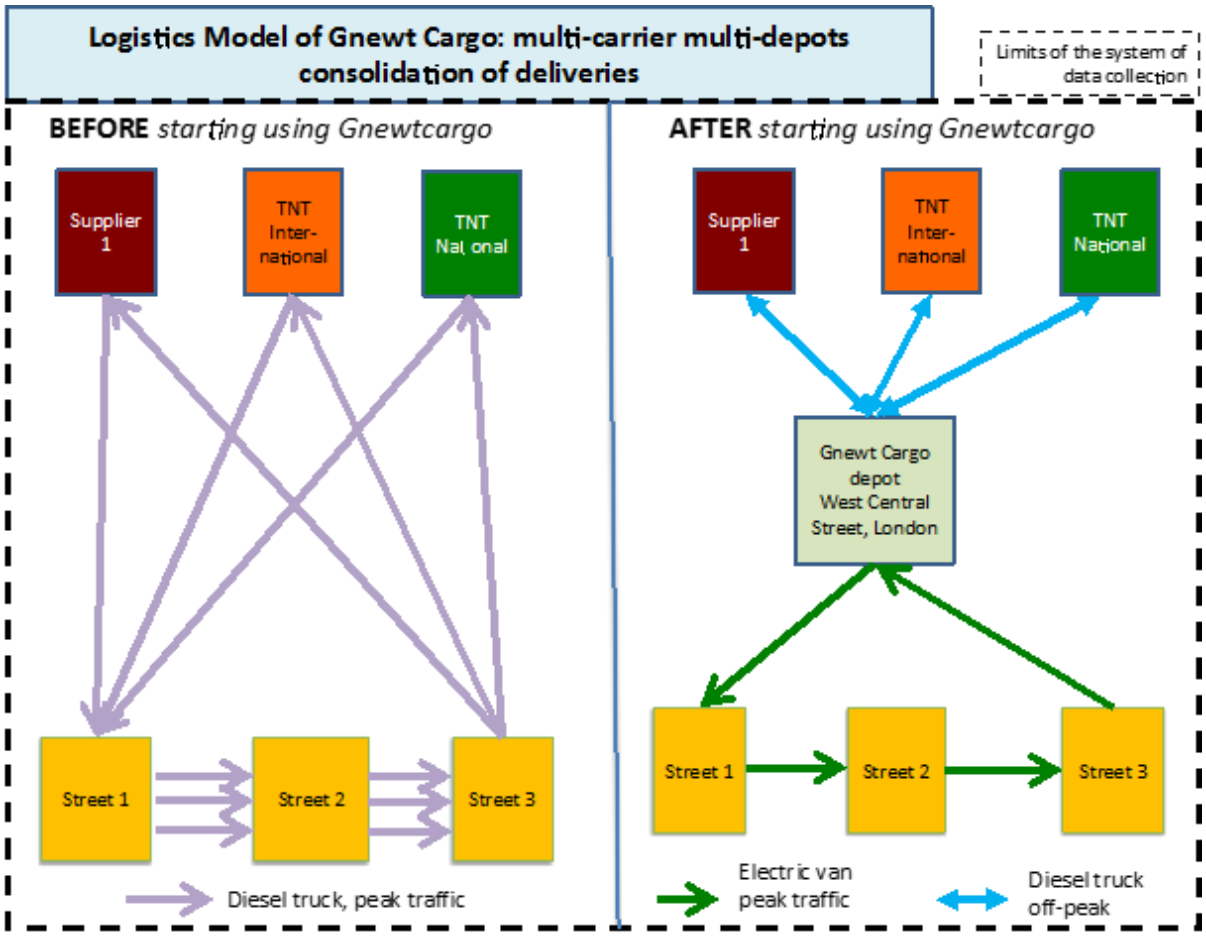
CITYLAB LONDON

The CITYLAB in London aimed at improving business models for clean deliveries using electric vehicles. In cooperation, the international shipping company TNT and the local logistics service provider Gnewt Cargo developed a feasible business model for the last mile, relieving Central London from emissions and pollution and saving energy and vehicle kilometres.



Context

So far, London's inner city consolidation centres and the electric freight vehicle penetration grew slowly. The project identified the following barriers and challenges

- Conditions for growth remain insufficiently understood
- need to improve understanding of business models for clean deliveries with electric vehicles and tricycles.

The CITYLAB identified the best possible management solution for inner city distribution, consolidation and clean vehicle use, considering the perspectives of a local authority, a large carrier, and a small carriers' carrier (a freight carrier that only works for other carriers rather than directly competing for freight flows from customers).

This action aimed to understand the conditions for future growth, with focus on business models for clean deliveries by electric vehicles and bicycles. The lab was implemented in cooperation with TNT and Gnewt Cargo. Gnewt Cargo is a growing Logistics Service Provider (LSP) running delivery operations exclusively with full-electric vans. These vans are servicing clients in the Central London Congestion Charge Area. They have several years of experience operating clean vehicles in London and aim at improved efficiency and profitability of

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their operations. In the implementation, TNT used Gnewt Cargo as a subcontractor for last mile deliveries to test different business models in Central London. The lab evaluated the benefits of the solutions and scenarios for public and private sector and created knowhow to scale up different business models.

In action

The CITYLAB implementation in London ran two years. It consolidated the knowledge and developed a broader, more robust and less risky business case for the part of Gnewt Cargo's electric parcels deliveries, including its fleet and depot management in central London. The key task was increasing the number of deliveries that Gnewt conducted on TNT's behalf. It answered the question: What is the most promising business case and growth condition for clean urban freight consolidation and single carrier deliveries for clients from the operators' perspective in Central London? It reduced vehicle kilometres by using a transfer depot closer to the delivery addresses in central London. This addressed the general challenge of logistics sprawl. Logistics facilities have been priced out of Central London resulting in ever-increasing stem mileages.

The CITYLAB compared the described scenario, where TNT deliveries are substituted by Gnewt on a local level with an business-as-usual-case.

Results

In the analysis, the CITYLAB focused on distance and fleet reduction, the CO_2 reduction effect, energy savings and empty distance reductions.

In comparison to the BAU scenario, the distance travelled was reduced by 67%. The distance remains influenced by the location of the depots and this result will probably change if another business type or another scenario is considered. In the past, the distance reduction achieved for different clients were between 20% and 85%, the current impact figures for ten vehicles seem rather robust.

Before the CITYLAB, every parcel consumed 0.07 litre fuel on average within the city, equalling 0.195 kilograms of CO_2 equivalent per parcel. The total fuel use and CO_2 emission per parcel was reduced by 100% in the situation after, due to the electric vehicle fleet. The air pollutants emissions decrease fully for the same reason. The comparison of energy use resulted in an even higher reduction of 89%.

The empty distance is much reduced as well (93%) due to the fact that electric vans are almost empty between the last drop or collection point and the return to depot, which was estimated as 1 km per van per day. In the situation 'before', the van trip back to the TNT depot in Barking is an almost empty return, except when the delivery trips can be combined with a collection trip, which is estimated to occur at one tenth of all trips.

The lack of electric charging infrastructure is improving, suitable for commercial use and the difficult and lengthy process of on-boarding clients for multi-carrier consolidation remain challenging. Greatest barrier to a lasting legacy may be in the lack of available space within city centres, safe-guarded for environmentally friendly logistics last-mile solutions that will become an absolute necessity to keeping parcel movements moving in the future in a clean and efficient manner.

Challenges, opportunities and transferability

The London implementation, by monitoring operational and business growth, is contributing to a better understanding of the necessary conditions for successful operations concerning clean inner city distribution, consolidation and clean vehicle use. The business model has already demonstrated its viability. The following barriers to growth of the London implementation have occurred so far:

- The greatest operational difficulty encountered during the implementation is that none of the Gnewt Cargo depots in Central London are accessible by a large truck, so TNT was obliged to use smaller 7.5t urban trucks to deliver parcels to the Gnewt depot.
- Growth in operational scale implies a shift in business from one subcontractor to another. This may require contractual change within and between companies that work together
- Shared use of depots, vehicles and customer data depends on whether businesses will accept that.

Gnewt Cargo opened a new distribution centre in Oxford in Autumn 2016. The business model is therefore transferable and has the potential to be implemented and grow in other cities. A plan for replication and transfer in other European cities is in preparation.

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