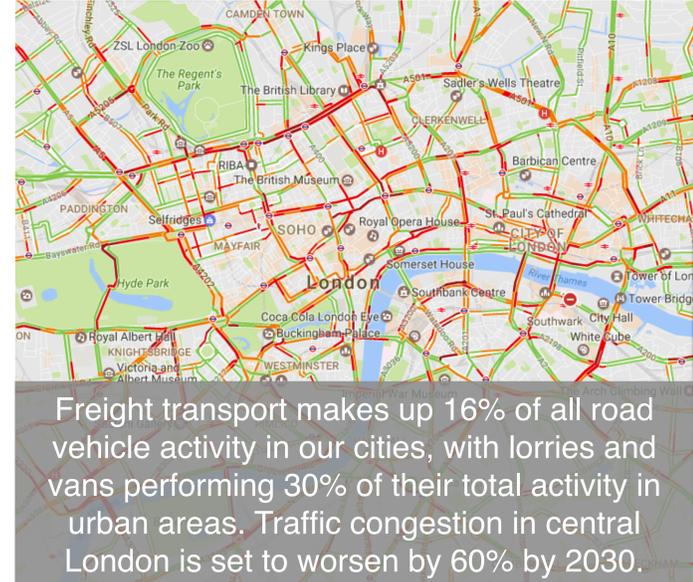
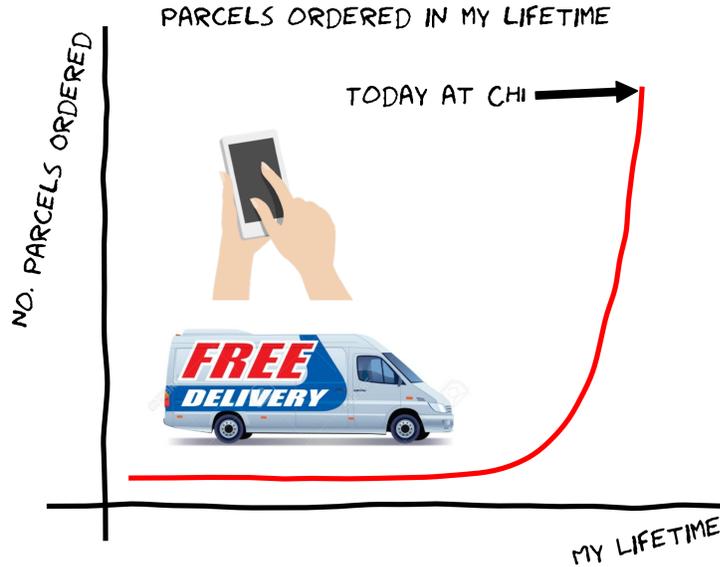


## Are people key to enabling collaborative logistics?

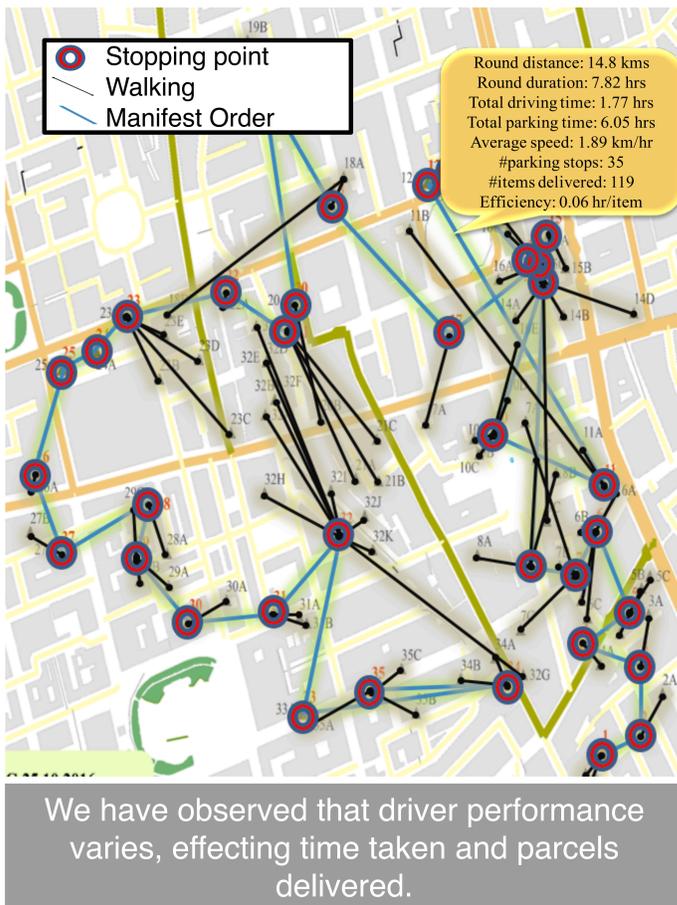
Oliver Bates, Bran Knowles, Adrian Friday  
 Lancaster University, UK  
 {o.bates,b.h.knowles1,a.friday}@lancaster.ac.uk

### Enabling collaborative and low-carbon freight in cities, the vision...

- ◆ Understanding parcel generation and deliveries
- ◆ Understanding the spatial and temporal elements of the street
- ◆ Enabling shared loads across couriers and hauliers
- ◆ Lowering carbon through reducing the demand on infrastructure
- ◆ Helping redesign of the urban environment



### Manifests vs Parking Locations



### Understanding the role of people in last-mile logistics

If you ignore people you miss out on:

- ◆ The "drivers bible" - tacit and local knowledge effecting decisions made on the job
- ◆ Parcel manifests only tell you the destinations, not how the drivers get there
- ◆ Driver churn and turnover leads to lost knowledge and inexperienced drivers on rounds
- ◆ Driver's end up walking with several parcels and not parking at each destination address

Variations in choices made by the driver leads to variations in the time spent delivering each parcel (3 - 4.8 minutes per item delivered).

**Experienced drivers have better local knowledge:**

- ◆ Make their own loading, routing and parking optimisations
- ◆ Better understanding of roads, congestion and alternative routes than technology
- ◆ Understanding of stopping places and parking restrictions that isn't always present in datasets
- ◆ Personal relationships with building security, traffic wardens and shop owners

**Tacit knowledge and personal relationships** give the best performing drivers the biggest the edge when it comes to delivery time and total parcels delivered.

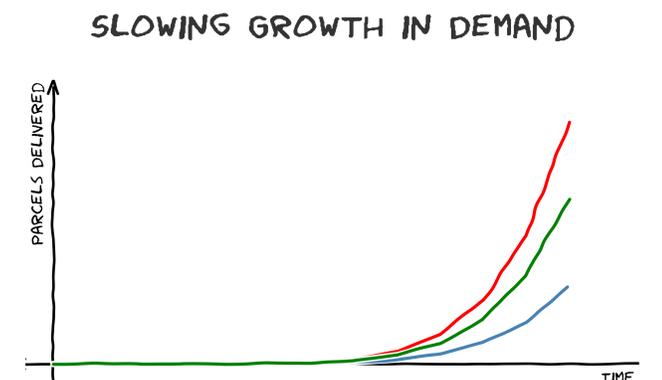
### Designing for low-carbon, collaborative, last-mile logistics should consider:



The importance of parking location and walking



The role of tacit knowledge of the roads and human relationships in design



How can technology can stem or slow, not accelerate demand and carbon footprint

Team:



Partners:



Engineering and Physical Sciences Research Council  
 GRANT Ref. EP/N02222X/1