and avenues to net zero.

As the world's largest trade finance bank, we are uniquely positioned to actively facilitate an inclusive transition of our clients and their supply chains.

About BCG

Boston Consulting Group partners with leaders in business and society to tackle their most important challenges and capture their greatest opportunities. BCG was the pioneer in business strategy when it was founded in 1963. Today, we help clients with total transformation—inspiring complex change, enabling organizations to grow, building sustainable competitive advantage, and driving bottom-line impact.

To help tackle climate change, advance racial equity, transition to a circular economy, boost economic development, create food systems and security, embrace large-scale renewables and clean technology, accelerate sustainable finance and investing, and build sustainable supply chains, BCG's sustainability consultants help clients transform their business models to optimize for social and business value. This transformation can take many forms, ranging from expanding value chains to building cross-sector models.

As part of our commitment to protecting our planet and helping our clients achieve sustainable competitive advantage, BCG is deepening and broadening our focus. The BCG Center for Climate & Sustainability brings together more than 550 experts covering the full range of sustainability topics, including biodiversity, circular economy, decarbonization, sustainable agriculture, transition financing, water management, and other ESG topics—across all sectors—to support our clients around the world. As the exclusive COP26 consultancy partner, BCG will work alongside companies and governments to identify ways to mitigate global climate change.

As BCG partners with our clients to help them realize their net-zero ambitions, we must also continue to change the way we operate as a firm, and have set out the following net-zero commitments:

- We will reach net-zero climate impact by 2030; from 2030 onward, we will become climate positive by removing more carbon than we emit
- We are committing \$400 million over the next decade to enable BCG teams to drive climate and environmental impact across industries and countries

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