# Green Logistics

*A Vision for Green Logistics*

Between globalisation and e-commerce, the amount of goods being hauled near and far has exploded. World-wide, exports of manufactured goods have risen six percent a year on average since 1950. Parcels deliveries, which include B2B and B2C, have also climbed about six percent annually since 2009 according to the OECD. Many of those deliveries require trucks, which mostly run on diesel fuel, along with other heavy-duty vehicles like buses, accounting for about a quarter of CO2 emissions in the European Union. Demand for freight deliveries is expected to grow, and so are emissions. Unless...new technologies make commercial transportation much greener.

One way to cut emissions is to cut transportation, by producing goods locally, close to consumers. But global supply chains, developed over decades, will be hard to re-engineer quickly, not to mention that globalisation is credited with vastly reducing extreme poverty, according to the World Bank.

Another way to cut emissions is to overhaul the transportation sector. In the future, goods will be delivered by zero-emissions trucks that run autonomously between terminals along highways, relaying with a variety of clean methods for the last mile inside cities. "New technologies are opening new doors," says Luc Nadal, chief executive of GEFCO, an international logistics provider. Not only will vehicles themselves become cleaner, but the entire transportation ecosystem will become more efficient.

But first, there's plenty of low-hanging fruit. Already, GPS applications are alerting drivers to traffic disturbances in real time, plotting the best routes and anticipating changes.

Optimising transport to avoid empty runs and even partial loads, whether they be on ships, trains or trucks, not only reduces emissions but is also good for the bottom line. "Making sure all means of transport are full for all kilometres is at the heart of what a company like GEFCO is doing," Nadal says.

Underutilisation of assets and other inefficiencies are in large part because the logistics industry has lagged other sectors in digital transformation, consultancy BCG finds. That's finally changing, and optimisation is improving thanks to artificial intelligence and other information technology tools. AI can spot patterns that aren't visible even to experienced logistics engineers, allowing for more granular optimisation of transport means. Small trucking companies might be flexible and cost effective, but they end up with trucks partially or completely empty for part of their runs simply because they don't have the means to connect with all potential customers. "There is room for companies like GEFCO to put their logistics knowledge and the capabilities of platforms to offer visibility of demand and capacity in real time," Nadal says. Eliminating empty runs would cut emissions.

Another way to optimise, he says, is to use bigger trucks. Most trucks now reach their capacity by volume while remaining far below their weight limit. Bigger — but not heavier—trucks would mean fewer trucks on the road and lower emissions.

"Once we get trucks full, we can consider how to make them greener," Nadal says. Cleaner fuels than diesel, such as natural gas, hydrogen and biodiesel, are gaining ground, especially among consumers. Despite tighter EU standards like Euro VI, however, diesel still makes up 97% of new heavy truck sales.

Electric trucks offer a new way of eliminating emissions at the tailpipe while ensuring efficiency with existing infrastructure. US-based Tesla has a prototype of an electric heavy truck, though production has reportedly been delayed until 2020. BYD of China and Daimler's Freightliner also are making heavy trucks; BYD's, like Tesla's has a maximum weight of 36 tonnes, while Freightliner's maximum is 40 tonnes.

Integrating these zero-emissions trucks is a logistics puzzle of its own, but Nadal envisions a plan that upgrades the already-extensive road network to steer transportation into the future. Terminals along highways would provide points for transferring cargo and recharging. These terminals would be set up every 400 kilometres, the expected battery range (but this too will evolve in the future). An hour to charge the battery would be in line with drivers' mandatory 45-minute rest break. Alternatively, the load could be transferred at the terminal to an already-charged truck to leave immediately, in a kind of relay race. Electricity providers would need to participate to ensure adequate charging power to the terminals. IT specialists would have to develop the programs to control the fleets and to interface with customers.

When trucks eventually become autonomous — and such trucks already are appearing on roads — these terminals could serve as control towers to monitor trucks and to remotely pilot them around such things as accidents. Autonomous trucks are likely to first appear on highways, in as little as four years, because highway driving poses far fewer ambiguous situations than city driving does. Autonomous vehicles are on the horizon as a shortage of drivers is growing.

"On the highway, you would have zero emissions," Nadal says. "We strongly consider that as a flexible solution. It's more flexible than rail to move trailers for long distances through Europe" because Europe's rail lines already bustle with passenger traffic by day.

The final element involves disrupting the last mile, placing goods in customers' hands. E-commerce purchases continue to grow. In the European Union in 2018, 70 percent of Internet users made a purchase in the previous year, and 15 percent made more than 10 orders in the previous three months. Logistics providers have an opportunity here. Nadal describes a scenario where the consumer would give the logistics provider as the delivery address, so consumers don't have to be at home, waiting for individual deliveries of separate orders. The logistics company would hold the goods in a warehouse, accumulating three or four separate purchases into a delivery once or twice a week, during specific windows that are convenient for the consumer. Those deliveries, from a local warehouse to home, would be short distances that could be covered by zero or low-emission means such as bicycle or electric scooter.

"It's not just about being green," Nadal says, "but about reducing congestion and vehicles on the roads."

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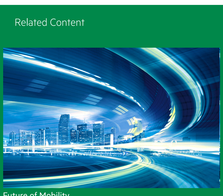
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