

## **Potential for upscaling the use of Light Electric Freight Vehicles in sustainable last mile deliveries**

This is an overview of what we will do in (part of) our research project, a thesis or two will be created after discussing with students that are interested in this topic area and will be tailored according to their preferences to best suit the students' and the project's interests.

Description: The objective is to analyze the potential for upscaling the use of Light Electric Freight Vehicle (LEFV) in parcel delivery service. The analysis will be done as case studies of three pilot projects conducted by DHL Express in Gothenburg, Amedia Distribusjon in Fredrikstad and A2B in Helsingfors respectively. MovebyBike and PostNord and Burd Delivery will add valuable insights on LEFVs operations and the intersection with stakeholders. DHL Express is currently underway with a pilot project using LEFVs for last mile

parcel delivery in Gothenburg. The pilot will involve testing the vehicles in a new type of distribution area, with lower density and a car oriented urban structure. The pilot project is performed by vans from the outskirts of Gothenburg to the dense city center (Nordstan), where the parcels are transhipped to LEFVs (cargo cycles) for the last mile. Amedia Distribusjon is currently testing the use of 20 LEFVs (Paxsters) for distribution of parcels and newspapers in Fredrikstad. A2B in Finland will start to use cargo bikes as part of their last mile delivery fleet and integrate these to their e-van deliveries. A2B is also planning to build a new city hub for their deliveries.

The project will study the potential for upscaling business models for sustainable last mile deliveries regarding these main issues: 1) Do the logistic service providers need to offer extra or new services to the customers? Do they need to expand to new customer segments? 2) How does the use of LEFVs affect the last mile logistics, supply chains and route planning? What kind of hubs or pick-up points are needed to facilitate the use of LEFVs? Pick-up points can for instance be temporary, mobile 20-foot containers centrally located in the city. 3) Which type of vehicles are suited to which segments of goods? 4) How can the use and standardization of mini-containers make seamless multimodal shipments possible earlier in the supply chain, and contribute to increased efficiency in the use of LEFVs? 5) The project will also study various key performance measurements for LEFVs such as the development of ton km, deliveries per unit of time. Literature study / interviews (with DHL Express). Follow mode research: tap into a delivery process performed by companies using small vehicles and mini containers. Map and measure costs and identify KPIs used, suggest how the processes can be improved. Analyze standardization of small containers.

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