



# From theory to implementation of electric fleets – success factors and remaining challenges from the transport industry perspective

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# With continued urbanisation transport challenges are increasing

- **Growing population** in urban areas
- Increasing levels of **congestion**
- **Poor air quality**, pollution levels above limits in European cities
- **Accelerated consumption circles**
- **Smaller delivery units**, individualised products
- Growing **competition** between businesses
- Request for **instant delivery**
- Augmenting **regulations**
- **Limitations of access** into centres



# Projects in Sustainable Transportation



## iHub

- Prototype of a 12 t full-electric truck in Berlin.
- Second life concepts for used batteries were in the focus of the project.
- New business models in sector coupling are possible
- In that context, digitalization has major impact on new business models.



## Einride T-Pod

- The Swedish start-up Einride developed an autonomous and full-electric transport vehicle.
- The T-Pod was operating between a DB Schenker Terminal and warehousing side.
- The major goal was to evaluate the potential of autonomous transport vehicles in several use-cases.



## EDDI

- The project EDDI was focused on potentials and use-cases of platooning in transport operations.
- The prototypes have proofed a high technical robustness (98%).
- Fuel savings have not met the expectations. Overall around 4% fuel saving was possible under the given circumstances and limitations.



## FUSO eCanter

- The eCanter was the first mass-produced full-electric truck in the DB Schenker fleet in Germany.
- Depending on modifications and the operational scenario, the eCanter can load up to 4,5t.
- Battery capacity is sufficient for up to 100 km range, which is suitable for local operation in general cargo.



## weColli

- The operational usability and potential of cargo bikes was evaluated in Berlin.
- Goods and food were distributed in specialized containers and could be temporarily stored in Micro-Hubs.
- Results show, that traffic, noise and GHG-emissions in the local distribution area could be reduced.

# Findings and Experiences



Electromobility in (sub)urban areas makes sense, since in the future, due to regulation, delivery traffic in inner-city areas will be restricted.



Sustainability must be anchored in the target system and be profitable.



Customers (especially in the B2C sector) are not expected to be willing to pay more. Nevertheless, sustainable logistics is demanded.



Introduction of CO2 footprint accounting as standard in the industry.

## Our contribution in detail

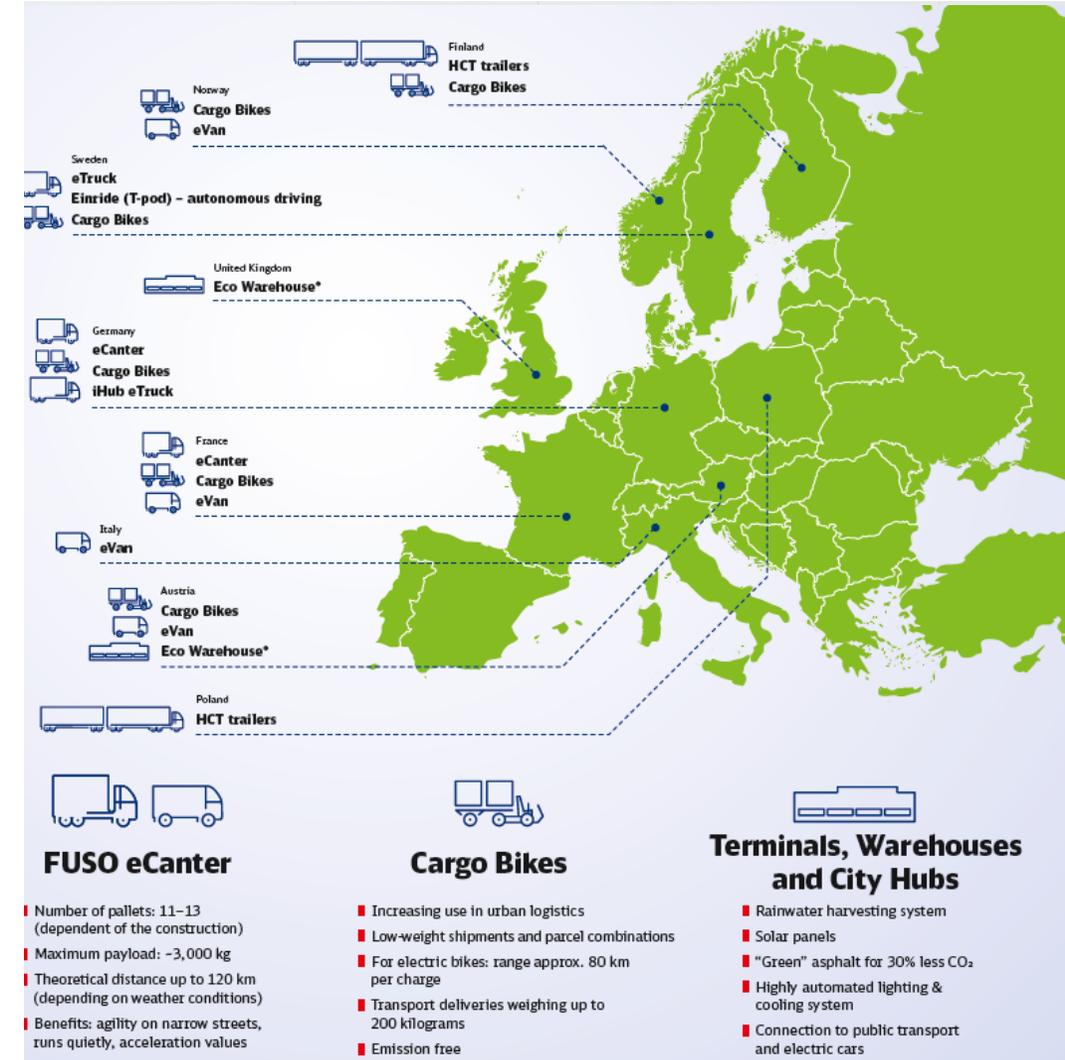
(Environmental targets until 2020)

**-16.6%** ↓  
**Energy use**  
kWh/m<sup>2</sup>

**-15%** ↓  
**Water use**  
m<sup>3</sup>/head

**60%** ↑  
**Recycling rate**

**-26.2%** ↓  
**Greenhouse gas emissions**  
gCO<sub>2</sub>/tkm



# Insights gained from first pilots

-  – **potential users are very interested** in using e-vehicles, especially for urban deliveries
-  – **pressure on logistics service providers (LSP)** to reduce emissions – noise and fumes – is increasing, in particular in city centres, often resulting in additional costs for them
-  – the **interest** in innovative solutions and concepts **surpasses the offering** available in the market
-  – **Electric cargo bikes could replace about 19%** of all transports carried out with vehicles with combustion engines; to take full advantage of this potential, the entire operation processes of the courier service need to be considered for re-organisation

# Success factors for a shift to electric vehicles for logistics fleets



- High level of acceptance by drivers due to reduction in fumes and noise emissions – less stressful driving experience



- Most companies can recharge their vehicles over night – no 24 use of vehicles



- Most commercially used vehicles are parked on corporate or privately owned grounds where charging infrastructure could be provided



- Utilization of new powertrain technologies can become a USP in the market for certain customers (B2B)



- Risk diversification in regard to potentially upcoming regulations for access to urban areas

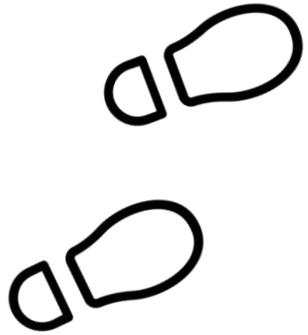


- Customers' willingness to pay more for sustainable services

# Issues remaining

-  ■ Offering of commercial transport vehicles still insufficient
-  ■ There is still a lack of competitively priced vehicles, especially for transport of goods
-  ■ Charging and electricity infrastructure, as well as access to electricity from sustainable resources still insufficient
-  ■ Small and medium sized companies are often based in rented locations and therefore hesitant to invest in charging infrastructure on the rented premises
-  ■ Change of processes in planning and operation of distribution activities is a challenge
-  ■ Lack of willingness of the customers to pay more for sustainable services

# Moving ahead



- Fostering the funding for acquisition and utilization of electric vehicles
- Increase customer awareness of sustainable services
- Improving the offer of electric commercial vehicles on the market
- Changed depreciation possibilities and further monetary advantages for users of "green" technologies
- Continued development of platforms for exchange on experiences and encouraging cooperation for the shift of transport system is important