

Cargo cycles trials and initiatives in Berlin

BESTFACT Workshop, 29-30 January 2014, Brussels

Johannes Gruber

German Aerospace Center (DLR)

Institute of Transport Research, Berlin



Knowledge for Tomorrow



Outline


- Background – project "I substitute a car"
- The **courier market** in Berlin
 - shipments by bikes and cars
 - technical substitution potential
 - modal split of a courier company
- The **courier logistics organisation**
 - drivers/barriers for electric cargo bike use
 - example of a restructured tour
- The **messengers**
 - awareness of electric cargo bikes
 - requirements towards vehicles
- Other German trials and initiatives
- Take-home messages



Project "I substitute a car" – used vehicles

- Main vehicle: iBullitt (x 40)



- producer: **urban** 
- engine: 250 W front wheel hub
- payload: up to 100 kg
- cargo box standard: 176 l, maxi: 281 l

- Additional vehicle: CargoCruiser (x 1)



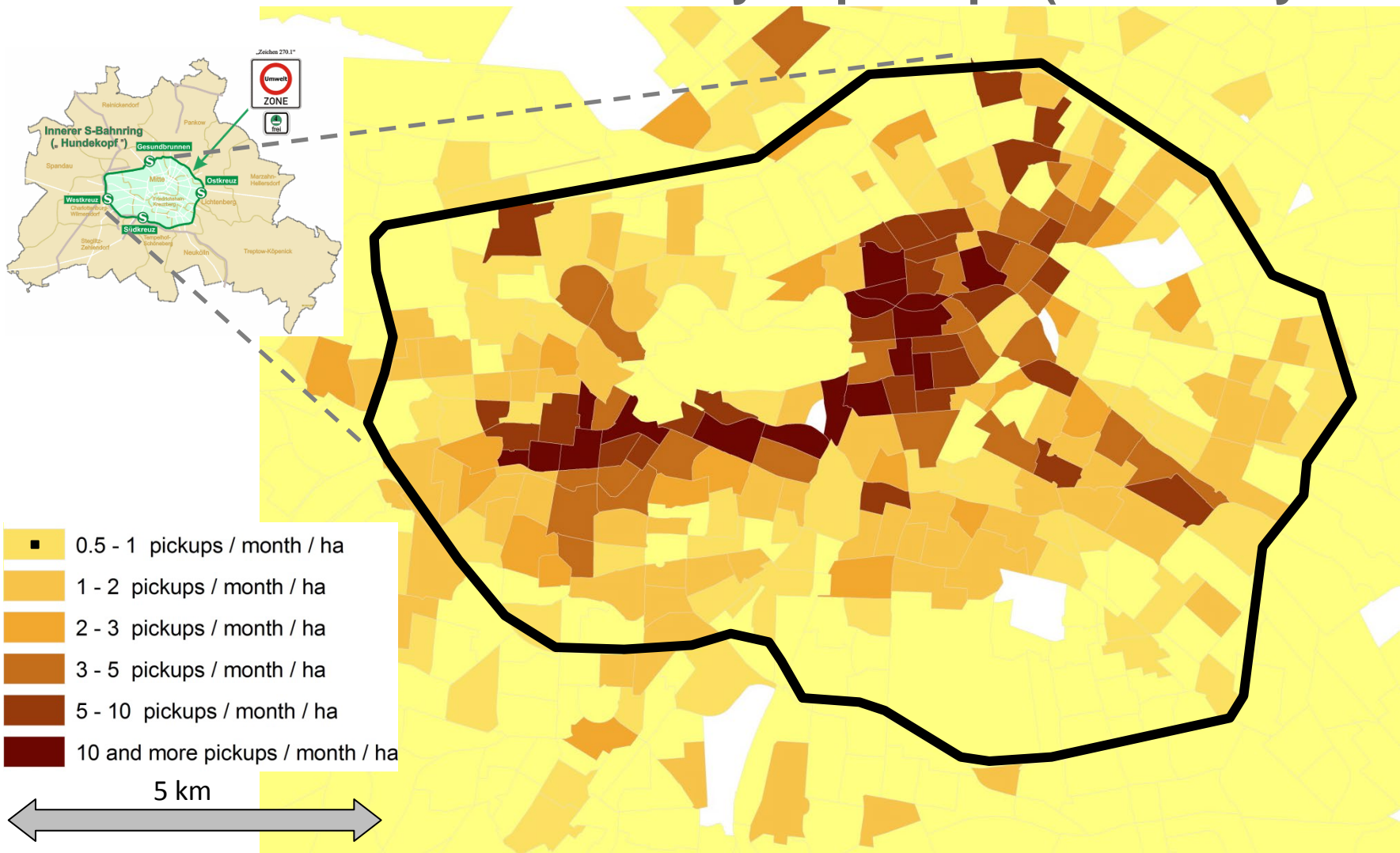
- producer: **veloform**
- engine: 250 W, 48 V, 1.536 Wh
- payload: bis 300 kg
- cargo box: 879 l



"Coffee run" – one application example in Berlin



The courier market – density of pickups (Berlin city center)



OD-relations of courier shipments (Berlin city center)



Bike messengers



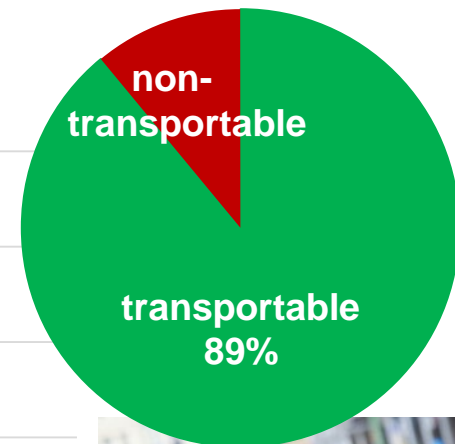
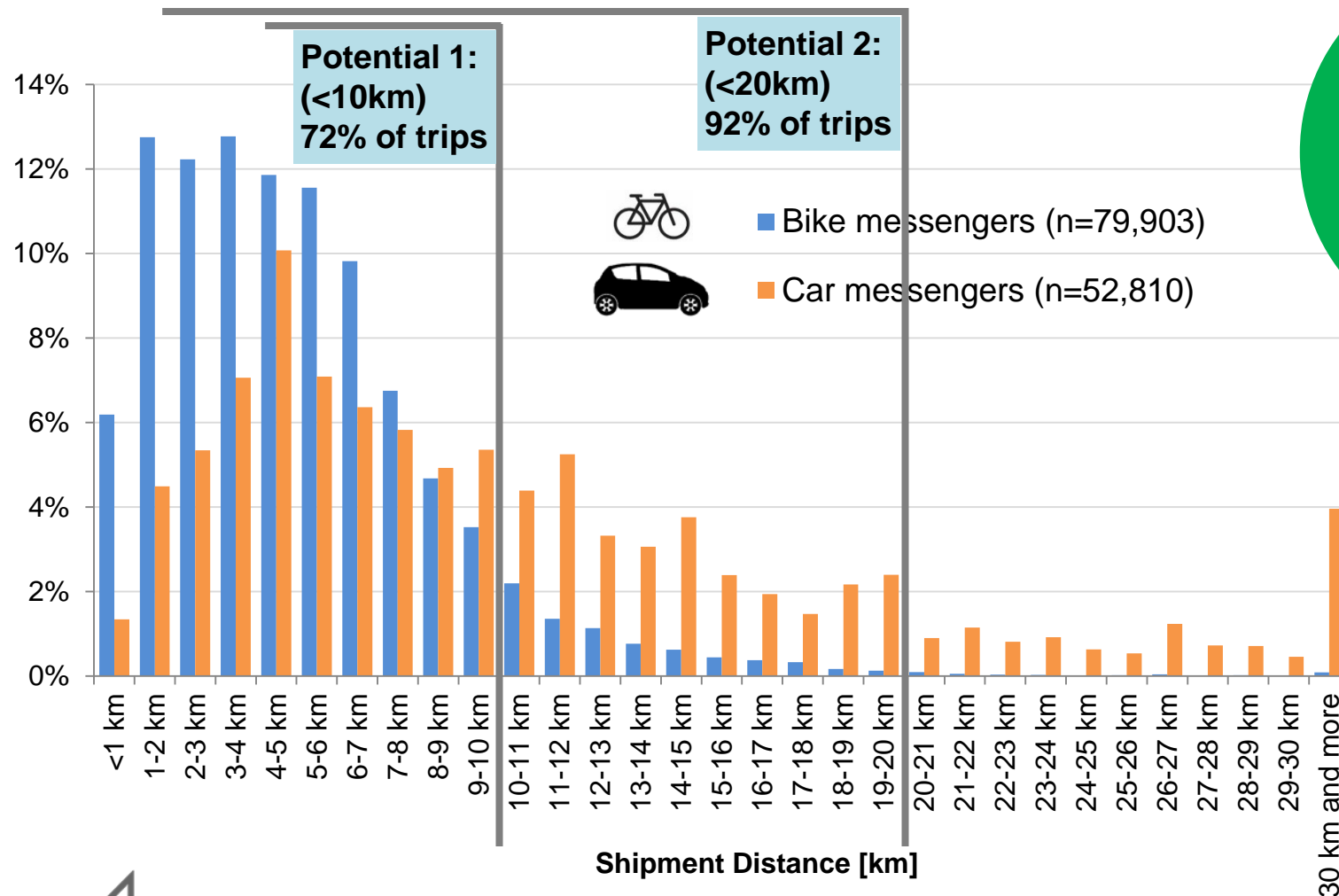
Car messengers

Shipments per week:



1 km

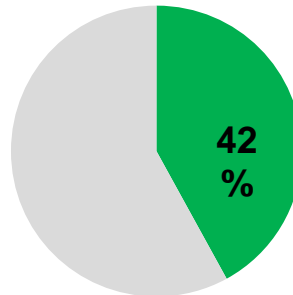
Short trips and light goods



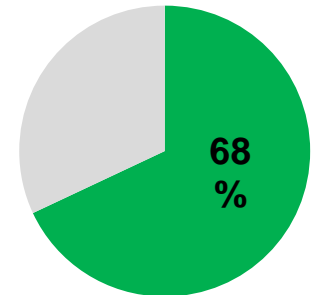
Car substitution potential

**Substitutable
deliveries**

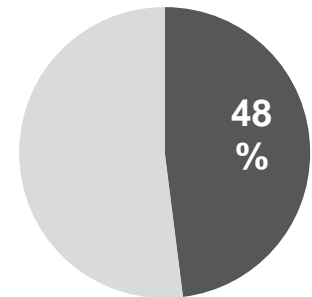
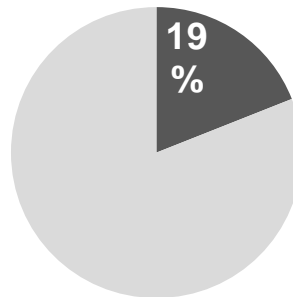
**Potential 1: trips below 10km
& transportable goods**



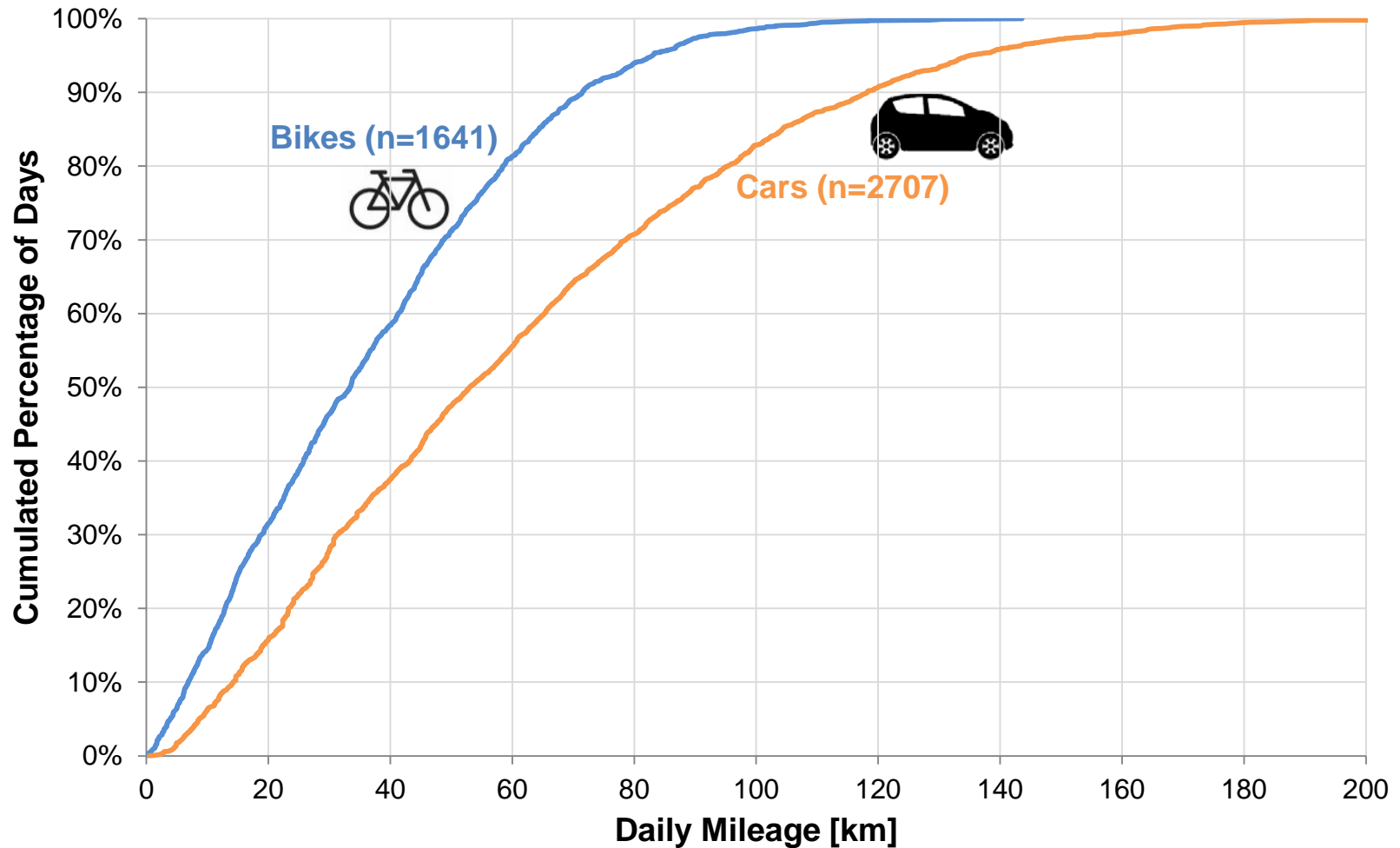
**Potential 2: trips below 20km
and transportable goods**



**Substitutable
mileage**

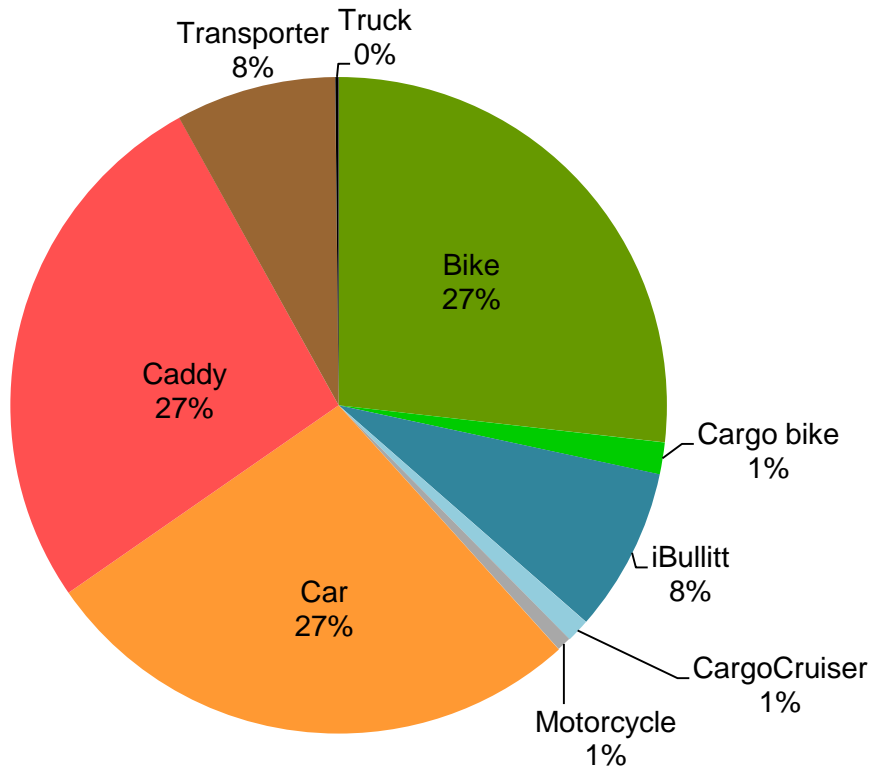


Daily mileages of bike and car messengers

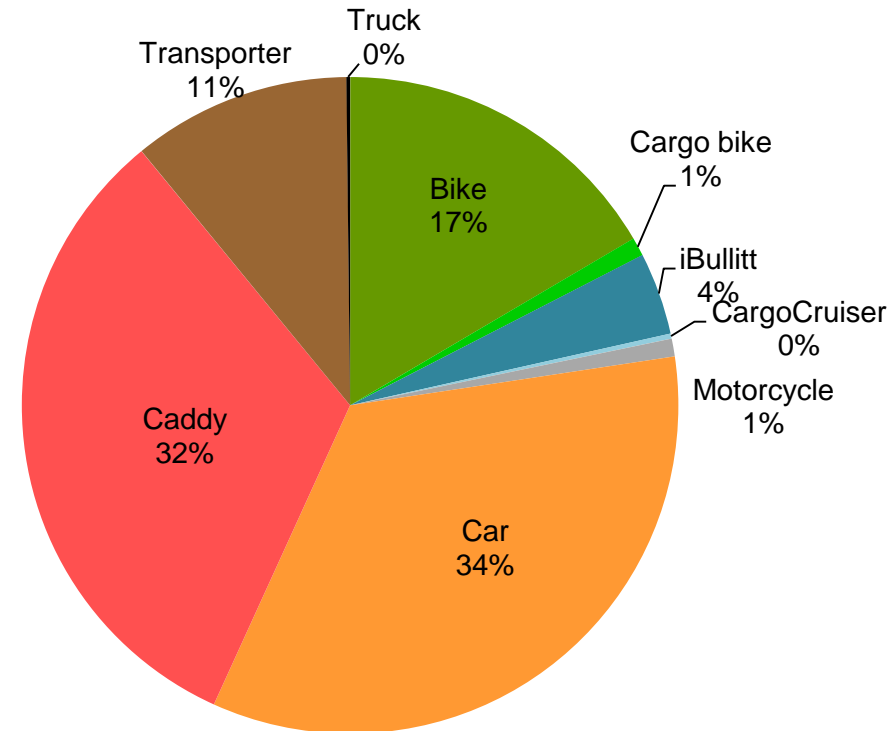


Modal split of a courier company

Modal Split (deliveries)



Modal Split (km)



reported period: 7/2012 – 9/2013; n~267.000 trips

sum ~ 2,3 million km

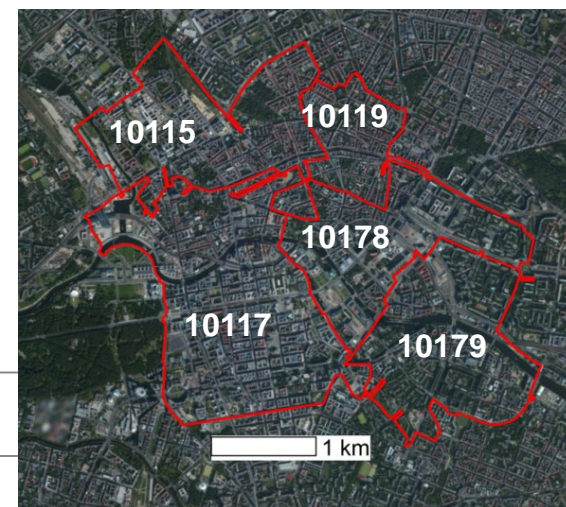
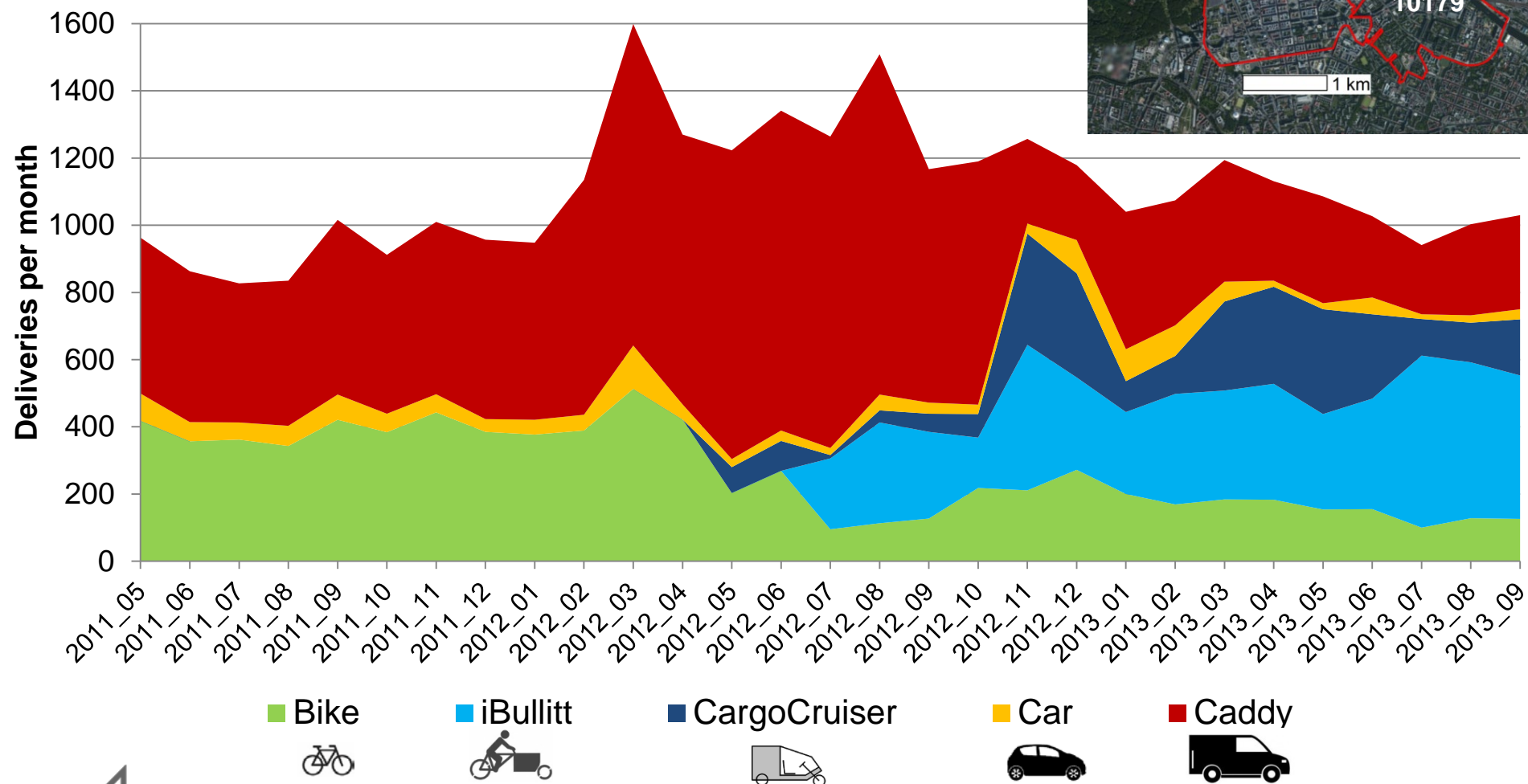


Understanding courier logistics organisation to identify drivers/barriers for further spread of electric cargo bikes

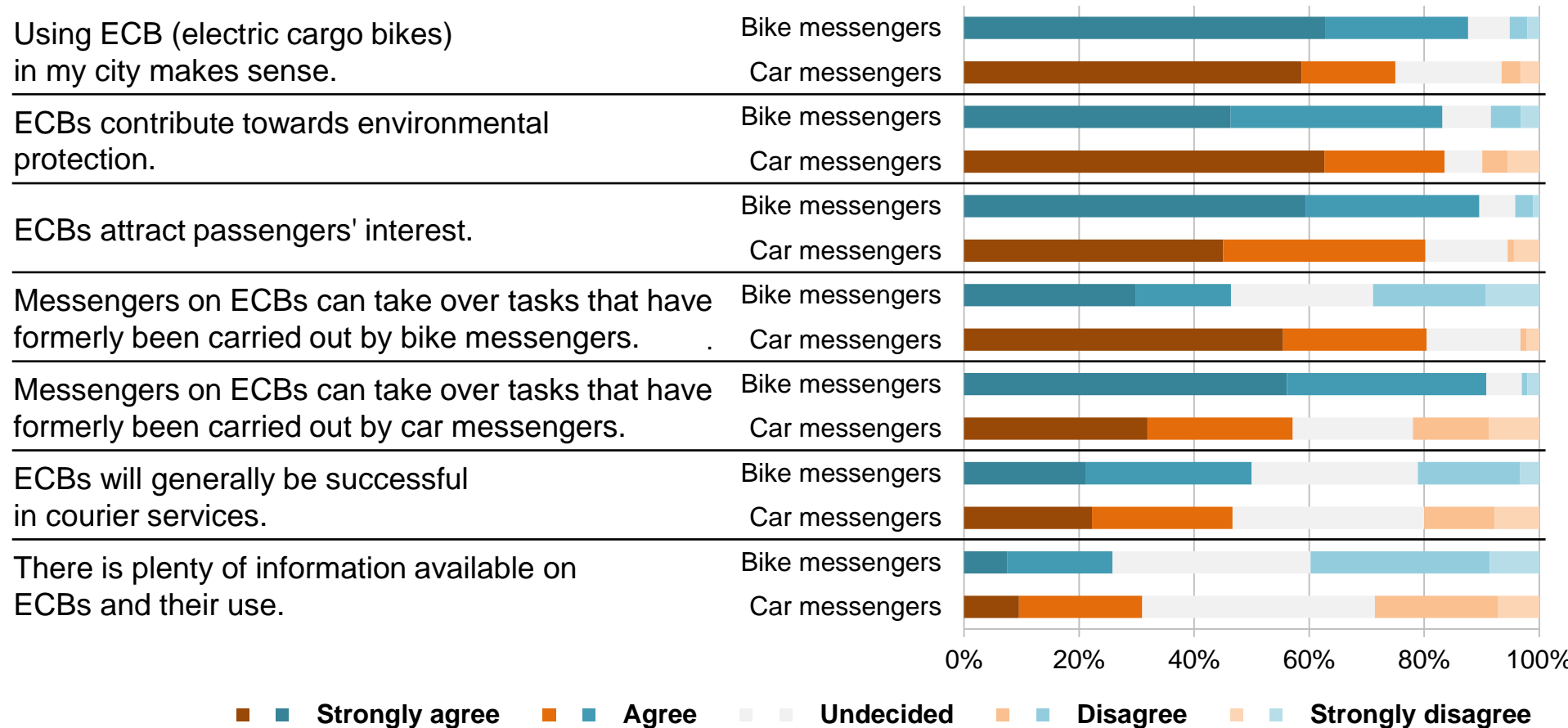
- company background
 - historical development
 - range of services, USP
 - assets
- employees / messengers
 - recruiting and training
 - remuneration
- pricing
- customers
- green logistics
- order acceptance
 - process and communication
 - mode decision
- dispatching of shipments
 - process and communication
 - control of success / failures



Restructuring of a central Berlin pick up tour



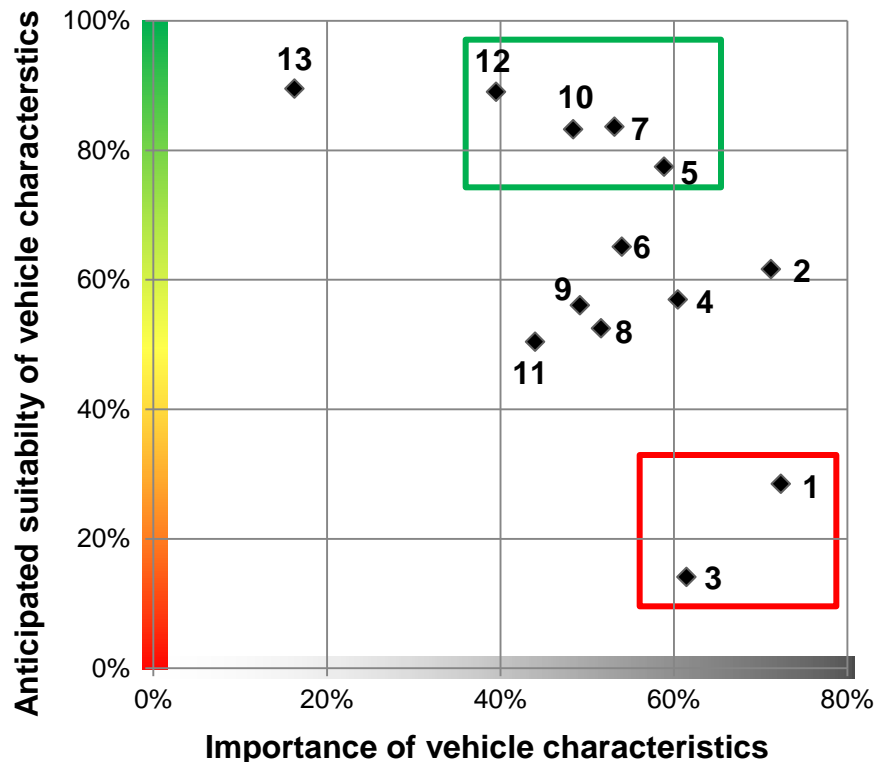
The individual messengers: Awareness of and attitudes towards electric cargo bikes



n=191 (92 bike messengers, 99 car messengers)



The individual messengers: Requirements towards vehicle characteristics



1 Electric range

2 Handling while driving

3 Purchase price

4 Theft protection

5 Vehicle safety

6 Speed

7 Environmental protection

8 Maintenance costs

9 Charging at place of residence

10 Payload

11 Charging on the way

12 Perception/acceptance of customers

13 Perception/acceptance of private surrounding



Take-home messages

- **The courier market**
 - considerable demand for courier services in urban core areas
 - car and bike messengers are in direct competition – spatially, temporally, by type of good
 - large potential for electric cargo bikes to substitute urban small-scale trips (19%-48% of the mileage currently done by combustion engine vehicles)
- **The courier logistics organisation**
 - electric cargo bikes are positioned between bikes and cars – in terms of cost, payload, range
 - mostly self-employed owner-operators connected to courier companies
 - courier companies are often small in size; they are evolving gradually and might lack strategic focus – on the other hand: large potential for innovators
- **The messengers**
 - overall positive anticipation both by bike and car messengers
 - deficit seen in available information, purchase price, electric range



Thank you for your attention!

Dipl.-Geogr. Johannes Gruber

German Aerospace Center (DLR)
Institute of Transport Research
Rutherfordstr. 2
12489 Berlin
Germany
johannes.gruber@dlr.de

