

## Summary

# Evaluation of goods distribution by electric cargo bikes in Bergen and Oslo

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Authors: Tale Ørving, Grunde Haraldsson Wesenberg, Christian Weber og Sidsel Ahlmann Jensen  
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*The goal of this evaluation is to identify the potential for use of electric cargo bikes in distribution of goods. The evaluation is based on experiences from DHL Express in Oslo and DB Schenker in Oslo and Bergen in Norway in 2018 and 2019. The results indicate that cargo bikes have the potential to be a well suited mode of transport in distribution of goods, given some prerequisite conditions. The cargo bike is flexible in traffic and can reach more optimal delivery routes than a van is able to. On the other hand, the cargo bike has limited cargo hold, reach and speed. Good planning of item sorting and access to transshipment locations near city centres is key to successful cargo bike distribution.*

## Goal

The goal of this report is to assess the potential for use of electric cargo bikes for goods distribution, through studies of DHL Express in Oslo and DB Schenker in Oslo and Bergen in Norway. The assessment is based on data collected between January 2018 and June 2019. We have in particular looked at the logistics actors' experiences with use of cargo bikes and which effects the introduction of cargo bikes has to logistics, economics and working conditions. Additionally, we have investigated how various external factors affect distribution with cargo bike, in particular during winter. The findings are also used to highlight the need for facilitation from the public sector to enable successful cargo bike distribution.

## Method

The evaluation in this report is based on three case studies where electric cargo bikes are used in goods distribution. We have used the qualitative data collection methods observation, document analysis, and semi structured interviews of central actors. There have been both individual and group interviews. We have also gained access to and analyzed quantitative data from registered transport events from both DHL Express and DB Schenker to assess efficiency and productivity of cargo bike usage. Additionally, we have gathered independent quantitative data by use of GPS tracking of one cargo bike route and one cargo van route, as well as step count, in cooperation with DHL Express.

## Main Findings

The studies of DHL Express in Oslo and DB Schenker in Oslo and Bergen indicate that there is a unreleased potential for last mile distribution with cargo bikes in cities. In dense urban areas like central Oslo, the cargo bike in general has better mobility, can easier adapt to changes in traffic, and can perform more optimal routes than a van. The cyclist's option

to bike on the sidewalk, in pedestrian streets and in both directions of one-way streets contributes to this. In addition, parking close to the goods receiver is easier for a cargo bike than for a van. The cargo bike's advantage compared to the van concerning mobility, flexibility and parking holds for the most part in city centres, where there's a high density, limited area, and strong traffic regulations.

The cargo bike is limited in cargo capacity, reach and speed compared to vans. Therefore, it is not a question of replacing vans and trucks on a whole with cargo bike distribution, but whether cargo bikes can be a useful supplement in a logistics fleet. Cargo bikes can probably take many low volume deliveries in certain goods segments, in particular in urban areas with a high density of recipients and limited mobility for cars.

The studies of cargo bike distribution with DHL Express and DB Schenker suggest that cargo bikes aren't fully integrated in the logistics systems of the actors yet. More potential for cargo bike distribution can be reached by increased route optimization, better solutions for item sorting, access to central hubs and better depot facilities.

It has been assumed that the winter season will be challenging for the use of a cargo bikes. The interviews show that snow reduces accessibility, that battery capacity is reduced and that cycling in winter is harder. The efficiency cargo bikes is reduced a little in the winter, but the same is the case vans. The study has not been able to conclude whether the reduction in efficiency due to snow is a bigger problem for cargo bikes than for vans. Cyclists state that it can be cold on hands or feet and sometimes cold to be outside for an extended period if there is low intensity of activity. The winter maintenance of bike lanes in Oslo in the winter of 2019 is generally perceived to be good, but the cyclists state that there are some accumulations of snow in some places which block the bike lanes. In Bergen, it has been reported that it can also be slippery when it rains.

Public sector facilitation can release additional cargo bike potential. This applies, among other things, by protecting and strengthening existing advantages when it comes to mobility and parking. Additionally, public authorities can secure affordable down town space for transshipment to cargo bike, and contribute to increased demand for electric cargo bike distribution by emphasizing climate and environmental considerations in tendering processes. Increasing the limit for maximal motor power assistance could also be considered.

Urbanisation, urban consolidation, facilitation of reduction of emissions, and better urban environments contribute to increased pressure on down town areas. In many cities broader sidewalks, new bike infrastructure, and streets with bus priority are being established, along with stricter traffic regulations affecting cars more than bikes. This development will contribute to increased potential for use of cargo bikes in goods distribution.

More actors look at the possibilities for developing and use light electric vehicles adapted to urban cargo distribution. This applies to cargo bikes, but also other vehicles. This kind of vehicle has shorter range and smaller cargo hold than traditional vans, but are in general better suited to maneuver in places with limited space, various other road users, and a complex traffic pattern. The potential for cargo bikes must be seen in the context of supply and usage of other LEVs. Cargo bikes have today a mobility advantage over light vehicles classified as moped/scooter, motor bike or car according to Norwegian vehicle regulations. If these regulations change, it could affect the cargo bike's potential for use in goods distribution.