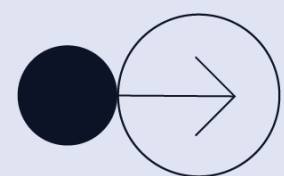




E-Smartness on three wheels

Improving Urban Quality of Life





Design Prototyping, Modular System Design

Enabling CO2 neutral urban delivery

Traffic chaos and air pollution harm city centers. Delivery traffic is responsible for one of the biggest burdens. Goods transport is estimated to be responsible for around a quarter of inner-city traffic. Together with K/W Automotive, we have developed a solution that enables small businesses and retailers to deliver their products efficiently, safely, and cost-effectively, reduces inner-city traffic and improves the city as living space.

Our solution comes on three wheels: the E3-Trix. It enables drastic energy reduction compared to delivery traffic and is the best e-mobility solution for small businesses and cities.



Delivery Traffic

Cities are bursting

70,0 Bn. €

general cargo logistics, Consumer Goods Contract Logistics and CEP of total 267 billion euros of the German logistics industry in 2017

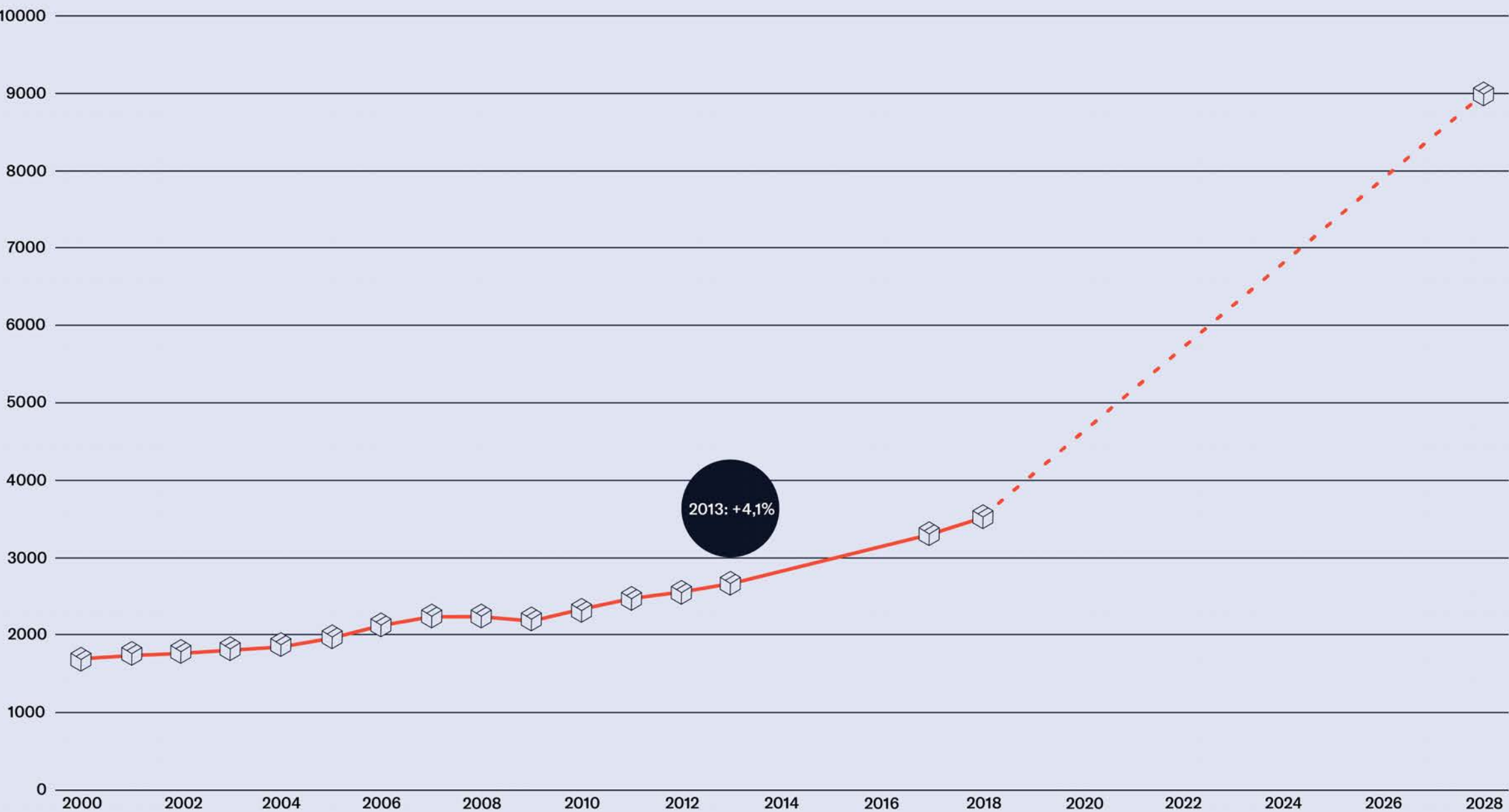
23,5 Bn. €

in revenue from courier, express and parcel services (CEP) in Germany

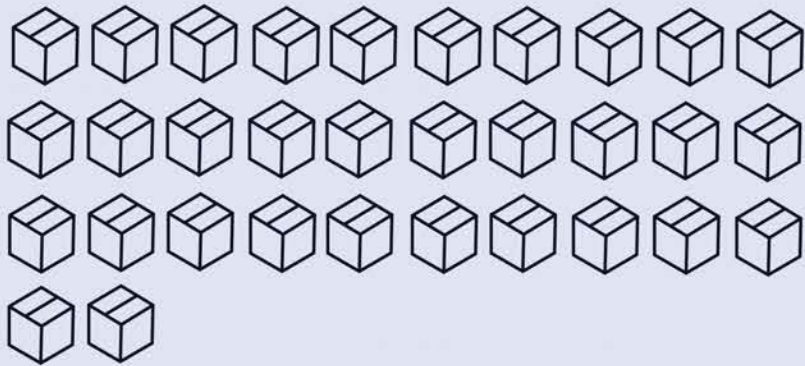
0,41 Bn. €

Innovation spending by the postal, courier and express services sector in Germany

Mail volume in the German CEP market (in Mio.)

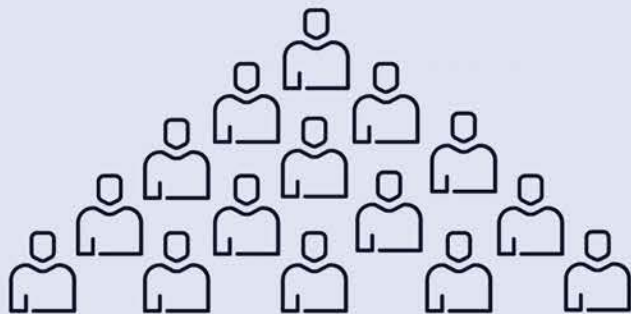


KEP-Studie 2014, Bundesverbandes Internationaler Express- und Kurierdienste e.V. (BIEK), Anzahl der Sendungen von Kurier-, Express- und Paketdiensten (KEP) in Deutschland in den Jahren 2012 bis 2019, Statista



3,25 Bn.

Number of shipments by courier, express and parcel services (CEP) in Germany



547.300

Number of employees in courier, express and parcel services (CEP)

Statistiken zur KEP-Branche, Sarah Keller, Statista

16% Express and courier deliveries



12 M.

Packages per delivery day

84% Packages

Ausgeliefert – wie die Waren zu den Menschen kommen, Agora Verkehrswende



100

Customers are supplied on one tour

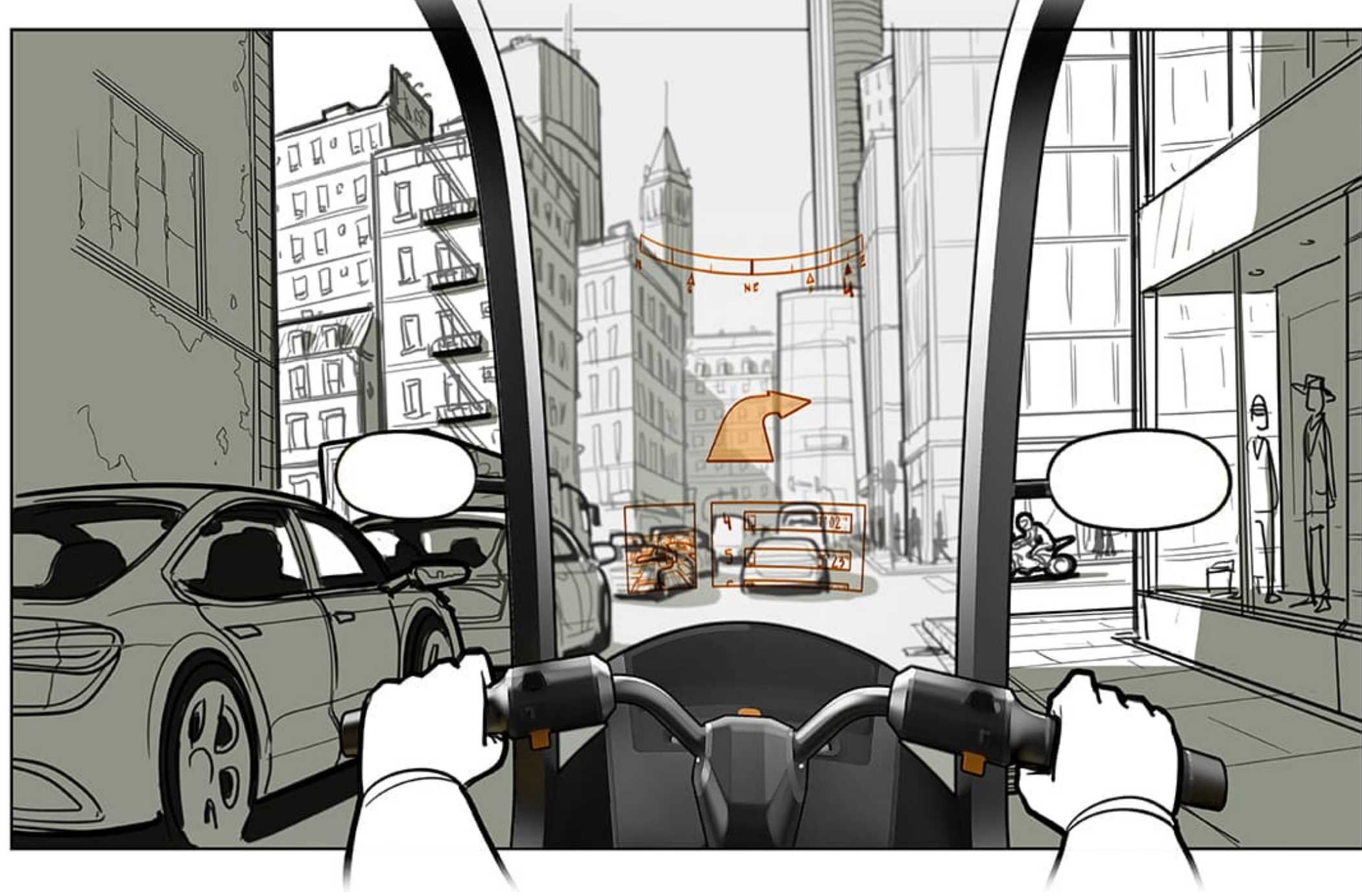
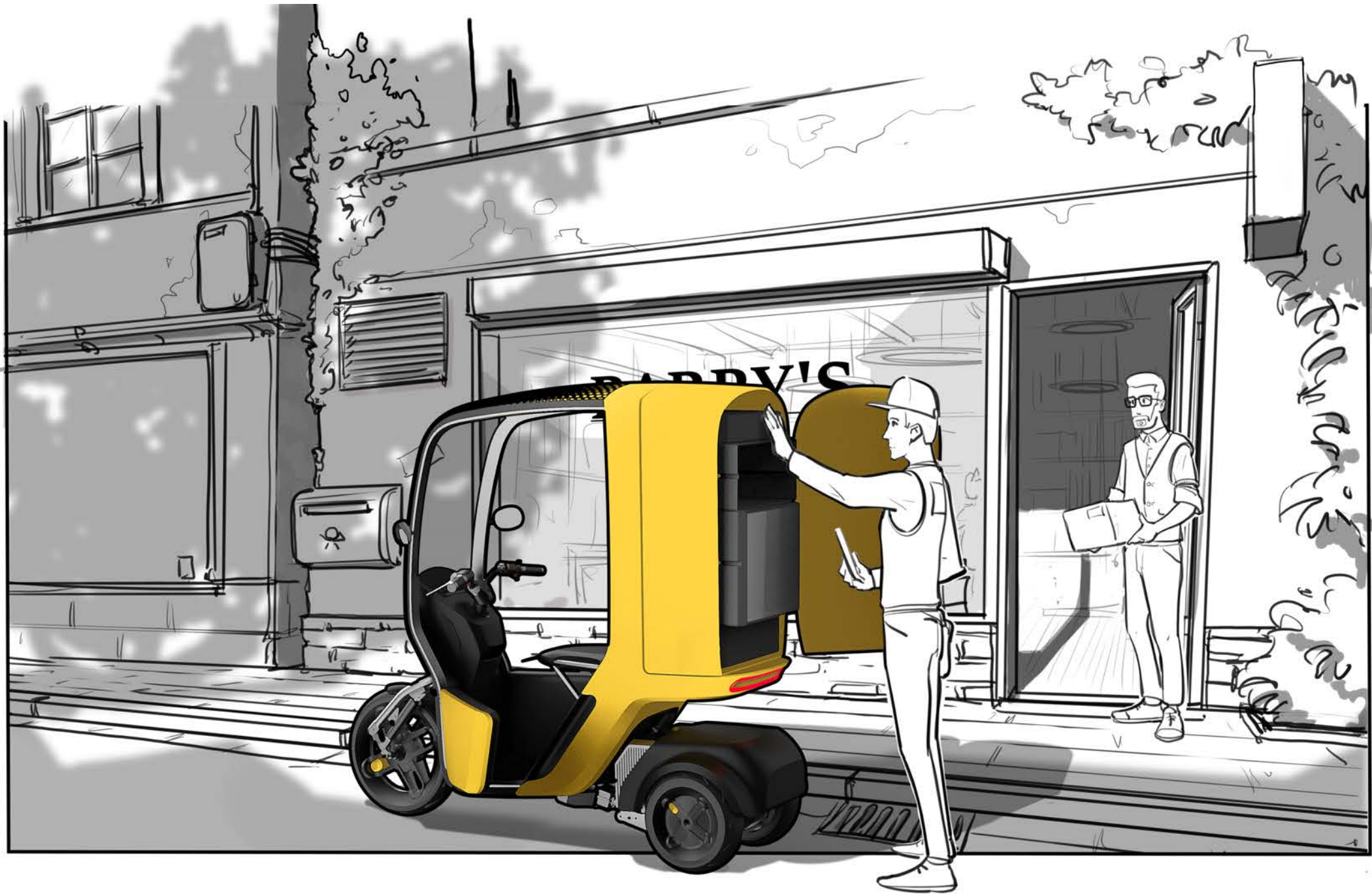
Liefern ohne Lasten, Agora Verkehrswende und Belgische Universität Wuppertal

Smarter Circularity

An E3-Trix fleet takes over the last mile in urban areas:

- It is electronic, safe, and affordable
- Range: 100- 120 km
- Loading time: three hours
- Lightweight and needs little space on the road
- Mechanical pendulum unit, a special shock absorber and a smart system control enable safe turning even in short radii
- Waterproof panoramic glass roof protects the driver from bad weather and offers trouble-free all-round visibility and sight
- Easy to drive even for unexperienced or occasional drivers

	<div> E-Cargo Bike</div>	<div> E-Trike</div>	<div> E-Delivery Truck</div>
Vehicle weight	<div> 20 – 60 kg</div>	<div> 150 kg</div>	<div> 1.500 – 4.000 kg</div>
Loading capacity	<div> 80 – 200 kg</div>	<div> 200 - 220</div>	<div> 650 kg – 1 ton</div>
Electricity vs fossil fuels	<div> Electricity</div>	<div> Electricity</div>	<div> Electricity</div>
Price	<div> 2.200 – 5.000 €</div>	<div> Ca. 3.500 €</div>	<div> 30.000 – 47.000 €</div>
Range	<div> 80 km</div>	<div> 100 – 120 km</div>	<div> 80 – 160 km</div>
Speed	<div> 25 – 45 km/h</div>	<div> Max. 60 kmh/h</div>	<div> 85 – 120 km/h</div>
Charging time	<div> 2 – 6 hours</div>	<div> 3 hours</div>	<div> 5 hours</div>





Modular Design for Cross-Industry Use

The design is inspired by the historic café racers and today's street fighters and shows genre-typical technical as well as modern elements such as LEDs and displays.

Despite the bare fork, the self-supporting construction provides wide advertising spaces on all modular, individualizable parts.

Moreover, the variable design offers sufficient storage space for the transport of even bulky goods and the opportunity to individually equip the versatile storage boxes depending on the goods to be transported. Therefore, it becomes a viable option for SMEs such as craftsmen, pharmacies, care services in addition to local retailers.



IDEATION

APP

- AT THE DISTRIB. CENTER, THE APP SHOWS COURIERS THE CURRENT PACKAGES THAT CURRENTLY HAVE THE MOST EFFICIENT LAST-MILE-DELIVERY ROUTE
- MAKES DELIVERY TRACKABLE FOR CUSTOMERS
- USER-MODEL?
- UN-LOCKS BONES

SMARTPHONE UI

HUD

HELMET + COMMUNICATION

STACKABLE SHELL

MODULAR STORAGE

- E-INK DISPLAY SHOWS CONTENT & DESTINATION ETC.
- UNLOCK VIA APP
- GPS TRACKING FOR CLIENTS?

EXCHANGABLE DRAWER

- INSULATED
- HEATED/COOLED
- FOR FRAGILE THINGS
- ...

HALF DOORS

- SEAMLESS NAVIGATION (WALKING - DRIVING - WALKING)

102.2
22.1.19

MODULAR CARGO BOXES

- INSULATED
- HEATED/COOLED
- PADDED

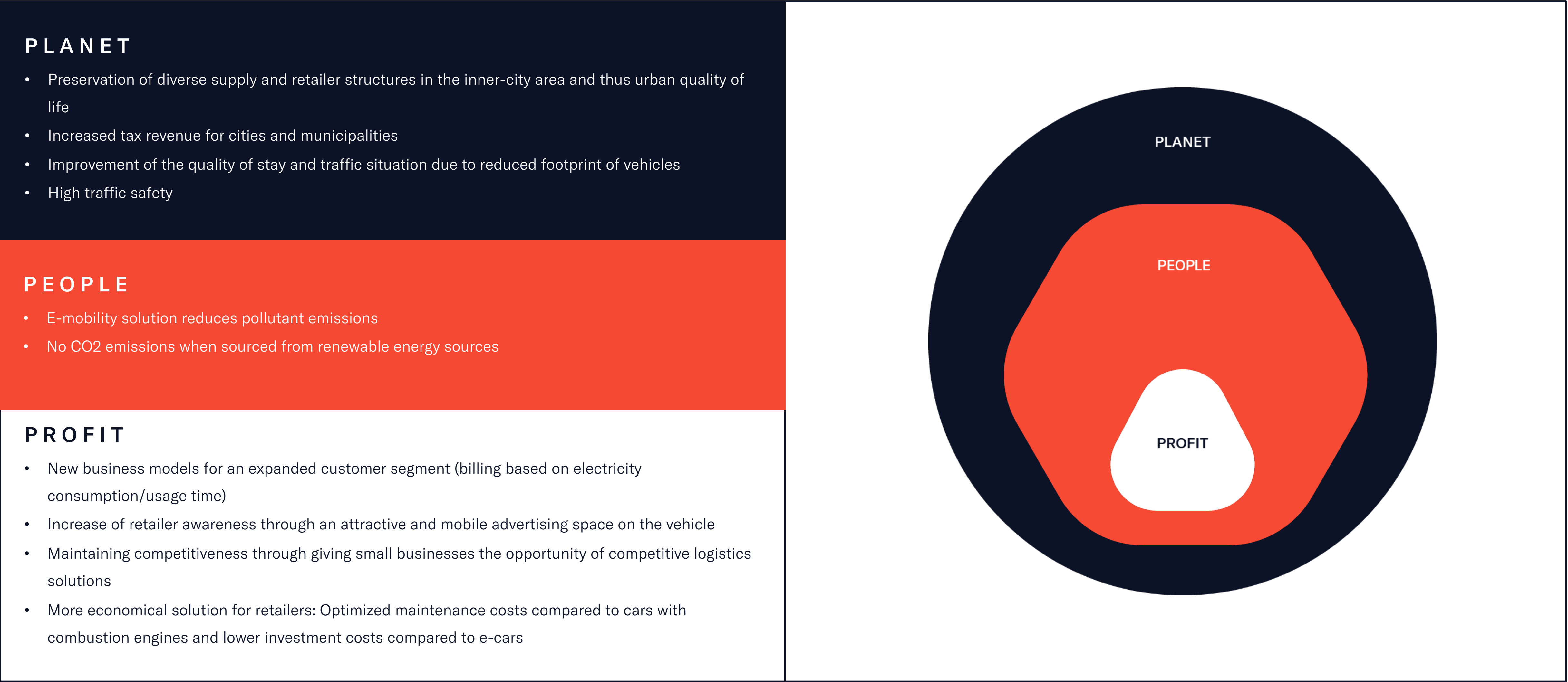
DOOR

DRAWER

EXPOSED STRUCTURE

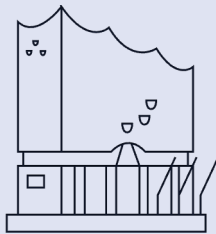
102.2
25.1.19

INDEED



INDEED

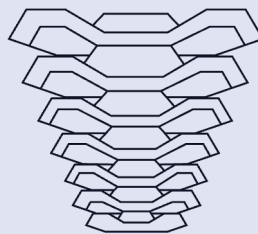
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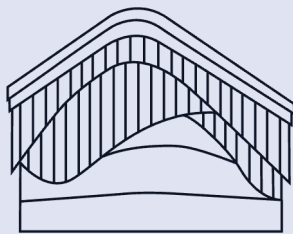
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