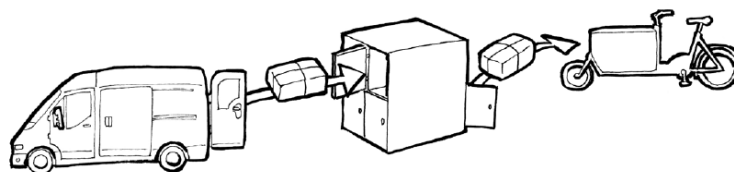


# Sustainable city logistics by combining Electric Cargo Bike delivery services with a flexible storage system

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- Cargo bikes for last mile delivery in the city centre
- Reducing traffic congestion and air pollution
- Improving public safety

*This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 690699.*

**Location:** Munich, Germany

**Organisations involved:** [City of Munich](#)



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## What is the solution?

The volume of traffic caused by delivery services has increased rapidly with the success of e-commerce. Especially in dense inner city areas, conflicts between pedestrians, cyclists, cars, other road users and delivery services are growing and even result in dangerous situations. On the other hand, the accessibility of inner city locations is becoming more and more limited for cars and trucks. As a result, goods deliveries by (cargo) bike offers great potential to keep the city accessible for freight transport and to improve road safety. Compared to ordinary bicycles, cargo bikes have a higher load capacity and enable bundling of deliveries. The overall objective of this measure is to find a feasible solution to reduce the delivery of goods by cars and trucks in the city centre, as far as economically feasible, without lowering the quality of delivery services. Therefore, it is envisioned to implement this measure in collaboration with various types of logistic service providers.

## How does it work?

To extend the use of cargo bikes, a flexible storage system will be installed that serves as an interface where cargo can be handed over from cars to cargo bikes, and vice versa. Due to space limitations in the inner city, a system of flexible boxes will be used to help the delivery services to continuously optimise their operations.

The plan is to test out several kinds of boxes and logistic systems in cooperation with delivery companies. This includes the installation of three boxes for temporary storage of parcels. Boxes will be located at the boundaries of the city centre. Initially, the system will be tested by the local partner RAPID Kurierdienste KG, who offers delivery by car and (cargo) bicycles. Implementing this storage system close to the city centre will allow RAPID to shift from car to cargo bicycle delivery, on a step-by-step basis. The service provider will thus gain operational experience with this new logistics system.

Once the measure is up and running, additional logistic companies will be sought to use the flexible storage boxes and obtain a shift to cargo bike delivery within Munich's city centre. Furthermore, installation of a denser network of boxes is planned to extend the capacity of the system and to reduce travel times and distances.

## Expected results

Deliveries combining the use of cars and cargo bikes will improve the cost-effectiveness for all actors in the logistic chain. Use of cargo bikes will enable the bundling of deliveries and thereby make full use of their capacity for larger loads. Car deliveries will save time because flexible cargo bikes will take care of deliveries for the 'last mile'. The measure will also reduce emissions and save fuel as cars/trucks will be able to avoid congested areas. Car and truck deliveries are expected to decrease by up to 5% in the city centre, thereby reducing CO<sub>2</sub>, NO<sub>x</sub> and PM emissions also.



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## Business model

This measure is funded through CIVITAS ECCENTRIC. The planned budget to implement the measure is approximately 266,000 euro, and it is expected to be carried out during a period of 36 months.

### Partners involved:

RAPID Kurierdienste KG (local courier company) - leads the measure.

Paul Wolff GmbH and Paketin GmbH - are both responsible for technical support, such as installation and maintenance of cargo boxes.

The Chamber of Industry and Commerce for Munich and Upper Bavaria (IHK) support the measure in its planning phase.

### Approximate time frame:

Research and planning: 12 months

Procurement and implementation: 10 months

Demonstration and monitoring: 14 months

Conclusions and recommendations: Eight months

Impacts on traffic will be evaluated and technical conditions will be tested. It is envisioned to develop a charging mechanism for logistic services on public space using micro-depot logistic hubs.

## Find out more

Last mile micro-depots: <https://www.muenchen.de/rathaus/Stadtverwaltung/Referat-fuer-Arbeit-und-Wirtschaft/News/News-ARCHIV/vier-mikrodepots-fuer-lastenraeder.html>

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CIVITAS ECCENTRIC Munich websites: [www.muenchen.de/eccentric](http://www.muenchen.de/eccentric)

Living lab area in Munich: <http://civitas.eu/eccentric/munich>