A Smart (and Green) Move for the Freight Sector

Freight movement by air, road, rail, and sea is growing exponentially as are the associated costs and environmental impacts. Momentum for smarter freight is growing, witnessed by recent government and industry initiatives, technological innovation, and research. However, we are yet to observe at-scale improvements in fuel efficiency and emission reductions from the freight sector. Coordinated efforts within the industry sector, in partnership with government and civil society, are key to unlocking the enormous potential for the freight sector to improve efficiency and reduce emissions.

Freight refers to goods that are carried by vehicle or vessel, especially by commercial carriers. Freight modes include inland (rail, road, and inland waterway), maritime, air, and pipelines with transshipment center in between the modes. The global freight supply chain is driven by shippers, third-party logistics providers (3PLs), freight forwarders, carriers, and customers/receivers. For ease, this article groups them as under shippers (who want goods moved), and carriers (who transport goods).

At the local level, freight movement contributes to relatively far higher transport emissions and road traffic accidents when compared to passenger transport. Logistics costs risk becoming an economic bottleneck for sustained economic growth: poor infrastructure, low load factors, inefficient logistics operations, suboptimal policy, and institutional frameworks. Developing countries are at a disadvantage. Logistics costs in Indonesia, for example, are 25% of GDP, far greater than the <10% in Europe and the United States.

Opportunities for Emissions Reduction and Improved Efficiency

Smart or green freight refers to the transformation efforts of the freight sector which help reduce greenhouse gas emissions and air pollutants and improve fuel efficiency across the global supply chain, while maintaining competitiveness and economic growth. Smart freight also considers broader concerns associated with freight movement,
such as road safety, working conditions, and spreading costs and benefits of improvements fairly across all stakeholders.

The freight sector is complex. In an ideal world, one would strive for the freight sector to be supported by:

- **Transport system**: quality infrastructure and connectivity across modes with supporting policy and regulatory frameworks;
- **Freight movement**: sectorwide adoption of logistics solutions that maximize load factors and optimize freight movement, time, and distances; and
- **Vehicles and vessels**: sector wide adoption of technologies and strategies that offer greater efficiencies and emission reductions.

At each of these levels we can take measures that improve operational efficiency, apply technologies, or manage the demand for freight. Figure 1 offers some examples. Opportunities are different at the urban, national, and global levels and for different modes. What works best may also vary among countries and regions.

![Figure 1. Freight improvement matrix.](source: Smart Freight Centre, inspired by NTM.)

<table>
<thead>
<tr>
<th>Transport System</th>
<th>Consolidation Centers</th>
<th>Traffic Information Systems</th>
<th>Railway Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freight Movement</td>
<td>Load Management Eco-Driving</td>
<td>Telematics</td>
<td>Timing of Delivery</td>
</tr>
<tr>
<td>Vehicles &amp; Vessels</td>
<td>Maintenance</td>
<td>Tires</td>
<td>Alternative Modes</td>
</tr>
<tr>
<td>Operational Efficiency</td>
<td>Technologies</td>
<td>Demand Management</td>
<td></td>
</tr>
</tbody>
</table>
Despite the potential for improvement and proven opportunities, we have not seen a change at scale yet. An important underlying factor is the complexity of the freight sector itself as an interlinked yet fragmented supply chain covering different modes and regions, and therefore transcending the influence sphere of individual countries and companies. Momentum for smarter freight is growing, witnessed by growing government and industry initiatives, technological innovation, and research programs. However, as a whole, the support frameworks that are needed for a greener and more efficient freight sector are fragmented. Neither individual companies, governments nor civil society can address this challenge alone: coordination is key.

To create a common view of what is needed to achieve the desired transformational change and emission reductions at scale, the Smart Freight Centre has developed the Global Framework for Action (see Figure 2). This framework includes deployment of “pull” and “push” strategies supported by partnerships and leadership from government, the private sector, and civil society.

**Leadership**
Governments can demonstrate leadership by providing a secure environment for deploying green freight solutions in the form of national green freight programs and supporting policies and institutional frameworks. The private sector, especially shippers of goods, can commit to emission reductions and incorporating emissions into decisions on carrier and mode selection, as well as join leading green freight initiatives. Of the hundreds of nongovernmental organizations, development agencies, universities, and research institutes that focus on environment and/or climate change, many more need to embrace green freight as a core campaign, program, or investment area.

**Pull: Enabling Environment**
The “pull” creates the enabling environment for sectorwide adoption of solutions and a pathway for innovation. The pull is in the hands of shippers who can demonstrate leadership by selecting carriers and modes based on their emissions footprint. However, the current situation is that with no proper measurement and comparison these players cannot commit to select and reward in this way. One methodology for measuring emissions that is accepted universally by all key players is
needed that is linked to data reporting platforms and reward and labeling schemes.

**Push: Implementing Technologies and Strategies**

The “push” is about removing the barriers and creating incentives for implementation of technologies and strategies that improve fuel efficiency and reduce emissions. The reality is that technologies are not everywhere available, especially in developing countries, and many carriers do not have access to credible information, knowledge platforms, financing and incentive schemes to facilitate implementation across industry. Furthermore, the greatest improvement potential lies in cooperation between carriers and shippers.

**Partnerships**

Effective partnerships are critical because solutions do not lie in the hands of single players. Industry cannot unleash the improvement potential single-handed: strong backing from governments and civil society is a must. Partnerships are needed between the companies and associations within the global freight sector, various initiatives, government, and other stakeholders to deliver action for the pull and push strategies.

Successful partnerships can exist at every level: among individual companies, industrywide, and across industry, government, and civil society. Examples are given for each.

Procter & Gamble and Tupperware freight consolidation partnership. A large share of Procter & Gamble’s loads consists of heavy products, such as shampoos and detergents. As a result, the containers were full in weight, but half-empty in volume. Tupperware experienced the opposite problem: its lightweight products filled up the volume of trucks, but only utilized about one-third of the maximum load in weight. Since both companies ship products from Belgium to Greece, they entered into a collaboration to consolidate their products, whereby light Tupperware cases are placed on top of heavy Procter & Gamble pallets and are jointly shipped to Greece. Moreover, Tupperware was able to have its goods shipped via Procter & Gamble’s intermodal network, thus significantly reducing

**The Global Logistics Emissions Council (GLEC)**

Industry wants one universal and transparent way of measuring freight emissions across the global multi-modal supply chain that allows companies to select more efficient modes, carriers, and technologies/strategies and reduce costs. Alignment between the modal and regional initiatives is key to achieving this. Thus the Global Logistics Emissions Council (GLEC; www.theglec.org) was established in December 2013, comprising leading industry-backed initiatives and leading shippers and companies involved in freight movement. Current members are Green Freight Europe, Green Freight Asia, SmartWay (through Edgar Blanco of MIT), Clean Cargo Working Group, Air Cargo Carbon Footprint, EcoTransIT, Lean & Green, NTM, the International Road Union and leading multinationals: DB Schenker, DHL, HP, Kuehne-Nagel, Intel, Maersk, TNT, and Sainsbury.

Lead by the Smart Freight Centre, the GLEC will:

- develop a Global Framework for Freight Emissions Methodologies, which builds on existing methodologies and the EU-funded project COFRET (www.cofret-project.eu);
- drive the acceptance and use of the methodology framework by industry, government and other players; and
- take the application of the methodology framework to scale across the global freight supply chain to generate and communicate credible emissions data to customers, consumers, and investors.
transport via trucks. Estimated savings include 150,000 truck km, 200 tons carbon dioxide emissions, and a more than 10% reduction in annual transportation costs.

Global green freight initiatives. The number of initiatives across the globe to support the green freight movement is increasing. The initiatives highlighted in Figure 3 represent different freight modes and geographical coverage.

There are regional industry-led initiatives, including Green Freight Europe (www.greenfreight-europe.eu) and Green Freight Asia (www.greenfreightasia.org). The Smart Freight Centre (see sidebar on page 40) is currently seeking opportunities to incubate new programs in Latin America, Africa, and Middle East. In addition, at the global level, Clean Cargo Working Group (www.bsr.org/en/our-work/working-groups/clean-cargo) and Clean Shipping Index (www.cleanshippingindex.com) cover marine freight; and Air Cargo Carbon Footprint (www.iata.org) and Air Freight Carbon Initiative cover air freight. The Global Logistics Emissions Council was recently established by industry-led initiatives and leading companies with the aim to develop global harmonized freight emissions methodologies (see sidebar on page 40).

The above-mentioned programs are supplemented at the national level in various countries (e.g., SmartWay Transport Partnership, www.epa.gov/smartway, in the United States and Canada). National programs are also being established in Australia (www.ecostation.com.au), Belgium (lean-green.nl), China, Germany, France (www.objectifco2.fr/www.tlr.fr/en/CO2-objective), Italy, Japan, Korea, Mexico, Netherlands, and the United Kingdom.

There is a vast and growing number of other initiatives that do not fit in either of the previous categories and vary in scope, including

Programs focused on specific strategies/measure for specific modes (e.g., Carbon War Room’s Operation Sustainable Shipping, www.carbonwarroom.com; the Sustainable Shipping Initiative of Forum...
for the Future, www.forumforthefuture.org; and the EU project iCargo, i-cargo.eu).

Programs focused specifically on tools for emissions measurement (e.g., EcoTransIT, www.ecotransit.org; and NTM, www.ntmcalc.org); emissions methodologies development (e.g., EU Cofret project, www.cofret-project.eu; Carbon Consignment Working Group, www.consignmentcarbon.org); or emission data collection (e.g., Carbon Disclosure Project, www.cdproject.net).

Development programs or partnerships specifically focused on freight (e.g., Green Freight Initiative of the Climate and Clean Air Coalition, www.unep.org/ccac; the Sustainable Logistics Trust Fund of the World Bank and the Dutch government, www.worldbank.org/en/topic/sustainabledevelopment/; or partnerships that touch on green freight as part of broader transport and climate issues (e.g., Partnership on Sustainable Low Carbon Transport, www.slocat.org; the International Transport Forum, www.internationaltransportforum.org).

Climate and Clean Air Coalition. The Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants (CCAC) is a voluntary international partnership, hosted by UN Environment Program, bringing together more than 70 partners. As part of its initiative to reduce global diesel emissions, CCAC focuses on reducing black carbon, alongside carbon dioxide and other emissions, from diesel vehicles/vessels and engines.

Recognizing existing efforts, CCAC partners and other relevant parties are providing a forum to foster cooperation among countries and with international organizations, and a platform from which to engage with the private sector to expand and harmonize green freight programs.

CCAC will collaborate with stakeholders to develop and deploy a coordinated Global Green Freight Action Plan that can be implemented through public-private partnerships worldwide. The action plan will provide a blue print and roadmap for the advancement and harmonization of green freight initiatives.

Source: Smart Freight Centre.
IT3/HWC programs globally with the aim of reducing black carbon and greenhouse gas emissions.

Participation from the private sector is critical for the success of this initiative. The CCAC has extended the invitation to take action to multinational shippers and cargo owners, their freight transportation carriers, and third party logistics companies as well as other global stakeholders to join the effort and engage with the CCAC in the development and launch of a Global Green Freight Action Plan by December 2014.

What are the Benefits of Attending the IT3/HWC Conference?

• Interface with facility owners and operators
• Develop new business and network with industry professionals and colleagues
• Obtain updates on state of the art technical developments
• Stay current on regulatory and public policy initiatives
• Participate in training/courses related to thermal treatment
• Attend plant tours of state-of-the-art facilities

For more information please visit http://it3.awma.org

About the Smart Freight Centre

The Smart Freight Centre (SFC; www.smartfreightcentre.org) aims to unlock the potential for at-scale fuel efficiency and emission reductions in the global freight supply chain. As the only global nonprofit organization dedicated to smart freight, SFC will leverage existing initiatives and practical solutions throughout the global freight sector.

SFC deploys the Global Framework for Action at three levels:
• Lead the Global Logistics Emissions Council of industry-led/backed initiatives, associations and multinationals to create one universal and transparent methodology for measuring freight emissions that allows companies to select more efficient modes, carriers and technologies/strategies and reduce costs.
• Leverage the sector-wide adoption of technologies and strategies by partnering with industry and other key players to make technologies more widely available, provide credible information on technology performance, and develop financing and incentive schemes. SFC will start with truck tires and telematics technologies in Asia.
• Supporting existing industry initiatives, such as Green Freight Asia and Green Freight Europe, to deliver value to their members and leverage resources, and incubating new regional initiatives in Latin America, Africa, and Middle East.