Use of battery-electric vans for retail distribution in London: Gnewt Cargo

### KeyWords:
- Freight consolidation and transshipment
- Implementation of low emission technologies
- Innovative vehicles, vessels and equipment
- Transport management, fleet management
- Data collection and statistics
- Monitoring and benchmarking of processes

### Description:
Electric vans are used to deliver parcels from a small urban consolidation centre to customers in the centre of London. The operation of the vehicles does not result in any fossil fuel consumption or greenhouse gas emissions as the electricity used is produced from renewable sources. The urban consolidation centre and the deliveries made from it are operated by the new company Gnewt Cargo, specialising in green urban freight deliveries.

The impact evaluation in May 2010 demonstrated that the use of the consolidation centre together with the replacement of the diesel van fleet by electric vans and tricycles led to a reduction of 20% in the total distance driven by all vehicles per parcel delivered to customers. The total CO$_2$ equivalent (CO$_2$e) emissions per parcel delivered was 54% lower in May 2010 than in October 2009 before the trial. The start-up business was profitable after 3 months.

### Benefits:
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### Success Factors:
- Creation of the new company Gnewt Cargo was supported by the large UK retailer Office Depot
- Positive support from the local authorities
- Successful completion of the start-up phase and quickly achieving financial profitability
- Successful acquisition of new customers enabling growth

### Supported Strategic Targets:
- Increased efficiency - productivity of logistics processes
- Improved image
- Reduced pollutants emissions
- Reduced greenhouse gas emissions
- Others: Social entrepreneurship, creation of a new company with job creation and employment effects

The main problems associated with urban goods distribution are externalities such as noise, congestion and lack of available parking and road space, accidents, air pollution and climate change emissions. The following figures illustrates the changes in the delivery system before and after introduction of the electric vehicles and consolidation centre.

The main action taken to reduce total travel distance and emissions per parcel was to eliminate the longer distance trips previously made by many diesel vans between a suburban depot and central London (black lines in top diagram above), and replace them by one large truck delivering all goods to the consolidation centre at night.
Case Description (Cont.):

The electrically-assisted cargo tricycles (pictured below right) are manufactured in France by La Petite Reine. The empty weight of the tricycle is 110 kg, including the two batteries (i.e. without the driver and load weight). It can carry a load of up to 180 kg and has a load space of 1.5 cubic metres. It is 2.35 metres long and 1.03 metres wide and has a typical speed of approximately 15 km per hour. The tricycle requires a four-hour recharging overnight.

Aixam Mega electric vans are also used. They have a load capacity of 445 kg and a space volume of 3 cubic metres. Their external length is 3.32 metres and their width external is 1.49 metres. The vans (picture below left) require an overnight recharging.

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Transferability:

The system is not suited to large consignments of high volume or bulky goods. In addition it is better adapted to a high density of customers in a relatively small area, that does not have big hills or steep terrain.

The tricycle is an innovative vehicle and has to be accepted for road usage by the national road authorities.

The main barrier for a potential future client will be to change its usual, established customer and delivery relationships.

Many other cycle freight businesses are emerging in European cities.

This London based business is a pioneer example of the first successful start-up of its kind in UK.

More information:

Vehicle fleet before: 100% diesel vans; after: 100% battery electric vehicles (Cargocycles and small electric vans).
Supply chain includes an additional small consolidation centre close to the delivery area and features high density of customers in the delivery area.
Main actors involved
• Freight operator, retailer, local authority, university researchers.

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