SMART FREIGHT LEADERSHIP
A JOURNEY TO A MORE EFFICIENT AND ENVIRONMENTALLY SUSTAINABLE GLOBAL FREIGHT SECTOR

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About Smart Freight Centre
Smart Freight Centre (SFC) is a global non-profit organization leading the way to a more efficient and environmentally sustainable global freight sector. SFC works with partners and existing initiatives to help businesses gain competitive advance from smarter freight. SFC helps businesses on their journey to being Smart Freight Leaders by removing market barriers and catalyze sector-wide action:

- Strengthen the business case with smart freight solutions that improve fuel efficiency, reduce emissions and lower operating costs
- Create and implement a universal and transparent way of calculating logistics emissions across the global supply chain through the Global Logistics Emissions Council (GLEC)
- Promote setting comparable emission reduction targets and KPIs that work in practice to drive change
- Provide guidance and mobilize carriers to adopt proven and cost-effective technologies and solutions starting with road freight through SFC’s Smart Trucks Platform
- Link leading companies with green freight programs and initiatives and find the right partners
- Emphasize the business dimension of policy efforts and focus on the practical uptake of solutions that policies seek to promote
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FOREWORD

To give you an idea of the challenge ahead: CO₂ emissions from freight at set to rise 76% between 2015 and 2050. Yet to live up to expectations of the Paris Climate Agreement we need to move in the opposite direction: reduce emissions by 20-65%, depending on whether you follow a 2 or 1.5-degree scenario. This requires a transformation of the sector that pulls everything out of the closet and revisits how the logistics system is designed, and yes, even questioning whether freight is really needed.

Many would argue this is an impossible target. The freight sector is not in control of its own destiny but merely responds to market demand. Governments overlook freight in infrastructure, policies and plans – for example only 13% of countries mention freight explicitly in their climate plans or ‘NDCs’. The sector is fragmented and margins are too thin to free up investment capital. And even if there was money available, why spend it on transport? Despite the potential for emission reduction, the costs per tonne CO₂ reduction is higher than for any other sector.

But look at it the other way. If freight is so inefficient and so prone to commercial pressures, doesn’t that provide the perfect conditions for change? The signs of change are on the wall: technological innovation, new business models for moving freight, and big data. And can’t climate ride that wave instead of going at it alone?

I believe carbon is the new currency and a truer measure of efficiency than costs. This makes climate an integral part of the business case for the transformation to a more efficient and sustainable sector.

We wrote this report for leaders, and especially business leaders, who believe that more efficient freight and logistics goes hand in hand with greater competitiveness and environmental sustainability.

We call this smarter freight and SFC works with you to become Smart Freight Leaders. Together we can win this climate battle.

Sophie Punte
Executive Director
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1 THE LEADERSHIP CHALLENGE

1.1 Logistics sector on the move

Freight transport forms the backbone of today’s global economy that is driven by production and consumption. Freight and logistics is therefore first and foremost a commercially driven sector.

Freight refers to goods that are carried by vehicles or vessels, especially by commercial carriers. Freight modes include inland (rail, road, and inland waterways), maritime, air and pipelines with transshipment centers in between the modes. Logistics is defined as the management of freight movement and services between pick-up and delivery to the customer. Key players in the global logistics supply chain are cargo owners (also referred to as shippers), logistics service providers (LSPs), freight forwarders, carriers, and customers/receivers. They interact with government, civil society and other industry players.

Three major challenges face this sector that are interconnected: explosive growth, inefficiency and rising costs, and high fuel use and environmental impacts.

Figure 1 The global freight supply chain
Explosive growth

Global trade is changing due to fragmentation of production processes, integration of emerging markets into global markets, and urbanization. These are affecting trade and manufacturing specialization and hence global supply chains.

As a consequence, numerous goods are transported around the world, by large corporations. In fact, the World Trade Organization estimated that 16 trillion dollars’ worth of merchandise was exported in 2015 – more than 20% of global GDP. Over 70% is manufactured goods, followed by 10% agricultural products. Urbanization -- more than half of the world’s population lives in cities – and new ways of life generate huge urban and regional freight as a result. While growth in global freight is slowing to around 3% per annum, e-commerce is taking a flight and the global parcel delivery market is now worth 150 billion dollars, topped by the US in value terms and China in terms of volume.

According to the International Transport Forum (ITF), international and domestic freight was approximately 112,000 billion tonne-km in 2015 and could triple by 2050, although this depends on many factors. In 2015, about 71% was carried by sea, 18% by road, 10% by rail and 0.2% by air. Road and rail freight is projected to grow by a factor 2.6 from 2015 to 2050, depending on the degree of decoupling between growth in freight tonne-km and GDP. Developing economies will fuel this growth, with non-OECD countries accounting for over 60% of global road and rail freight transport in 2050. Freight related to international trade is projected to grow 330% by 2050, and port volumes are expected to increase by 300% over the same period.

Inefficiency and rising costs

The race to meet increasing freight demand has come at the expense of efficiency, resulting in high and rising logistics costs. In some parts of the world this is inhibiting economic development and competitiveness. Developing countries are at a disadvantage – logistics costs in Indonesia, for example, are at an estimated 25% of GDP far greater than the less than 10% in Europe/US. There are signs though that developing economies are catching up: improvement in logistics, as determined by Logistics Performance Index (LPI) surveys, is twice as fast as the world average. However, the gap between the best and worst performers is widening. Companies also suffer directly from rising costs -- in many developing countries fuel bills of 60% of operating costs are no exception and up to 40% of truck trips are empty.

Underlying reasons are poor infrastructure, low load factors, inefficient logistics operations, and suboptimal policy and institutional frameworks. Broader trade and transport barriers, such as unreliability of national border crossing times, exacerbate logistics inefficiencies.

High fuel use and environmental impacts

Freight growth and inefficiency in turn lead to higher fuel use and environmental impact. The sector is a growing contributor to fuel consumption: freight, along with aviation and petrochemicals, causes almost all projected growth in oil demand from 2015 to 2040. Freight and logistics account for about 7-8% of carbon dioxide equivalent (CO₂) emissions worldwide, contributing to climate change and air pollutants that affect people’s health.

Translated to absolute quantities, in 2015, transport generated 9 billion tonnes of CO₂ (18% of global emissions and 23% of global energy-related emissions) and the business-as-usual projection for 2050 is about 13.3 billion tonnes of CO₂. The share of freight’s contribution to transport emissions is currently 42% but expected to equal that of passenger transport by 2050, which would translate to about 6.6 billion tonnes of CO₂.
The leadership challenge

Road freight stands out while road freight only constitutes 8% of international trade in 2015, it generates 40% of CO₂ emissions. When all freight, international and domestic, is considered the contrast is even bigger: road holds 18% of freight tonne-km, yet about 67% of CO₂ emissions. Furthermore, 7% of international trade occurs within national borders, yet about 30% of total trade-related CO₂ is emitted here. While no mode should escape efforts to curb carbon emissions, it is clear that trucks is where the biggest gains are to be realized.

Air pollutants, especially Particulate Matter (PM) and Nitrogen Oxides (NOₓ) pose a health concern. At the local level, freight movement can be responsible for far higher transport emissions and road traffic accidents than passenger transport relative to the number of trucks vis-à-vis passenger vehicles. For example, in Asia trucks represent 9% of vehicles but contribute to 54% of transport CO₂ emissions and a similar proportion of PM emissions. Air pollution from shipping is also a concern: approximately 230 million people are directly exposed to the emissions in the top 100 world ports. Citizens continue to place greater pressure on government
and the private sector to address these impacts, and social media makes them more aware of the challenges, as witnessed by Under the Dome, a Chinese documentary about air pollution by Chai Jing.13

1.2 Existing efforts

Smart or green freight refers to the transformation efforts of the freight and logistics sector that help reduce greenhouse gas emissions and air pollutants and improve fuel efficiency across the global logistics supply chain, whilst maintaining competitiveness and economic growth. Smart freight, green freight and sustainable freight/logistics are in practice used interchangeably.

Despite proven economic drivers for smarter freight and potential for improvement, we have not seen a change at a global scale yet. The good news is that momentum for action on smarter freight is growing, witnessed by growing government and industry initiatives, technology innovation and research programs. A clear understanding of key actors in smart freight is an essential first step to achieving transformational change and emission reductions at scale. To that end, SFC developed an online map of programs and initiatives, industry associations and leading international institutes – the “World of Smart Freight” – which will be expanded and updated in time.

Classification of Smart Freight initiatives

There is a vast and growing number of initiatives, that can have a broader environmental or sustainability focus, and for this reason a categorization is proposed in Table 1. In addition to initiatives, there are various partnerships that touch on green freight as part of broader transport and climate issues, such as the International Transport Forum (ITF) and the Partnership on Sustainable Low Carbon Transport (SLcCaT).

<table>
<thead>
<tr>
<th>Type of initiative</th>
<th>Examples of international initiatives</th>
</tr>
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</table>
| Green Freight Programs: industry-membership programs that empower cargo owners, LSPs and carriers to improve fuel efficiency and reduce emissions | ■ BSR’s Clean Cargo Working Group (CCWG)  
■ Green Freight Asia  
■ Lean and Green Europe  
■ US/Canada SmartWay Transport Partnership |
| Modal programs/initiatives focused on specific strategies/measures for specific modes | ■ Sea freight: Clean Shipping Index, Civic Exchange’s Fair Winds Charter  
■ Road freight: Trucking Efficiency, WBCSD’s Low Carbon Technology Partnerships Initiative (LCTPi), GIZ Transport & Climate Change in ASEAN |
| Topic programs/initiatives focused on specific strategies/measures across modes | ■ Emissions measurement: EcoTransIT, Network for Transport Measures (NTM), SFC’s Global Logistics Emissions Council (GLEC)  
■ Technology innovation: European Technology Platform ALICE  
■ Urban freight: VREF Future Urban Transport program on Urban Freight |
| Global development initiatives by development banks/agencies or international institutions at the global level and covering all modes | ■ CCAC Global Green Freight Action Plan  
■ World Bank Multi-Donor Trust Fund for Sustainable Logistics  
■ UNCTAD Sustainable Freight Transport and Finance |

Table 1 Categorization of smart freight initiatives
Green freight programs

The commercial nature of trade, means that the vast majority of cargo owners are corporations. Logistics usually represents 3 to 8% of the corporate carbon footprint. Exceptions are multinationals that sell fast-moving or high-end consumer goods in markets worldwide and rely more heavily on air transport, such as Nike, with logistics representing around 25% of their total carbon footprint.

Multinational firms, in particular those with recognizable brands, are under growing pressure from shareholders, customers, and government to reduce their carbon footprint. This market pressure cascades down the global supply chain to multinational carriers and logistics providers and national/local carriers. All of them also want to reduce costs, comply with current and forthcoming legislation, whilst retaining their license to operate.

Green freight programs respond to these business needs. They stand out from other initiatives because they are industry-backed/led and look at improving fuel efficiency and reduce emissions through a more holistic approach, combining targets, actions, emissions accounting, collaboration, policy input and recognition of businesses’ efforts. An overview of green freight programs is shown in Figure 4. However, green freight programs do not exist in all countries around the world, and existing programs do not have full sector coverage. This is especially the case for road freight, where even the more successful programs like SmartWay cover only 25% of road freight tonne-km because small carriers are difficult to reach.

Figure 4 Green freight programs
For 1-page summaries for different programs see The World of Smart Freight

The leadership challenge
For this reason, the Climate and Clean Air Coalition (CCAC) hosted by the United Nations launched the Global Green Freight Action Plan to bring governments, private sector, civil society, and other actors together to align and enhance existing green freight efforts, develop and support new green freight programs and to incorporate Black Carbon and air pollutant reductions into green freight programs alongside GHGs.17

1.3 Existing leaders

Carriers (who transport goods) and cargo owners/customers (who want goods moved) must work in tandem to achieve smarter freight: shippers/customers must create a “pull” and carriers must create a “push” for change, with LSPs taking on both roles.

SFC partnered with TU Delft to define smart freight leadership based on a literature review supplemented with a survey of multinational shipper and LSPs, plus selected interviews with 4 shippers (AkzoNobel, Heineken, Intel Corporation, Proctor and Gamble) and 3 LSPs (Deutsche Post DHL, TNT and UPS). Key findings are presented next.

Definition of a Smart Freight Leader

SFC adapted the definition of a supply chain leader18 to smart freight: “A Smart Freight Leader is an organization that demonstrates leadership at three levels a) lead by example by showing commitment to reduce own emissions, b) lead firms within its own logistics supply chain to optimize the chain, and c) lead outside its own logistics supply chain by collaborating with stakeholders to create standardization of methods and promote best practice sharing.”

Five criteria were crystallized for identifying Smart Freight Leaders:

- Logistics emissions reduction targets
- Measurement, reporting and verification (MRV) of emissions
- Achieved emissions reductions through actions
- Collaboration strategies to mobilize action across the logistics supply chain, including
  - a) green knowledge transfer and communication;
  - b) investment and resource transfer; and
  - c) management and organizational practices
- Pro-active policy input, in particular in relation to climate change

We need more leadership

Multinational cargo owners and LSPs have the power and incentive to be leaders. As customers, they have the power to decide on the type of transport modes to be used, the choices in routing, scheduling and ports in their supply chains.19,20 LSPs and carriers’ environmental performance is mainly driven by demands from their customers, i.e. cargo owners and LSPs.21,22,23

They also have a clear incentive: fuel efficiency leads not only to emissions reduction but also to the reduction of costs, as about 40% of transport costs are accounted to fuel on average.6,24,25 Furthermore, there is a positive correlation between firm environmental performance and financial performance and companies that fully adopt green practices prove to outperform competitors.19,25,26,27

However, studies show that only a fraction of cargo owners take up the role of Smart Freight Leader. A study on marine logistics found that about 40% of cargo owners measure their supply chain emissions and only 6% implement explicit carbon reduction initiatives.19
of LSPs consider a green reputation as secondary importance.\textsuperscript{20,28} Both cargo owners and LSPs rank carrier sustainability as one of the least important selection criterion.\textsuperscript{27,29}

SFC surveyed websites and annual reports of 145 multinational corporations that were member of one or more international green freight programs (during 2015): BSR’s Clean Cargo Working Group, Green Freight Asia, Green Freight Europe, Lean and Green, and US/Canada SmartWay.\textsuperscript{30}

Comprehensive information specifically on freight and logistics was available on websites and in annual reports of 64 of these multinationals. Available information was reviewed to determine if it covered the four leadership criteria (targets, actions, emission reductions and MRV applied across the logistics supply chain of these companies – note that pro-active policy input was added later as a criterial. This resulted in the identification of 37 companies as potential Smart Freight Leaders. It is noted that there are likely more potential Smart Freight Leaders who have not joined programs or have not communicated their efforts across the four criteria.

<table>
<thead>
<tr>
<th>Shippers (Cargo owners)</th>
<th>Logistics service providers (LSPs)</th>
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<tbody>
<tr>
<td>Alcoa</td>
<td>Intel</td>
</tr>
<tr>
<td>AkzoNobel</td>
<td>IKEA</td>
</tr>
<tr>
<td>AT&amp;T</td>
<td>Kohl’s</td>
</tr>
<tr>
<td>Aviko</td>
<td>Lenovo</td>
</tr>
<tr>
<td>Bacardi</td>
<td>NIKE</td>
</tr>
<tr>
<td>Ball Corporation</td>
<td>Philips</td>
</tr>
<tr>
<td>BASF</td>
<td>Procter &amp; Gamble</td>
</tr>
<tr>
<td>BDF Beiersdorf</td>
<td>Schneider Electric</td>
</tr>
<tr>
<td>Best Buy</td>
<td>Unilever</td>
</tr>
<tr>
<td>Campbell’s</td>
<td>Wal-Mart</td>
</tr>
<tr>
<td>Coca Cola</td>
<td></td>
</tr>
<tr>
<td>DELL</td>
<td></td>
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<tr>
<td>Dow Chemical Company</td>
<td></td>
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<tr>
<td>DSV</td>
<td></td>
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<tr>
<td>Electrolux</td>
<td></td>
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<tr>
<td>EMC Corporation</td>
<td></td>
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<tr>
<td>EMD Millipore</td>
<td></td>
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<tr>
<td>Epson</td>
<td></td>
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<tr>
<td>Evonik Corporation</td>
<td></td>
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<tr>
<td>Heineken</td>
<td></td>
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<tr>
<td>Heinz</td>
<td></td>
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<tr>
<td>Hewlett-Packard [HP]</td>
<td></td>
</tr>
<tr>
<td>Deutsche Post DHL</td>
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<tr>
<td>TNT</td>
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<tr>
<td>Fedex</td>
<td></td>
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<tr>
<td>Kuehne+Nagel</td>
<td></td>
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<tr>
<td>UPS</td>
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</tbody>
</table>

Table 2 Frontrunners on communication of Smart Freight Leadership based on publicly available information

We need more business leaders with a common vision of an efficient and environmentally sustainable freight and logistics sector and a common approach on how to get there.
2.1 The vision

Our vision is “Smart Freight” which equates to a journey towards efficient and environmentally sustainable global freight and logistics sector.

The scope of our vision entails:

- **Global freight and logistics sector**: transportation of handling of goods from cargo owners [shippers] to end-consumers, involving all players along the logistics supply chain [carriers, freight forwarders, logistics service providers] covering all modes [road, rail, air, sea, inland waterways] and transhipment centers [ports, terminals, airports, cross docks, distribution centers, warehouses]
- **Efficient**: the fuel efficiency of freight and logistics should be greatly improved, which is closely linked to operational efficiency and ultimately contributes to improved overall efficiency and competitiveness of the freight and logistics sector globally
- **Environmentally sustainable**: the freight and logistics sector does its part in reducing greenhouse gas emissions for the world to stay below a 1.5-2°C rise from pre-industrial ambient temperatures and works towards zero net greenhouse gas emissions. Air pollution from freight and logistics is reduced to the extent that it does not adversely affect the environment and people’s health. Social and economic impacts may be considered under a broader sustainability scope.

How does this translate to emission reductions? The IPCC 5th Assessment Report states that man-made missions must be capped at 20 billion tonnes by 2050 to have 50% chance of staying within a 2°C temperature rise by 2100. Estimates put transport emission targets at 3.1 and 6.1 billion tonnes CO2 under a 1.5 and 2-degree scenario respectively. With freight comprising about half of transport emissions in 2050, this equates to 1.3 and 3 billion tonnes CO2. Compared to 3.8 billion tonnes in 2015, emissions would need to be reduced between 19% under a 2-degree scenario and 64% under a 1.5-degree scenario!
Recent reduction potential estimates underpin this challenge. The ITF Transport Outlook 2017 compared a baseline scenario that considers existing policies with a low-carbon scenario that combines the most optimistic scenarios for CO₂ emissions for all modes and sectors. For freight, emissions intensity (CO₂ per tonne-km) in 2050 under the low-carbon scenario would be reduced by 51% compared to the baseline scenario. From this perspective, a 50% emissions intensity reduction between 2015 and 2050 sounds ambitious for corporations, and it is possible under the ITF optimistic scenario.

However, considering the growth in freight demand, this still equates to an increase in absolute CO₂ emissions for this sector by 55% from 2015 levels. For us to stand any chance of the freight sector pulling its weight in climate responsibilities we must therefore reduce the emissions intensity and the volume of freight transported.

It is acknowledged that it may be harder and less cost-effective to cut the carbon intensity of transport than that of other sectors. However, under any scenario a transformational shift towards decarbonizing this sector is essential. Realizing this vision is dependent on taking a business perspective, collective leadership and collaboration, linking to climate and sustainable development goals, and a clear framework for delivery. This is explained next.

2.2 Taking a business perspective

Freight and logistics is predominantly a commercial sector driven by businesses, as compared to passenger transport where governments play a central role in providing a public service to citizens. Taking a business perspective in transforming freight and logistics is vital because private sector companies – including shippers, logistics service providers and carriers – are at the core of this commercial sector.

The mistake often made is that broader societal benefits alone are thought to be sufficient for businesses to buy into sustainability strategies, but without a clear business case it is not possible for them to act at the scale and pace required.

Articulating the value for both society and business ensures leadership and commitments from businesses and other stakeholders to take up an active role in making freight and logistics more efficient and environmentally sustainable.

The business case thus must be build up starting from the core business drivers. Businesses want to

- Enhance their performance and competitiveness through reduced costs, improved customer service, and reduced exposure to climate-related risks
- Be recognized by customers, government and the public as a leader through a label, awards or publicity
- Increase compliance in a future carbon-constrained world and earn a seat at the table with governments to influence policies that affect business

Society at large wants to

- Reduce climate, air pollution and broader environmental impacts from freight and logistics
- Reap socio-economic benefits, for example, improved road safety, driver working conditions, and energy security
It is equally important to understand why businesses are not acting to reduce emissions. Major barriers exist. Businesses suffer from the lack of standard methodologies to calculate their carbon footprint and set emission reduction targets. Given the fragmented nature of the global logistics supply chain, companies that want to take action must collaborate with others. Policy and legislation can be unpredictable, sometimes fail to create a level playing field, or don’t work for business. There are many other barriers, and naturally, cargo owners face different barriers than carriers.

2.3 Collective leadership and collaboration

Freight transcends the influence sphere of individual countries and companies. Businesses thus need support from the broader private sector, governments and civil society to take their efforts to the supply chain level and unlock the enormous potential for the freight sector to improve efficiency and reduce emissions. Therefore, coordinated efforts within industry in partnership with government and civil society are key. We need leadership from all three.

Companies can show leadership by integrating smart freight into business strategies and decisions relating to freight across their logistics supply chains. Other private sector players can contribute too, for example industry associations, technology suppliers and service providers. Examples are target setting, providing pro-active input into government policies, investing in technology innovation and collaborating with other leaders to mobilize industry-wide action.

Governments can demonstrate leadership by providing a secure environment for deploying smart freight solutions and innovation. They can do this by, for example, adding freight to carbon pricing policies, developing national green freight programs, and investing together with the private sector in infrastructure that facilitates smart freight. Businesses want to lead, but without a strong and clear direction from government, how can they? Similarly, while government sets policies, these can only be effective if business and civil society are involved in their development and implementation.

Civil society can play a crucial role by putting smart freight, climate change and clean air strongly on their agenda’s. Collectively, non-profit organizations, universities and research institutes, development agencies and funders can seize this opportunity by embracing smarter freight as a core campaign, program or investment area. Today’s reality is that many civil society organizations overlook freight. For example, freight represents about 45% of transport carbon emissions, yet receives only 11% of transport climate financing. This situation must change, because who else is going to keep raising the bar for business and governments?
Consumers don’t usually think about how far their shoes have travelled before they put them on, or how their car made it to their driveway. And yet, consumers are at the root of the demand for goods movement and the prime reason why e-commerce has taken a flight in recent years. For this reason, leadership and collaboration must also target and involve consumers — directly or indirectly. For only if consumer behavior can be influenced can we tackle freight inefficiencies and associated emissions at the root cause. While some consumers are aware of the impacts of goods transport in their purchase decisions, this will not be enough to change behaviors at a large scale. A key piece of the puzzle is to disincentivize the need for instant gratification through higher pricing of goods transport, and making transport costs less hidden from goods purchase prices.

2.4 Linking to climate and sustainable development goals

Freight and logistics does not exist on its own but is very much a “servant” to other sectors, such as manufacturing, retail, construction and others. For freight and logistics to secure a real spot on the global climate and sustainable development agenda, a link must be made to broader existing efforts that span all main sectors. Without this, freight and logistics risks being overlooked or being last in line.

A second reason is that solutions to transform freight and logistics into a more sustainable direction heavily depends on what happens in other sectors. For example, electrification of transport to reduce greenhouse gases and air pollutants relies on the shift of the energy sectors towards cleaner fuels.

Two international, broader efforts stand out. The first is the Paris Climate Agreement that resulted from the 2015 United Nations Climate Change Conference and sets out a global action plan to keep global warming well below 2°C. Countries or “Parties” that signed the United Nations Framework Convention on Climate Change (UNFCCC) for reductions in GHG emissions, issued “Intended Nationally Determined Contributions” or INDCs in preparation for this conference. The Paris Climate Agreement enters into force in 2020 since at least 55 Parties ratified it.
representing at least 55% of global greenhouse gas emissions. INDCs then become Nationally Determined Contributions (INDCs) within this global action plan. Positioning freight and logistics within ongoing UNFCCC conferences and in the implementation of NDCs is important and necessary: while 43% INDCs explicitly refer to passenger transport, only 13% mention freight transport explicitly.

The second are the Sustainable Development Goals (SDGs) as a call to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. The 17 goals are interconnected, and some of the goals that have more direct relevance to freight, in particular: affordable and clean energy (goal 7), industry, innovation and infrastructure (goal 8), sustainable cities and communities (goal 11) and climate action (goal 13). The more we are able to make a link between smart freight efforts to relevant SDGs, the easier it will be to gain support from decision-makers from outside the freight and logistics sector.

United Nations Secretary-General Ban Ki-moon established a High-level Advisory Group on Sustainable Transport to provide recommendations on sustainable transport actionable at global, national, local and sector levels. Their report “Mobilizing Sustainable Transport for Development” connects the SDGs to sustainable transport requirements: safe, affordable, accessible, efficient, resilient, and minimizing carbon and other emissions and environmental impacts.

### 2.5 Clear framework to deliver the vision

To create a common approach for what is needed for government, the private sector and civil society to deliver the vision, and achieve the desired transformational change and emission reductions at scale, SFC developed the Smart Freight Leadership Framework. Beyond creating a common approach, this framework can be used to spur and guide action to accelerate the uptake of smart freight solutions by industry.

As Smart Freight Leaders, businesses take action across their global logistics supply chain to reduce emissions within the 1.5-2°C scenario while creating value for business and society. At the center stage are cargo owners and carriers, with logistics services providers and freight forwarders taking either role. They are supported by the broader private sector, government and civil society. The role of consumers must be considered as end-costumer of many logistics chains.

Smart freight solutions can cover fuel and vehicles, freight movement and the broader transport system in which they operate. To ensure that actions collectively realize emission reductions, Smart Freight Leaders

- Measure, report and verify emissions
- Set KPIs and ambitious emission-reduction targets
- Develop and implement an action plan
- Collaborate with other leaders to mobilize industry-wide action
- Engage pro-actively in government policy development.

If the top important multinational shippers, LSPs and carriers adopt these behaviors it will help them to reduce emissions, improve freight efficiency and thus improve competitiveness. These behaviors will both inspire others and become the norm for industry thus changing the global freight sector with society benefitting from the more efficient and environmentally sustainable practices.
The smart freight vision

Figure 8 Smart Freight Leadership Framework
3 THE JOURNEY TO SMARTER FREIGHT

The Smart Freight Leadership framework forms the basis for the journey to an efficient and environmentally sustainable global freight and logistics sector.

The freight sector is complex and fragmented and therefore the problem must be tackled from different directions that involve a multitude of stakeholders. The performance of the freight sector is driven by the interaction of three components: the transport system (i.e. infrastructure and policies), freight equipment (i.e. vehicles and vessels) and freight movement (e.g. shipper/customer, LSPs and carrier logistics decisions).

In an ideal world, the freight sector will be supported by:

- **Quality transport system**: Quality infrastructure and connectivity within and between modes with supporting policy and regulatory frameworks
- **Optimized freight movement**: Sector wide adoption of logistics solutions that maximize load factors and optimize the routing and scheduling of freight flows
- **Efficient vehicles and vessels**: Sector wide adoption of technologies and strategies that offer greater efficiencies and emission reductions

Figure 9 offers some examples of smart freight solutions. Opportunities are different at the urban, national and global levels and for different modes, and what works best may also vary between countries and regions. Shippers/cargo owners, LSPs and carriers that have a multi-pronged strategy covering all three levels, will more likely deliver emission reductions at scale and meet ambitious corporate emission reduction targets. These solutions are categorized similarly to "avoid, shift, improve" and encapsulate the green logistics strategies proposed by McKinnon.38

The next sections describe the five central elements that define leadership: emissions...
measurement, reporting and verification (MRV); setting KPIs and targets; developing and imple-
menting and action plan, collaboration; and pro-active policy input. For each of these, three key chal-
lenges are described along with three proposed solutions, which are summarized in Figure 10.

**Figure 10** Key challenges and proposed solutions to deliver Smart Freight Leadership
3.1 Measure, report and verify emissions

What you don’t measure, you can’t manage. This also applies to emissions resulting from freight movement and logistics activities. Measurement, reporting and verification (MRV) should be high on the corporate agenda, especially of companies with high logistics supply chain emissions as a portion of total corporate emissions.

The importance of MRV to companies is illustrated in Figure 11. Multinationals operating along global logistics supply chains require a standard multi-modal methodology for emissions measurement. Verification of emissions data by a third party assurance provider enhances the credibility of data that is reported to external users. Reported data can subsequently be used to create business value (see Figure 6).

**Figure 11** Creating business value through MRV of logistics emissions

**Existing challenges**

Measurement of emissions is a prerequisite to reporting and verification. There are several barriers to measuring emissions: a universal calculation method, lack of reliable data and other barriers. For this reason, we focus primarily on these barriers and what is needed to address these.

**Lack of universal method for calculating logistics emissions**

Companies are increasingly being asked to report and systematically reduce their greenhouse gas (GHG) emissions, giving companies with smaller carbon footprints a competitive advantage. Tracking GHG emissions can be challenging because there are so many methodologies and reporting formats requested by different customers, countries and programs. To create and implement a universal way of calculating logistics emissions, Smart Freight Centre established the Global Logistics Emissions Council, or GLEC. GLEC is a group of companies, industry associations and programs backed by leading experts, governments and other stakeholders. Together we created the GLEC Framework for Logistics Emissions Methodologies to make carbon
accounting work for business. The GLEC Framework was launched in June 2016 following a year of consultation on a draft framework, validation with four companies, and issuance of the GHG Protocol Built on Mark. For the first time, emissions can be calculated consistently at a global level across road, rail, air, sea, inland waterways and transhipment centers.

Now that the GLEC Framework is here, a remaining challenge is to ensure that businesses start using it for reporting and decision-making that leads to lower logistics emissions. Furthermore, the GLEC Framework requires further deepening through adding detail for air, inland waterways and transhipment centers, and expansion with black carbon and other emissions.

A related problem is the availability of reliable data. As cargo owners and LSPs make use of the same pool of millions of carriers, it is not feasible or practical to collect their data separately. A main reason for the establishment of green freight programs has been that they can serve as central databases for the collection, analysis and benchmarking/reporting of data of these shared carriers. BSR’s Clean Cargo Working Group (see box) and SmartWay have the most advanced and complete databases covering marine container freight and road freight in the US and Canada respectively. A challenge is that these programs do not yet span the globe and only a few programs have been sufficient coverage of carriers to allow for reliable benchmarking and reporting. An underlying reason is that carriers are wary of sharing detailed fuel and emissions data that would give shippers too much insight in fuel costs and profit margins that could be used to negotiate lower contract prices. After all, shippers and carriers have a commercial relationship.

Figure 12 Base methodologies considered under the GLEC Framework

Lack of real data reduces reliability of reported carbon footprint and usefulness for decisions

A related problem is the availability of reliable data. As cargo owners and LSPs make use of the same pool of millions of carriers, it is not feasible or practical to collect their data separately. A main reason for the establishment of green freight programs has been that they can serve as central databases for the collection, analysis and benchmarking/reporting of data of these shared carriers. BSR’s Clean Cargo Working Group (see box) and SmartWay have the most advanced and complete databases covering marine container freight and road freight in the US and Canada respectively. A challenge is that these programs do not yet span the globe and only a few programs have been sufficient coverage of carriers to allow for reliable benchmarking and reporting. An underlying reason is that carriers are wary of sharing detailed fuel and emissions data that would give shippers too much insight in fuel costs and profit margins that could be used to negotiate lower contract prices. After all, shippers and carriers have a commercial relationship.
The journey to smarter freight

Limited capacity and demand for measurement, reporting and verification (MRV)

A survey of cargo owners (Figure 13) found that several other barriers exist to measuring emissions. The most significant barriers relate to capacity (resources, time, expertise, knowing how to measure and report) and demand from customers and governments.

The knowledge and capacity gap for the many small and medium enterprises (SMEs) involved in the logistics sector is significant. Even the largest logistics service providers subcontract much of their transport to specialist carriers, and acknowledge that they struggle to get reliable, company-specific data in a format that can be used to fulfil carbon accounting requests from their customers.

| Insufficient resources, time or expertise | 57% |
| Unsure about the measurement and reporting mechanisms | 50% |
| No demand from customers for emissions data | 32% |
| No government requirements to report logistics supply chain emissions | 25% |
| Emissions too difficult to calculate | 25% |
| Logistics supply chain emissions likely a small % of company total | 24% |

Figure 13 Barriers to measuring emissions by cargo owners

BSR Clean Cargo Working Group

The Clean Cargo Working Group (CCWG) was founded by BSR as a global, business-to-business initiative. It is dedicated to improving the environmental performance of marine container transport, through measurement, reporting, evaluation and best practice sharing. Today, CCWG tools represent the industry standard for measuring and reporting ocean carriers’ environmental performance on CO₂ emissions and other environmental impacts. CCWG has 45 members and carriers reporting represent over 85% of ocean container cargo. Every year CCWG produces global trade lane emissions factors which have shown an industry reduction in CO₂ emissions of 29% per TEU-km since 2009. CCWG creates practical tools for measuring, evaluating, and reporting the environmental impacts of global goods transportation, helping ocean freight carriers track and benchmark their performance and easily report to customers in a standard format, and cargo owners (shippers) review and compare carriers’ environmental performance when reporting and making informed buying decisions.
Proposed solutions

Proposed solutions all evolve around promoting emissions accounting and reduction: adopting the GLEC Framework, developing data interfaces between shippers and carriers, and creating incentives and support mechanisms for MRV.

Driving adoption of the GLEC Framework for Logistics Emissions Methodologies

The next step towards aligning carbon accounting in the logistics sector is to drive the acceptance and use of the GLEC Framework by industry, government and other players.

This will be realized through direct adoption of the GLEC Framework by companies, especially multinational shippers, LSPs and carriers that are member of industry-backed green freight programs, industry associations relevant to the freight sector, and industry networks with a logistics element. It is important that GLEC member companies are not only champions of GLEC but also can lead the greater industry toward adoption by reaching out to other companies through green freight programs, industry associations and business networks of which they are a member. Leading multinationals including DB Schenker, Deutsche Post DHL Group, Geodis, HP, Intel, Kuehne+Nagel and SNCF have already committed to adopting the GLEC Framework.41

Secondly, more companies will apply the GLEC Framework if it is adopted by:

- **Calculation tools** used by companies to calculate emissions, which can be a company’s in-house tool, or tools available commercially for example NTM, EcoTransIT and TK Blue. Tools can be aligned with the GLEC Framework by, for example, creating a “GLEC default” setting.

- **Green Freight Programs** (see Figure 4) can be more effective in enabling their company members to identify and deliver on emission reduction opportunities by adopting the GLEC Framework as it enhances comparability and usefulness of emissions calculations. Companies are more likely to join programs that are effective and consistent with programs for other modes/regions. Harmonizing logistics emissions accounting through the GLEC Framework was already a key action in the Global Green Freight Action Plan.17 Lean & Green Award members developing reduction plans follow the GLEC Framework to make data more comparable. The Carbon Disclosure Project (CDP) lists the GLEC Framework in its 2017 Climate Change Reporting Guidance.42

- **Governments or institutions that issue standards** for emissions calculations that include freight and logistics are going to receive more support and credibility if these are consistent with the industry-backed GLEC Framework. They could take the GLEC Framework into consideration to maximize alignment in applicable updates of existing standards, such as EN 16258; Article L.1431-3 of French Transport Code or ‘French Grenelle’; the Sustainable Accounting Standards Board; and applicable updates of GHG Protocol modules (most importantly the Corporate Value Chain Standard, Product Life Cycle Standard, and GHG Protocol for Cities). The same would apply to new national standards for emissions accounting. The credibility and use of the GLEC Framework, in turn, will be enhanced if it is used as the basis for a new ISO standard and/or if it is embedded into related ISO standards.

Develop data interfaces between shippers and carriers taking commercial sensitivity of data into account

The quality of calculated emissions and their subsequent use in business reporting and decisions concerning logistics depends on the availability of quality data. This data gap has been identified by businesses as a priority issue to be addressed next, in particular for road and air freight. What is of utmost importance, is that we use the “what we need data for” as a basis, and not the “let’s
get all the data we can get and then we’ll see”. For example, public reporting of a company’s global carbon footprint vis-à-vis benchmarking between companies puts different requirements on data.

First, there is an immediate need to develop “consumption factors” (CO₂ or fuel per tonne-km) for different modes and regions, which will improve the accuracy of companies’ calculated footprints. This can be done together with institutions that have relevant data, for example, using the data collected through green freight programs like ObjectifCO2 and the Logistics Carbon Reduction Scheme, it may be possible to derive consumption factors for France and UK respectively that are better than the current default factors available. Another option is to conduct surveys, for example of trucks driving along busy freight corridors in Europe, Africa or Asia, to derive corridor consumption factors, similar to the shipping lane factors available through Clean Cargo Working Group for ocean container freight.

Second, a significant investment is needed in improving data exchange between shippers and carriers, without compromising carrier’s commercial position. The pros and cons of the following three options should be analyzed, to determine the most feasible/appropriate option for different countries and/or regions:

- Carriers report primary data (fuel use, distance traveled etc.) to online tools/databases embedded in green freight programs to subsequently calculate fuel or CO₂ consumption factors centrally
- Carriers make their own calculations and report total emissions and consumption factors to green freight programs. Green freight programs subsequently compile reports like SmartWay
- Carriers make their own calculations and report total emissions and consumption factors using a standard template that is agreed between many carriers and shippers together. Shippers can then develop an interface to integrate reports from all their subcontracted carriers
- Carriers make use of interface application(s) for data exchange with customers. Data can come from carriers directly or be pulled from emission calculation tools or databases.

The staggering ICT innovation and uptake of transport management systems in the logistics sector could also provide an opportunity to get more reliable fuel data from which to calculate GHG emissions.

**Develop incentives and support mechanisms for MRV**

Businesses acknowledge that without inclusion of MRV requirements in carrier contracts or a legal requirement to report emissions, it largely remains voluntary. However, incentives are created by the various green freight programs or initiatives such as the Carbon Disclosure Project that require MRV of data, and in return give companies a label, award or other form of recognition. “Labels” are an often-mentioned incentive mechanism, of which there are three options: as a separate CO₂e figure for logistics services/activities, inclusion in a product life cycle CO₂e figure, and embedded in label schemes of green freight programs that combine CO₂e data/reporting with other program requirements. We believe that collaborative green freight programs are the logical path to spread a wide-reaching, well-designed B2B label in the logistics sector, but there is a need to ensure that the basis of the labels is clear and harmonized between programs and across the needs of various user groups.
3.2 Set KPIs and ambitions emission reduction targets

Defining key performance indicators (KPIs) and setting targets are important to ensure that the global freight and logistics sector takes its share in keeping global atmospheric CO₂ concentrations below the level that corresponds with a 1.5-2°C temperature rise compared to pre-industrial times. KPIs and target setting applies to companies but also to countries and sectors. Companies that use emission-related KPIs and set targets have the benefit of knowing what they are aiming for and thus can avoid that while actions individually may look impressive, these fail to deliver emission reductions at scale. KPIs also help reinforce corporate policies.

Existing challenges

Ample efforts to define KPIs and set targets exist. However, the existing situation is that companies set targets inconsistently; national or sector targets from which to derive business targets are mostly lacking; and green freight programs have different requirements for target setting and give laggards an unfair advantage.

Inconsistent KPIs and target-setting by companies

Top management can show they are serious about decarbonization by setting ambitious emission reduction targets for a company’s global logistics supply chain. These should be supported by strong corporate policies favoring low carbon freight and logistics and KPIs at every level of the organization. Only when logistics and operations directors are held accountable to contribute to these targets will they truly include the carbon footprint in their logistics decisions: selecting subcontractors, modes, routes, locating distribution centers, investing in vehicles and equipment, etc.
Companies can set targets in two ways. Absolute emission reduction targets relate to the total quantity of greenhouse gas emissions being emitted. Intensity reduction targets are expressed as emission reductions per unit of an operational or economic output.

Table 3 gives examples of business targets and shows that companies express their targets differently, which results in comparing apples and oranges. Moreover, as companies set emission intensity reduction targets, whether these will translate into real emission reductions is highly dependent on growth in freight volumes or tonne-km.

<table>
<thead>
<tr>
<th>Company</th>
<th>Normalizer (KPI)</th>
<th>Time period</th>
<th>Target as % reduction in carbon intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deutsche Post / DHL</td>
<td>Every letter and parcel delivered, every tonne of cargo transported and every square meter of warehouse space</td>
<td>2007-2050</td>
<td>Zero emissions by 2050</td>
</tr>
<tr>
<td>DB Schenker</td>
<td>Tonne-km</td>
<td>2006-2020</td>
<td>At least 20%</td>
</tr>
<tr>
<td>UPS</td>
<td>UPS Transportation Index</td>
<td>2010-2017</td>
<td>5%</td>
</tr>
<tr>
<td>UPS Airlines – Global</td>
<td>Pounds of CO₂ emitted for every ton of capacity transported on nautical mile</td>
<td>2005-2020</td>
<td>20%</td>
</tr>
<tr>
<td>FedEx</td>
<td>Available ton mile (ATM, tons of carrying capacity multiplied by miles travelled)</td>
<td>2005-2020</td>
<td>20%</td>
</tr>
<tr>
<td>TNT (Mail and Express)</td>
<td>Not specified: only refers to CO₂ efficiency</td>
<td></td>
<td>45%</td>
</tr>
<tr>
<td>Maersk Line</td>
<td>Not specified: only refers to CO₂ efficiency</td>
<td>2007-2020</td>
<td>25%</td>
</tr>
<tr>
<td>NYK</td>
<td>Unit of transportation from vessels</td>
<td>2006-2013</td>
<td>10%</td>
</tr>
</tbody>
</table>

Green Freight Programs and initiatives have different target requirements
There are also several green freight programs that require companies to set targets and deliver tangible results, but requirements differ between them:44

- **Lean and Green** (Netherlands and other European countries): Members commit to a minimum target of 20% CO₂ reduction per tonne-km (or comparable unit) over a maximum 5-year period covering at least 50% of their operations
- **Logistics Carbon Reduction Scheme** (United Kingdom): Program members are collectively committed to 8% reduction in the intensity of CO₂ emissions of their 77,000 trucks and vans by 2015, compared to a 2010-baseline
- **Objectif CO₂** (France): Member carriers, currently covering around 20% of commercial road freight vehicles in France, must set a CO₂ reduction target against two performance indicators: gCO₂/km and gCO₂/tonne-km over three years

Another challenge is that they make use of percentage reduction targets – either expressed as absolute emissions or emissions intensity. This creates an unfair advantage for companies that have made little efforts in the past, i.e. laggards get rewarded when they join green freight programs because it is easier for them to improve.

One effort that has drawn traction from companies is the Science-Based Target Initiative of World Resources Institute (WRI), World Wildlife Fund (WWF), UN Global Compact, and Carbon Disclosure Project (CDP).45 The basis for setting targets is the emissions budget still available to stay below a global warming increase of 2°C by 2100. By early 2017, over 200 companies had committed to...
setting science-based targets following clearly defined steps. However, logistics only need to be included under “scope 3” if it covers a significant portion of a company’s overall emissions.46

Lack of broader targets from which to derive business targets

Only few countries and sectors have set targets relevant to freight and logistics, making it more difficult for businesses to place their targets in a bigger context. There is no clear emission reduction target for the transport sector by 2050, including separate targets for passenger transport and freight and logistics, and different modes within freight. If we don’t know where we are going, then how can we devise a strategy to get there?

Several countries have set national emission reduction targets, including for freight and logistics. For instance, in 2016, the China Ministry of Transport published the ’13th Five-Year Plan for Road Transport’ setting targets for operating trucks compared to 2015. The reduction target for energy consumption per freight tonne-km is 6.8% by 2020. The target for CO2 emission reductions per unit transport turnover of operating trucks is 8% in 2020.46

As another example, the European Commission enacted a climate and energy package as a set of binding legislation in 2009, which sets clear targets for 2020, known as the 20-20-20 targets -- however freight and logistics as a sector is not specified:47

- A 20% reduction in EU greenhouse gas emissions from 1990 levels
- Raising the share of EU energy consumption produced from renewable resources to 20%
- A 20% improvement in the EU’s energy efficiency

The Netherlands’ Top Sector Logistics in partnership with NGO Connekt promotes an 80% emission reduction target in a business-oriented way, ‘Factor 6’: the logistics sector wants to work 6 times more efficiently in 2050 compared to 1990. 78

Sectoral targets were set by, for instance, the airline sector, which in 2012 emitted 677 million tons CO2, representing 2% of global emissions. As commercial cargo represents only about 0.5% of total volume [although about one-third of total value] transported by air, the International Air Trade Association (IATA, representing 240 airlines covering 84% of global air travel) adopted the following targets to mitigate CO2 emissions from all air transport:48

- An average improvement in fuel efficiency of 1.5% per year from 2009 to 2020
- Carbon-neutral growth: a cap on net aviation CO2 emissions from 2020
- A reduction in net aviation CO2 emissions of 50% by 2050, relative to 2005 levels

Proposed solutions

Leadership and collaboration are needed to make target setting more consistent, transparent and fair.

Develop a common set of KPIs and methodology for setting business emission reduction targets

A common set of KPIs for freight efficiency and CO2 emissions will help company management to drive performance improvements. Agreement needs to be reached within the freight and logistics sector on a common, global methodology for setting targets and how these should be expressed. Only then will targets be comparable and can they be added up to assess whether companies together will achieve sizeable emission reductions across a country or mode. This should build on existing efforts, such as the SBTI, green freight programs, and modal targets.

Moreover, it is important to set KPIs at the right level. For example, CO2 per tonne-km may be too generic to drive and measure change. A more effective KPI could be the number of trucks
taken off the road because this encourages shifting freight to other modes and increasing truck filling rates and filled return trips. For this to work, the right corporate policies are key, in this example a company must be prepared to have its goods combined with that of other companies in the same truck or train.

**Improve target setting requirements under Green Freight Programs and initiatives**

To make target setting more fair and transparent, programs should align target setting and make use of benchmarks for CO₂ per tonne-km targets. The US SmartWay program, while not mandating target setting, categorizes companies into five groups (for each truck/service type) based on their ton CO₂/tonne-km performance across the fleet, thus allowing their customers and other stakeholders to compare companies on an equal basis.

As for SBTI, it is advisable that companies committing to target setting disclose what percentage of their business’s total carbon footprint comprises freight and logistics. This way it can be determined if these are significant and should be included in company targets under this initiative.

**Improve methodology alignment between by countries, modes and companies**

Business targets for freight and logistics ideally should be put into context of global, national and sectoral targets -- after all, all countries and sectors must together work towards a low carbon world.

To make this happen, ideally global targets should be set based on the emission ceiling that prevents global warming surpassing a 2°C increase as confirmed by the Paris Climate Agreement. Using the same or consistent methodology, national and sectoral targets should be derived from that, including emission reduction targets for the global freight and logistics sector, and modes within these. This in turn will allow business to check that their own targets are in line with targets of sectors and countries in which they operate.

As mentioned before, it may be harder and less cost-effective to cut the carbon intensity of transport than that of other sectors. An effort to set such a target for the global freight sector in its totality and/or by mode, should thus take freight characteristics into account, such as:

- Relative cost of decarbonizing freight transport in comparison to other sectors, especially as available evidence suggests these are higher for transport including freight
- Inter-dependence between freight transport and other sectors, acknowledging that the demand for freight is highly dependent on developments in other sectors
- Technological and sectoral developments, including the full range of decarbonization options available, particularly on the softer behavioral/operational side. For example, for transport broadly, electric vehicles could trigger a revolution in this sector, and if combined with a shift from conventional fuels to renewable fuels in electricity generation this would have massive impacts on freight CO₂ emission levels

### 3.3 Develop and implement an Action Plan

The rubber hits the road with an Action Plan containing concrete measures to reduce the carbon footprint. Action Plans or roadmaps can be developed by countries (following their Nationally Determined Contributions or NDCs) and by companies.

**Existing challenges**

Solutions are known, yet we seldom see their uptake at scale in the logistics supply chain of multinational cargo owners, LSPs and carriers. Reasons are insufficient guidance and examples,
dependency on subcontracted carriers who face barriers, and support efforts not reaching businesses.

**Insufficient guidance and examples to develop action plans for logistics supply chains**

Guidance on how to develop an effective action plan to curb logistics emissions is hard to find. Examples of actions plans are also scarce because companies usually don’t share these publicly. Despite case studies and examples of smart freight solutions on various websites and reports, businesses often complain that these are too generic and not specific for their situation, which is not surprising given the vast differences within the sector.

**Shippers depend on subcontracted carriers who face barriers to implementing actions**

Multinational cargo owners, LSPs and carriers that want to reduce their carbon footprint are to a large degree dependent on what their subcontracted carriers do. While this is the case for all modes, this especially applies to road freight due to the many layers of subcontracting and carrier fragmentation. For example, small contractors using old vans for urban deliveries. To this end, SFC developed a map of barriers that road freight carriers face to adopt fuel saving and emission reducing technologies and measures as shown in Figure 9. The identification of these barriers draws from SFC’s own work and other existing projects and studies and are described in SFC’s publication “Barriers for Carriers”.\(^{50}\)

Barriers exist, both internal and external. Internal barriers relate to obstacles within the company boundaries and that are mostly within management’s control. There are four categories of internal barriers: re-active management, management systems, finance, and awareness and capacity.

External barriers relate to outside factors and players over which carriers have little or no influence. The four categories of external barriers are: market forces, institutions and policies, partners and programs, and technologies and measures.

![Figure 14 Barriers for carriers\(^{24}\)](image)
All these barriers are interconnected and often re-enforce each other. To get a holistic understanding of existing barriers we must realize that the global freight sector is first and foremost a commercial sector. Market forces, an oversupply of carriers and high fragmentation have created a cut-throat competitive sector that puts carriers under an enormous pressure to survive. This in turn contributes to reactive management within carriers, their ability to finance technologies and measures and invest in management systems and internal capacity building. The other external barriers further weaken carriers’ ability to become more fuel efficient.

**Fragmented government, research and other support efforts do not reach businesses**
Government support aimed to help business take action can take many forms, such as subsidy schemes and information about technologies, but relatively little effort is made to ensure that businesses know about this. Furthermore, while pilot projects can be incredibly useful to demonstrate the potential of technologies and other solutions, efforts often stall at the pilot phase, at a company’s boundary or in developed countries for companies that operate worldwide.

Similarly, a lot of research is conducted on efficiency in logistics, but businesses are not always heard in selecting research topics and focus, the gap between research results and practical application is too wide, or results never reach businesses. For example, there are ample examples of actions by companies and several online databases with case studies exist, but these are not easy to locate. Fortunately, the number of initiatives that combine research and business partnerships is on the rise, such as the Dutch Institute for Logistics (Dinalog) and the Centre for Sustainable Road Freight in the United Kingdom.51

Green freight programs provide support through guidance, technology verification, financing schemes, other support, or a combination of these. The toolboxes of SmartWay, Objectif CO₂, and EcoStars stand out for their practical nature and help companies make more informed purchases. SmartWay’s Technology Program tests and verifies emissions reductions and fuel savings for various available technologies, such as aerodynamics, idle reduction technologies, and low rolling resistance tires. SmartWay also provides case studies, fact sheets, technical bulletins and educational materials on fuel-efficient technologies, fleet movement and modal shift. Objectif CO₂ developed freight best practices catalogue with ‘Action Sheets’ for 54 solutions tailored to four different truck types, and these are being translated from French into English and Spanish. EcoStars developed a fleet efficiency Road Map, to help carriers progress through the scheme’s 5-star rating system, and that cover actions in six categories. However, governments and associations in most other countries, let alone cargo owners and carriers, are not aware that this information exists. As a consequence, the large majority of companies are not reached with the support they need.

**Proposed solutions**
Guidance and examples to develop action plans, more carrier initiatives, and clarity of support options that are available to businesses can help address these challenges.

**Provide guidance and collect examples to support companies in developing action plans**
Guidance to develop action plans, along with examples, is key. Such guidance can draw from green freight programs such as ObjectifCO₂ and EcoStars, corporate social responsibility (CSR) reports, and even action plans or road maps by cities and countries.

While action plans vary in structure and content, based on existing plans and strategies reviewed, the content is generally composed of "Where are we now? Where are we going? How do we get there? What do we need to implement the plan."

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51
Develop more initiatives dedicated to help carriers overcome barriers

It is important to focus on what barriers can be realistically addressed, in a concerted effort that looks at all identified barriers holistically, while involving carriers, their immediate partner and broader stakeholders. First, while it is tempting to focus on market forces, this is not realistic. A better approach is to focus on barriers that carriers have more control over, such as management systems or awareness and capacity, or that partner NGOs and government agencies can address, such as policies and programs. Second, addressing one barriers is not going to solve the problem. For example, a combination is needed of clear policies and technology standards can build trust in technologies available on the market, and fleet managers’ ability to assess which technologies and suppliers are the best fit, and good management systems that generate data for a strong business case to management, and a solution to overcome cash flow challenges to invest.

More initiatives that explicitly target carriers and their specific barriers can make a real impact. Examples of existing initiatives are

- Green freight programs built around carriers, such as EcoStars or France’s Objectif CO₂
- Initiatives that focus primarily on technologies and measures that carriers can adopt independently, such as Trucking Efficiency in the US, Low Carbon Vehicle Partnership in the UK and Green Truck Partnership in Australia
- Training courses for drivers and transport managers focused on fuel and operational efficiency, such as SAFED and FORS in the UK and FleetSmart in Canada (now integrated with SmartWay)

Map government, research and support by action type and establish channels to reach businesses

Addressing barriers holistically means that active collaboration and concerted efforts are needed. For example, a green freight program can provide information on technologies and measures but will be more effective if backed by government and NGOs. Technology providers, industry associations, and academic institutions can provide fleet managers training, but this will be more effective if successful fleet managers are involved in training delivery.

Clarity of what support is available to businesses is key, and therefore mapping, consolidating and channeling information to companies is another recommendation. One company executive put it like this: “We need someone to provide an ‘alert function’ on broader developments, such as funds, policy developments, studies, initiatives, which would really help strengthen the business case for improvement measures.”

This also means that we should look beyond green freight programs to reach businesses and look at other programs and initiatives that target a specific sector or are more mainstream business but with a sustainability angle to them. One example is EPEAT that is managed by the Green Electronics Council and rates electronics products on their environmental performance across the lifecycle – thus including transportation. Another is the Dow Jones Sustainability Group Index.

3.4 Collaborate with other leaders

Businesses that have worked to improve fuel efficiency and reduce emissions realize that there is a limit to what they can achieve within the boundaries of their company. As such, they are looking across the fence and explore collaboration. Collaboration means ‘working together to achieve a goal’ or building toward a defined outcome through the interactions and input of multiple people.
As the logistics supply chain spans across the globe, covers multiple modes and involves thousands of players, collaboration is the only way forward if we are to achieve double-digit emission reduction. Given the central position of cargo owners as customers who make use of the same global logistics supply chain, collaboration between them is critical and involve their (often overlapping) logistics service providers and carriers.

For example, carriers and retailers are testing and introducing new ideas such click and collect, direct delivery by retailers, parcel shops and lockers, delivery to the workplace, home lockers and in-boot deliveries, carrier collaboration initiatives, and drone deliveries. However, these solutions are developed in very individual manners, and these would be more effective if coordinated.

Similarly, businesses need to collaborate with other private sector players, governments and civil society especially on actions that are not within their control alone. Partnerships can amplify collective leadership.

**Existing challenges**
Collaboration is hampered because it is not well understood, neutral players are often missing, and the multitude of initiatives is especially confusing to businesses.

**Collaboration is diverse and poorly understood with too few published examples**
There is ample scope for such collaboration and the potential for cost and environmental savings is huge as witnessed by available examples. The challenge is that right now only a handful of companies are working together in this way and there are too few published examples. An underlying reason is that collaboration types, principles and process are poorly understood.

**Lack of neutral facilitators of collaboration efforts**
Individual companies that operate along the same logistics supply chain or have a stake in a common challenge of the freight sector can establish win-win collaborations. But up to now shippers that are willing to collaborate are too often hindered by practical obstacles. One of them is the availability of neutral and strategic conveners to bring different parties together.

**Proliferation of initiatives risking business disengagement**
The momentum for climate action generated by the Paris Climate Agreement, combined with a growing realization that freight and logistics is part of that puzzle, is resulting in new freight initiatives and funders. We need more efforts and funds, but further proliferation must be avoided.

**Proposed solutions**
**Define principles and process of successful collaboration in logistics with real examples**
Successful collaboration needs to be defined and agreed before it can be put in practice by many. While recognizing that this requires input from many stakeholders, the following could kick off the discussion on a common framework:

- Types: 3 types of collaboration
- Steps: 5 steps for successful collaboration
- Principles: 5 M’s of logistics supply chain collaboration

There are three types of collaboration (modified from Forum for the Future) as shown in Figure 15:

- Within logistics supply chain collaboration, for example, a cargo owner influencing its LSPs and subcontracted carriers to act (see example)
- Cross logistics supply chain collaboration, whereby horizontal collaboration takes place,
for example between multiple cargo owners who have the same customer(s) or destination market (see examples)

- Multi-stakeholder collaboration on a common challenge or opportunity, involving actors from the logistics sector and government, private sector and/or civil society. Examples are the initiatives in Table 1, infrastructure projects, and technological innovation

Of these types, the cross logistics supply chain and multi-stakeholder collaborations have the greatest potential to transform the logistics sector. To demonstrate the potential influence of freight service buyers in their logistics supply chain, the New Zealand Sustainable Business Council brought together 17 companies to develop sustainable procurement guidelines for freight. Since each business has its own approach and procurement practices for goods and services, these guidelines proposes common requirements for subcontracted carriers: compliance, emissions measurement, and sustainability credentials.
Within logistics supply chain collaboration - backhaul freight by Walmart and Unilever in China

The green logistics collaboration between Walmart and Unilever in China dates back from 2009. Unilever deliver its goods to Walmart Distribution Centers (DC), which Walmart transported to its 300+ stores in over 100 cities across China. Both companies had empty trucks on backhaul trips: Unilever when returning from Walmart DCs, and Walmart when returning from its stores. The collaboration meant that several trucks returning from Walmart stores pick up Unilever products to take to Walmart DCs. The result: 520 less empty truck trips and 58 tons CO₂ reductions per year, a 10% transport cost reduction for Unilever, and 100% on-time pick-ups.

Cross logistics supply chain collaboration - bundling suppliers’ products for Jumbo retailer

Retailers like Jumbo face the everyday challenge of getting their products to shops and consumers across the Netherlands using hundreds of carriers. Imagine products from different brands being transported separately to Jumbo’s distribution center, only for trucks to then return empty. There has to be a smarter way. Jumbo has been able to “bundle” orders from four different product suppliers and make arrangements for freight backhauls. The result: 40% less supplies stacked at the distribution center, 40% less deliveries, 30% higher truck load factors, 35% less transport kilometers and 35% lower carbon footprint. And of course significant cost savings.

Multi stakeholder collaboration – SmartWay Transport Partnership

The SmartWay Transport Partnership is the flagship program of the US and Canada for improving fuel efficiency and reducing GHG and air pollution from the transportation supply chain industry. The program was launched in 2004 as a public-private initiative between US EPA and partners including industry stakeholders, environmental groups, American Trucking Association and BSR. It aims to increase the availability and market penetration of fuel-efficient technologies and strategies that help freight companies save money while reducing adverse environmental impacts. SmartWay is the most extensive and mature green freight program in operation today. By 2015, over 3,000 members collectively saved $16.8 billion dollars in fuel costs, 120.7 million barrels of oil (the equivalent of taking over 10 million cars off the road for a year), 51.6 million metric tons CO₂, 738,000 tons NOₓ, and 37,000 tons PM.

The following five steps for successful collaboration were identified by Forum for the Future:

- Step 1. Identify the right type of collaboration by articulating your problem statement
- Step 2. Secure permission to play by getting senior management commitment
- Step 3. Use great process, but make it flexible by involving an experienced facilitator who can take the process wherever the energy of the collaboration might take it
- Step 4. Allow time for reflection, difficult conversations and building consensus – partners must be in it for the long run
- Step 5. Reset the pre-competitive/competitive dial -- businesses need to rethink the purpose of competition and collaboration, and move more activities into the pre-competitive box
Obvious ingredients of successful collaboration are trust between partners, and a common vision and not ‘what’s in it for me.’ Two multinational cargo owners mentioned the following principles: “compete on the shelf and not in the truck” (referring to potentially competing shippers sharing a truck to deliver goods to the same customer) and “fair share of savings” (referring to sharing financial savings fairly between shippers and their subcontracted carriers that took fuel saving measures). Alan McKinnon formulated the 5 M’s of logistics supply chain collaboration as underlying principles to catalyze a system shift.

Give civil society a greater role in collaboration efforts
NGOs underwent an evolution over the past decades from charity-focused (e.g. save the turtles, get girls educated), to activist (e.g. end to coal, stop genetically modified foods), to advocacy (e.g. support cities to clean the air), and finally leading (e.g. leading a multi-stakeholder code to make forests more sustainable). The potential role of leading NGOs in facilitating system shifts is only just coming to light. Too often with ‘public private partnerships’ only government and businesses are considered and sometimes academic and research institutes, but NGOs deserve a more prominent place. One example is Civic Exchange [see box].

Efficient Consumer Response in the UK issued a Transport Collaboration Guide with simple tools and techniques to help retailers and suppliers identify and implement opportunities to increase vehicle utilization, reduce miles and cost.60

Voluntary Low Sulfur Fuel for Ships in Hong Kong Port61
To tackle emissions from shipping and port activities in Hong Kong, an NGO Civic Exchange initiated the “Fair Winds Charter” in 2006 as an industry-led voluntary ship emission reduction initiative. Participating marine carriers and cruise ship operators voluntarily switched to cleaner marine fuel with Sulphur content not exceeding 0.5 per cent while at berth. In parallel, Civic Exchange facilitated discussions between local and regional governments, shipping and container terminal operators, and air quality and logistics experts. The results of the voluntary scheme and broader engagement approach gave the Hong Kong government the confidence to turn this into policy: in April 2015 new air pollution regulations were announced that require all ocean-going vessels (OGVs) to switch to low Sulfur fuel while at berth in the Hong Kong port.
Promote alignment and collaboration between initiatives

Initiatives will be more effective individually and collectively if they are aligned and collaborate where they have common ground. The reason is that companies are more likely to join initiatives that complement each other and that are consistent across different modes and markets. One example is the Global Action Agenda (before Lima Paris Action Agenda), which at present brings together 18 initiatives relevant to transport, with the support from SloCaT/PPMC.62,63

The Alliance to Save Energy is trying to align initiatives on energy efficiency in the US and is now going global.64 We see similar efforts elsewhere, such as We Mean Business65 that brings together leading global business networks on a common climate agenda, the Partnership on Sustainable Low Carbon Transport (SLoCaT)66, and finally for freight, the Global Green Freight Action Plan17 to align existing green freight programs.

The number of initiatives does not mean much unless it is made transparent what their impact is, in a similar way as SmartWay had quantified its impact until 2015: over 50 million tonnes CO₂, $16.8 billion dollars in fuel savings that equate to taking over 10 million cars off the road for a year.67

3.5 Engage pro-actively in policy

Government can facilitate the uptake of actions by businesses (Figure 9) through planning, infrastructure, legislation, regulation, standards; financing and other incentives; and strategic support such as programs. Table 4 provides examples relevant to fuel and emissions. It is noted that, in practice companies have the greatest ability to take actions on vehicles and vessels and freight movement and are more dependent on government and other private sector players to provide a quality transport system.

The World Bank’s Logistics Performance Index (LPI) is based on and explains the link between good policy and good logistics clearly. Governments can use policies and regulations to improve the efficiency and quality of customs, infrastructure and services. LSPs and carriers’ performance relies on time, costs and reliability, which they can influence by improving the competence and quality of their services, timeliness of delivery, and tracking and tracing of consignments.5

The trick lies in adding sustainability elements based on the Sustainable Development Goals and Paris Climate Agreement to both sides of the equation. Zooming in on smart freight, government policies are important in providing a secure environment for deploying smart freight solutions and innovation and enabling climate resilience. Good policy is thus critical for business’ success in improving logistics efficiency and reducing emissions. Most companies have therefore joined one or more industry association to reach out to governments, and some green freight programs are led or supported by governments.

Existing challenges

Existing challenges include freight absence on the government agenda (tied to limited awareness and capacity of governments), mixed messages on what business wants from governments, , and fragmented government policies and efforts.

Freight is not on the (climate) agenda of many governments

Some governments realized the importance of an efficient and competitive freight and logistics sector for the economy and the environment. For example, the US has a mix of standards regulating fuel economy, vehicle emissions and technologies, SmartWay as its green freight program,
and various other policies and schemes. Similarly, the Netherlands has a mix of initiatives, including the Top Sector Logistics as a public-private effort and Lean and Green as a national green freight program. Several cities developed urban freight plans, such as London, Stockholm, New York and Seattle. The Singapore government announced to introduce a carbon tax of 10-20 Singapore $ per tonne carbon for direct emitters, thus including fossil fuel users. Generated income will be used to finance mitigation measures and innovation efforts under its Climate Action Plan and send a clear price signal to industry to reduce emissions.68

However, this is not the case for most countries, especially developing countries. An analysis of 158 INDCs published in the lead up to the 2015 UN Conference on Climate Change in Paris found

<table>
<thead>
<tr>
<th>Intervention area</th>
<th>Reporting company</th>
<th>Vehicles</th>
<th>Freight movement</th>
<th>Transport system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Urban planning, including land use planning</td>
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<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Infrastructure planning</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Infrastructure</td>
<td>Infrastructure cleaner trucks: parking / delivery bays; electricity charging points; alternative fuels refilling stations</td>
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<tr>
<td></td>
<td>Infrastructure cold ironing in ports</td>
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<td></td>
<td>Logistics centers for cross-docking, freight consolidation</td>
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<tr>
<td></td>
<td>(Motor)bike paths, railways, waterways, transhipment centers</td>
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<td></td>
<td>Intermodal connectivity</td>
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<td></td>
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<tr>
<td>Legislation, regulations, standards</td>
<td>Standards for fuel economy, fuel quality / vehicle emissions, alternative fuels</td>
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<td></td>
<td>Anti-overloading laws</td>
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<td>Emission zones [road freight] or Emission Control Areas (sea freight)</td>
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<td></td>
<td>Import restrictions or exemptions</td>
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<td></td>
<td>Technology mandates</td>
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<td></td>
<td>Standard truck sizes</td>
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<td></td>
<td>Enforcement of standards and laws</td>
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<tr>
<td></td>
<td>Restrictions / preferences for city access and parking based on vehicle sizes or types or locally produced goods</td>
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<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Financing and incentives</td>
<td>Taxes, fees, subsidies based on fuel type or vehicle/vessel type</td>
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<tr>
<td></td>
<td>Subsidies, soft loans for clean vehicle, fuel and technology adoption</td>
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<tr>
<td></td>
<td>Fines for breaching laws and standards</td>
<td>✓</td>
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<tr>
<td></td>
<td>Toll fees or road pricing</td>
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<tr>
<td>Strategic support</td>
<td>Green freight programs</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td></td>
<td>Inspection &amp; maintenance programs</td>
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<td>Technology verification programs</td>
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<td></td>
<td>Truck replacement schemes</td>
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<td>Driver / fleet manager training programs</td>
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<td>Routing signage and driver information</td>
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<td></td>
<td>Night-time delivery programs for urban freight</td>
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<td></td>
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<tr>
<td></td>
<td>Public private partnerships for infrastructure projects</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 4: Government intervention areas and examples
that while 43% INDCs explicitly refer to passenger transport, only 13% mention freight transport explicitly. Similarly, of the 283 transport mitigation measures included in INDCs, only about 10% of these relate directly to green freight. Most measures related to modal shift (48%) and the remainder related to fuel economy improvements, ports, electrification of trains, reducing empty runs, and alternative fuels.\textsuperscript{31} It is safe to conclude that currently freight is not a priority on the climate agenda of many countries.

One reason could be limited awareness or perception of freight and logistics at the government level, in particular in developing countries. Related to this is the limited capacity – skills and ability – of governments to set policy and take other interventions that improve the efficiency and reduce emissions from freight.

Aside from awareness and capacity, there could also be another reason. Transport has an estimated abatement potential of 10% among ten sectors by 2030. However, abatement costs to realize this potential are estimated at 37%. Thus, the transport sector is considered to be more difficult to decarbonize compared to other sectors, and this is in turn more difficult for freight than for passenger transport.\textsuperscript{31} There are exceptions, for example the Delhi Freight Corridor is built with freight efficiency and environmental impact in mind and has the potential to save more than 450 million tons of CO\textsubscript{2} over 30 years.\textsuperscript{35}

\textbf{Mixed messages on what business wants from governments}

Businesses can share the same objectives as governments but may have different views on how to get there, which brings a risk of mixed messaging. A complicating factor is that industry associations in dealing with government represent the views of all their members and not just of the leaders among them.

A start has been made by We Mean Business as a coalition organizations working with the world’s most influential businesses and investors to accelerate the transition to a low carbon economy. Its combined 554 company members drafted a list of 8 “policy asks” in preparation for the UNFCCC summit in December 2015 and that were taken on board in drafting the Paris Climate Agreement.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure17}
\caption{Policy asks and Industry commitments\textsuperscript{47}}
\end{figure}
The UN Secretary General’s High-Level Advisory Group on Sustainable Transport recommend the following areas for policy development and implementation relevant for sustainable transport, including freight: transport planning, government frameworks, technical capacity of transport planners and implementers, road safety, public engagements, and monitoring and evaluation framework including more reliable data.35

However, when it comes down to freight and logistics and asks that apply to specific countries or markets, there still is a clear gap.

In some cases individual companies can influence policies for the better due to their in-depth knowledge of the sector. One such example is Scania, who in China contributed to the GB1589 standard on dimensions, axle load and masses for motor vehicles, trailers and combination vehicles. This standard will accelerate the transition to a more efficient and safer truck fleet in China.79

**Fragmented and conflicting government policies**
As the various responsibilities for freight and logistics are spread across multiple ministries as well as divided between national and local governments, it is not surprising that government policies and related efforts are often fragmented, overlapping and, in some cases, even conflicting. Several countries, such as Indonesia, continue to subsidize fuel, while at the same time promoting fuel efficiency of vehicles. Alternative fuels are promoted widely, such as natural gas in Thailand, but lack of infrastructure to supply the fuel is stopping carriers from taking up alternative fuels. In China two fuel economy standards were developed for heavy duty vehicles by two different ministries --the Ministry of Transport and the Ministry of Industry and Information Technology -- creating uncertainty in the market.47 A comprehensive overview of policies and standards in relation to diesel is available on www.dieselnet.com/standards/.

**Proposed solutions**

**Articulate importance of freight inclusion in climate commitments along with guidance on big wins**
Similar to a stronger business case for companies, there is a similar need to stress the importance to governments of including freight in national and local plans to curb emissions. The INDCs as part of the Paris Climate Agreement provide an opportune mechanism to bring freight higher on the agenda.

Due to a limited understanding and capacity within governments on freight, information on what options exist is also required to guide governments in focusing on what will have the greatest impact and are feasible to implement, or ‘big wins.’ There are many NGOs and research institutions with in-depth expertise on transport and climate policies who can provide this information and support governments with updating their INDCs and other relevant national policies and plans.

The ITF as a global platform for transport policy exchange initiated the Decarbonizing Transport initiative to identify effective emission-reduction policies and evaluate the impact of NDCs, the UN SDGs and other measures on transport CO2 emissions.

**Define policy asks from business and role of government for smarter freight**
Participants of the Smart Freight Leadership Roundtable in 2015 recommended getting industry together to articulate what specific support from government is most required to enable real change, covering policies, programs, institutional frameworks and infrastructure.76
Smart Freight Leadership Roundtable brought together 12 multinational companies made a start by formulating the following requirements for policy in relation to smart freight:71

- Policy incentives can be critical in the business case for the implementation of technologies and other measures that improve efficiency and reduce emissions
- Government subsidies for research and process/program development are not always geared to things that matter for business and are often requiring a lot of pre-work
- Business needs from governments on policy
- Clear policy direction and enforcement so that policies are followed and business can/will invest
- Policy harmonization and simplification – keep in mind what works for business
- Financing for technology adoption, infrastructure and program development (how will the upfront investment be financed e.g. railways, as committed to in COP 21)

Priority next steps identified where developing guidance on policy implementation for business, and a further analysis of business needs from policy and how to communicate these with governments. Industry-backed initiatives can help ensuring that industry stays ahead of the curve and ensure a proactive and constructive policy influence. Examples are WeMeanBusiness, Climate Finance and green freight programs.

Support the development of national and city green freight plans

Freight challenges form great obstacles to policy makers and urban planners in developing sustainable urban freight systems as part of broader sustainable and livable cities. To address these challenges, several cities, regions and countries have developed freight plans. A ‘freight plan’ is a plan with a long-term goal and measures oriented toward a safe, efficient and environmentally sustainable freight system and can align stakeholders’ views and actions towards a common goal. It is important to note that as existing freight plans encompass broader sustainability goals beyond the environment.

Cities known to have a city freight plan are Berlin, Brussels, Paris, London, Seattle and Stockholm. California and Washington State have regional freight plans. Some countries, including Germany, Netherlands and the UK are undertaking ‘road mapping’ exercises to decarbonize freight through technological and operational measures.50

The European Commission released a European Strategy for low emissions mobility, including freight, and that focuses on increasing the efficiency of the transport system, speeding up the deployment of low-emission alternative energy for transport, and moving towards zero-emission vehicles.72

Regional, national and city freight plans can provide the umbrella for policies and initiatives and cohesion between them. For this reason, businesses and other stakeholders are encouraged to support such plans.
4.1 The SFC Way

Smarter freight is the foundation of our mission: leading the way to an efficient and environmentally sustainable global freight sector. The Smart Freight Leadership framework is at the core of the work we do. By removing market barriers, we can empower multinationals and their logistics supply chain partners to take action by becoming Smart Freight Leaders.

We are an independent and trusted organization that brings the right players together to help remove market barriers that businesses face. SFC can play this role because it is a fit-for-purpose organization, independent from industry or government, and has a global network across stakeholder groups with local presence. Leading experts in our global Advisory Council and our China Expert Council help keep us sharp, focused and action-oriented.

The do this “the SFC Way”:
- We start from a business perspective and articulate the market barrier, define the solution and develop a clear path to get there with industry input
- We develop solutions building on what already exists involving our extensive network to avoid duplication and ensure widespread stakeholder backing
- We act as a catalyst by encouraging businesses and others who work with businesses to take ownership of the solution and take it to scale

We help companies on their journey to smarter freight from being aware to becoming Smart Freight Leaders. It starts with a strong business case and an overview of smart freight solutions that exist. Businesses are empowered to adopt each of the 5 leadership elements with SFC helping to remove market barriers along the way. This is shown below, whereby our direct role is largest for MRV on the left and increasingly indirect moving towards policy input on the right. Industry associations, programs and initiatives are key allies to reach companies. Our specific roles for each of these elements are described next.
4.2 SFC’s role in driving Smart Freight Leadership

Business case and smart freight solutions
It is pivotal to build a stronger business case that appeals to the C-suite (CEO, CFO, COO) of multinationals, and sales and logistics directors who hold the decision power of logistics purchasing, network design and operations. They won’t be swayed by fuel and emission reductions alone but need to see the business case for the company broadly and how it affects core logistics operations. CSR directors and staff, industry associations and existing initiatives are important allies for SFC to reach senior management at companies. A parallel effort is needed for carriers, where transport managers have a central role but could use support in building a better case to take to management.

A solid business case hinges on knowing what solutions exist and work. SFC is developing a smart freight solutions map (based on Figure 9) supported by examples and evidence of savings and emission reduction potential. A different solutions map is prepared for cargo owners and carriers to help them navigate what solutions they could adopt based on impact and ability to drive their implementation.

Measure, report and verify logistics emissions
Companies we interviewed told us that an impediment to climate leadership was the absence of a global methodology for logistics emissions measurement, reporting and verification across all modes. Industry gave SFC the mandate to create a universal method through the Global Logistics Emissions Council (GLEC): the GLEC Framework for Logistics Emissions Methodologies.

The GLEC agreed on a three-pronged strategy going forward. First, we are working with leading companies to implement the GLEC Framework and use results to improve reporting and logistics decisions. In parallel, implementation support materials are developed for cargo-owners and carriers, for example a gap analysis tool, implementation and assurance guidelines and a training course. Second, to drive sector-wide acceptance and implementation, SFC and GLEC will work with assurance providers, green freight programs, business networks, emission calculation tools, ICT solution providers, and standardization bodies. Third, work will continue to fill remaining methodology and data gaps, which combined with lessons from implementation projects will result in the release of the GLEC Framework 2.0 end 2018.

Set KPIs and ambitious emission-reduction targets
We are working with the Science Based Target Initiative (SBTI) on the logical next step: develop a method for setting emission reduction targets for freight and logistics that is consistent with the GLEC Framework. SFC will provide technical input into the target setting method and facilitate its review by GLEC members who represent companies, associations and industry programs to ensure the method works for industry.

This way, companies using the SBTI method and the GLEC Framework can be certain that the way they establish their logistics emissions baseline, set targets, and track and report progress is done consistently. Equally important, it will be easier for companies with outsourced (‘scope 3’) logistics services to expand corporate targets set under the SBTI with logistics emissions.

Another focus will be on identifying what KPIs work in practice to drive change, and what type of corporate policies are most critical within the company and with supply chain partners.
Develop and implement an Action Plan
Multinationals are experienced with developing and implementing strategies to reduce their environmental impact. What is new for many is to extend this to a largely outsourced service like freight and logistics. Companies seek guidance on selecting the right solutions that they actually have a say in, and how to mobilize subcontracted carriers and other supply chain partners to act.

However, carriers, especially in road freight, need help in overcoming their own barriers (Figure 13). The Smart Trucks Platform helps carriers find the right technologies and solutions for trucks and fleet operations that are proven to work and reduce emissions. We take a similar approach as with the GLEC: combining information from existing initiatives at the global level to develop services for carriers that can be used in markets where there is a gap. Services include a Smart Transport Manager’s training course, knowledge products and outreach/networking activities. SFC selected China as the first implementation market and works with local partners, such as industry associations, research institutes and universities, government agencies and other NGOs.

Collaborate with other leaders to mobilize sector-wide action
We help businesses find their way in the growing labyrinth of programs and initiatives, and find the right partners. Understanding business needs in turn helps us support other stakeholders to target businesses better and align their efforts.

For example, SFC moderated workshops with leading businesses in Brazil that catalyzed the establishment of the Brazilian Green Logistics Program (‘Programa De Logística Verde Brasil’), with founding members Coca Cola, Dow, Heineken, HP, Natura, and Unilever. SFC also plays an active role in the CCAC Global Green Freight Action Plan, for instance, by exploring how to expand green freight programs across Europe and promote collaboration between them. We increasingly bring the climate agenda to consultancies and solutions providers who work on improving logistics efficiency with leading companies that are potential Smart Freight Leaders.

We ultimately want to provide a one-stop-shop for signposting to relevant information and initiatives, plus enable collaboration and cross-fertilization of existing platforms, green freight programs and other initiatives to increase the pace and scale of their impacts.

Engage pro-actively in policy development
There are ample organizations, institutes and foundations whose prime focus is to assist policymakers in sustainable transport policies, usually linked to the Sustainable Development Goals and the Paris Climate Agreement. What SFC does differently is emphasize the business dimension in these policy efforts and focus on the practical uptake of solutions that policies seek to promote.

For example, we support Beijing with their city green freight plan through learning from other cities and experts worldwide and by pointing out ways to involve business. Together with the World Bank, we explore what regulatory reform opportunities exist in developing countries to help carriers use more efficient trucks and reduce empty miles. The EU-funded LEARN project that SFC coordinates includes recommending priorities for government on incorporating carbon footprinting into policy making. After all, supportive policies are essential for business efforts to succeed.
REFERENCES

4. Green Freight Asia [2013]. Green Freight in Asia – Towards a Green Economy: Macroeconomic indicators and their relevance for sustainable Road Freight in Asia and a comparison with markets in Europe and the Americas.
References

30 Smart Freight Centre (SFC, 2016). Analysis of potential Smart Freight Leaders linked to Green Freight Programs. http://www.smartfreightcentre.org/main/info/publications
34 Partnership on Sustainable, Low Carbon Transport (SLoCaT, 2015). Intended Nationally-Determined Contributions Offer Opportunities for Ambitious Action on Transport and Climate Change. www.slocat.org
39 www.bsr.org/cleancargo
44 http://www.wemeanbusinesscoalition.org/content/adopt-science-based-emissions-reduction-target
References

51 http://www.dinalog.nl/en/, http://www.csrft.ac.uk/
52 http://www.epeat.net/
53 http://www.sustainability-indices.com/
55 Sally Uren (2013). Five steps to successful collaboration. https://www.greenbiz.com/blog/2013/02/19/5-steps-successful-collaboration
58 www.epa.gov/smartway
60 http://www.epa.gov/smartway
62 http://newsroom.unfccc.int/climate-action/global-climate-action-agenda/
63 http://www.slocat.net/ppmc
64 https://www.ase.org/
65 http://www.wemeanbusinesscoalition.org/
66 http://www.slocat.net/
67 http://www.epa.gov/smartway/
71 http://www.epa.gov/smartway
73 Programa de Logística Verde Brasil (Plvb). http://www.ltc.coppe.ufrj.br/index.php/plvb
75 http://www.mdh.com/gogreen and https://www.youtube.com/watch?v=CI26JLSs3mc