

## Cubicycles for last-mile inner-city delivery (Frankfurt, Germany, and Utrecht, the Netherlands)

### Innovation at the service of inner-city deliveries

*How standardized containers and customised electrically assisted cargo bicycles can contribute to zero emission urban last mile deliveries.*

**City:** Frankfurt and Utrecht

**Country:** Germany and the Netherlands

**Implementation body:** DHL

**Level of implementation:** City level

**Topic:** Sustainable urban deliveries

**Target group(s):** DHL inner city deliveries

**Stakeholders involved:**

- DHL – multinational package delivery and supply chain management company
- Velove – producer of the Cubicycle
- Local authority



### INTRODUCTION

The delivery of goods and parcels by bicycle is a key factor in ensuring sustainable urban deliveries and is becoming increasingly popular thanks to:

- Zero energy consumption and zero emissions
- No limits in accessing city centres
- Reduction of delivery trucks within cities.

DHL is one of the various multinational package delivery and supply chain management companies that has been investing in cycle logistics projects for inner city deliveries. One of its latest successful pilots includes the use of City Hubs and Cubicycles in order to replace truck deliveries in city centres.

### OBJECTIVES

- Increased use of cargo bikes for urban deliveries
- Minimize the company's environmental footprint
- Support city governments' efforts to promote sustainable cities.

### MEASURES IMPLEMENTED

There are three important parts of the central part of the City Hub – Cubicycle project (DHL press release 10 March 2017):

- The use of standardized one cubic meter containers which match the dimensions of a standard shipping pallet (80 x 120 x 100 cm).
- City Hub: a customized trailer which can carry up to four such containers.
- Cubicycle: a customized four wheeled electrically assisted cargo bicycle which can carry a container with a load of up to 125 kg.

### THE DELIVERY PROCESS (DHL PRESS RELEASE 03 JANUARY 2017):

- The containers are preloaded at a DHL operational site and loaded on the City Hub.
- A van delivers the City Hub to a designated area in the city centre.
- The containers are easily and quickly loaded on the Cubicycles.
- The Cubicycles carry out the last mile deliveries within the city centre.
- Empty containers (possibly also with returns or picked up parcels) are returned to the City Hub.
- The containers are transported back to the operational site.

### RESULTS

- Reduction of emissions by minimizing the mileage and time spent on the road by standard delivery vehicles.
- Since the pilot in Frankfurt and Utrecht DHL has introduced this system in many other Dutch cities, such as Nijmegen and Alkmaar (Erlandsson, 2017).
- Each City Hub can replace up to two standard delivery vehicles, with an equivalent CO<sub>2</sub> saving of over sixteen tons per year and a significant reduction in other emissions. (DHL press release 10 March 2017).

### SUCCESS FACTORS

- The ease and speed with which the containers can be moved between the different modes.
- The possibility to transport higher volumes by bicycle.
- The cargo bicycle itself that, despite the weight and volume of the container, can be easily manoeuvred, does not impair the view for other cyclists and is self-powered using solar panels.
- The possibility to equip the cargo bicycle with Global Positioning System or Internet of Things transmitters, to facilitate real-time shipment tracking and to ensure they can be monitored for security purposes.
- The reduced cost of ownership when compared to that of vans.