



I'm replacing a car

Electric cargo bikes: a climate-friendly mobility option in the courier market

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Project information

 [Support programme](#)

Innovative climate action projects

 [Project duration](#)

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 [Project leader](#)

Deutsches Zentrum für Luft- und Raumfahrt e.V.
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[Project contact](#)

www.ich-ersetze-ein-auto.de
www.klimaschutz.de/projekt/ich-ersetze-ein-auto-elektro-lastenraeder-im-kurier-und-expressdienst

Climate-friendly courier trips with the cargo bike

Traffic jams, noise and pollution have been getting worse and worse in many German inner cities. A contributing factor to this trend is the proliferation of delivery services, which have been booming for years due to increased online shopping. As early as 2011, the European Union campaigned for the goal of a largely zero-carbon logistics for major urban centres by the year 2030.

At a glance

In this project, the German Aerospace Center (DLR) set itself the goal of motivating courier service providers to switch to electric cargo bikes as a means to avoid the use of vehicles with combustion engines. The project tested the daily use of a total of 41 e-cargo bikes in eight metropolitan areas by courier companies over a period of two years. This allowed to assess the potential of these bikes to reduce carbon emissions in urban traffic and the areas of use in the courier delivery sector. In addition to the positive impacts on the participating cities, the project sparked interest in e-cargo bikes as a future-oriented and climate-friendly means of transport in urban and metropolitan areas all over Germany.



The e-cargo bike iBullitt



Helping cities – helping the climate

Often, courier companies use rather large delivery vans to make deliveries. These are not optimal for urban areas. The engines are not designed for stop-and-go traffic and the numerous short trips. Traffic is held up, for example when these trucks take up a lane to unload. Cargo bikes, and specifically cargo e-bikes are not yet widely in use in urban areas, yet they could replace conventional vehicles, especially for transporting smaller goods at short distances. This would not only avoid greenhouse gas emissions but also improve the quality of life and safety in metropolitan areas – through lower pollutant and noise emissions and the avoidance of traffic.

“You still have to put your foot on the pedal. Nonetheless, I can do up to 25 kilometres per hour without a lot of effort.”

Christian Meier, e-bike courier

The iBullitt cargo bike

The e-cargo bike used in the project, the iBullitt, is essentially an upgrade of Bullitt’s long-established non-motorised cargo bike, enhanced with an electric motor. With a robust transport box that can hold a total volume of just under 200 litres, it is ideally suited for use by courier drivers. Thanks to the upgrade, these bikes can carry up to 100 kilograms and have an electrical range of 90 kilometres when fully loaded. Only using the electrical motor, the vehicles can speed up to 25 kilometres per hour. Even higher speed and greater distances can be achieved when adding muscular force. As a pedelec, which is still a bicycle, the iBullitt can be used on bike lanes.

The project also tested the CargoCruiser, a three-wheeler with a roofed driver’s compartment and a transport crate behind the driver.

When put to the test ...

Courier service companies from Berlin, Hamburg, Munich, Düsseldorf, Bremen, Leipzig, Nuremberg and Potsdam, all of whom familiar with the use of conventional bikes for doing deliveries, took part in the project. Together, they tested a total of 41 iBullitt bikes in these eight cities.

The e-cargo bikes were put to practical use starting in the summer of 2012 for two years. The bikes were loaned to the courier centres and their drivers through leasing contracts, for a monthly fee of 35 to 50 euros per bike. The bikes were fully integrated into the normal operation of the companies and were thus used under realistic conditions.

What were the project goals?

- Promote the use of e-cargo bikes in lieu of passenger cars in the courier services sector (in the test regions);
- Capture and record traffic- and emissions-related potentials;
- Increase the familiarity with and acceptance of e-cargo bikes and attract new user groups.

What the drivers say

Many if not most of the drivers work as self-employed subcontractors for the courier companies and own their own service vehicles. Thus, the choice of the vehicle is theirs. To find out more about their attitudes and assessments, DLR conducted two surveys, one in May 2012 and one in April 2014, among bicycle, iBullitt and car courier drivers. Of the 600 survey recipients, 200 provided their assessments via an online questionnaire. The results showed that irrespective of the vehicle used thus far, respondents – predominantly male and technically-savvy – already had a positive opinion of e-cargo bikes prior to the project start.



After the test phase, the riders confirmed the suitability of e-cargo bikes for commercial use and stated seeing no problems with issues concerning safety, environmental protection and acceptance among customers. Reservations remained, however, about the range and the comparatively high acquisition costs. That said, the interviewees did not consider themselves to be well informed about the technology and use of electric bikes. Drivers who already had experience with an e-cargo bike rated these points more positively even before participating in the practical test.



Large items can also be transported with the e-cargo bike.

What did the project achieve?

- 41 vehicles were used in the model regions, thereby replacing passenger car trips;
- New user groups beyond bike couriers, such as photographers, skilled tradesmen, companies from the field of logistics, public utilities and other municipal services, are now interested in e-cargo bikes.

A presence on the road – and in the media

Throughout the project duration, the project was discussed about 100 times in various media. In addition, more than 1,000 visitors per month obtained information by visiting the project website. The drivers were in direct contact with numerous private and business clients and readily provided these and other interested parties with information brochures. Last but not least, each of the iBullitts carried the label 'Ich ersetze ein Auto' (I'm replacing a car). These measures not only brought significant visibility to the project but also to electric bikes in general.

The impact on the public led to enquiries by other groups, such as photographers, skilled tradesmen as well as newly established companies from the field of logistics, public utilities and other municipal institutions, who participated in the project to a limited extent (test use of an e-cargo bike) or who expressed an interest in subsidising or otherwise facilitating the purchase of e-cargo bikes.



What happened next?

- All project vehicles were taken over by self-employed drivers or by the courier companies after the end of the leasing phase, and have remained in operation;
- Some locations are planning to expand their e-cargo bike fleet;
- In the Hamburg location, Ikea was recruited as a new customer for home deliveries using e-cargo bikes – constituting a ‘trophy client.’

Contribution to climate action

Already during the project period, the share of environmentally friendly trips rose through the incorporation of e-cargo bikes into the courier service fleets. The direct CO₂ emissions savings were in the order of 53 to 56 tonnes. It is estimated that approximately 42 percent of the orders carried out by vehicles with internal combustion engines could be replaced by e-cargo bikes such as the iBullitt. That said, when estimated in terms of the overall mileage travelled, e-cargo bikes could replace only about 19 percent of the trips of conventional vehicles, seeing that the distance of e-cargo bikes is limited and conventional vehicles would still be used to carry out the longer distance orders.

Lessons learned

The project approach clearly showed how barriers to the increased use of e-cargo bikes can be reduced.

Reception on the ground

Drivers were found to be much more open to the use of electric bikes once they were given the opportunity to test this type of vehicle themselves. Thus, offers for using e-cargo bikes on a trial basis helped to promote their acceptance, and also gave impulses for their technical optimisation.

Reducing procurement costs

The high investment costs for an e-cargo bike are an important hurdle for self-employed drivers. The leasing offer of the project vehicles got around this economic drawback and allowed to give drivers the chance to use them. Through the project, cargo-bike manufacturers also became more aware of the potential market demand for a high-quality but also affordable product. Innovative payment models, designed and offered in cooperation with courier companies, could allow to bridge these gaps. For example, it would be possible that courier companies could purchase the vehicles and then lease them – as was done as part of the project – to the individual drivers. Alternatively, drivers could be employed on a more permanent or contractual basis and courier companies would finance the e-bikes.

Checklist for success

- The purchase costs must be reduced in order to make the bikes more attractive to self-employed drivers;
- the advantages of e-bikes (compared to cars or conventional bicycles) should be clearly stated;
- opportunities for testing the vehicles need to be expanded in order to create trust;
- acceptance is generated through good visibility.

Replacing cars – saving money

The project attracted interest from both car and bicycle couriers. For car drivers, it is the prospect of saving up to 98 percent of costs (including driving fuel and maintenance) that prompts them ‘to go e-cargo’ and leave their cars behind. Bike couriers using conventional bicycles, for their part, benefit from the electric motor as it allows them to accept orders that were formerly doable only by car. Thus, being able to transport heavier goods over longer distances means that they can compete with the car courier sector.



Last but not least, the e-bike allows them to generate higher sales.

These advantages have been clearly demonstrated by the project. The results of this experiment can and should encourage not only logistics companies but also local authorities, public procurement offices and car drivers and cyclists alike to recognise – and seize – the opportunities of e-cargo bikes.

Putting the logo on the road

The visibility of the project in public through the presence of the cargo bikes sporting the project logo stimulated an interest in innovative products and offers in the courier field as a whole. Other projects could exploit and build on these experiences, for example by looking into additional means of communicating across different media. The fact that the 'I'm replacing a car' logo was placed directly on the vehicle contributed significantly to the overall visibility. In fact, before the project period even came to an end, the project leader had already received 100 enquiries concerning a possible participation in the project.

Climate action needs your initiative

Since its launch in 2008, the National Climate Initiative (NCI) of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) has been supporting numerous projects that contribute to the reduction of greenhouse gas emissions. Funding has been given to a broad range of activities, from developing long-term strategies to providing practical assistance and investment aid. With a focus on advancing climate action on the ground, the Initiative benefits consumers, municipalities, businesses and educational institutions.

Legal information

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Sources: This project summary is based on the final project report and publications in professional journals.