Co-designing Digital Services for Collaborative and Sustainable Logistics

Bates, O., Lord, C., Thornton, L., Friday, A., Allen, J., Bakas, T., Cheilis, K., Cherrett, T., McLeod, F., Plocy, M., Piotrowska, M., Wise, S., Lancaster University, University of Westminster, University of Liverpool, University of Southampton

Data-Driven Empirical Work

Our data-driven empirical work enabled us to work with our partner carriers and project collaborators to develop a more holistic understanding of last-mile logistics operations in central London and the Highlands and Islands.

Data and methods include:
- Data sharing agreements, GDPR
- Fieldwork and observations
- Carrier manifest data
- Vehicle activity and GPS data
- Ethnographic studies
- Anonymised Telematics data
- Open Street Maps
- Land asset data

Freight Traffic Controller: Data Pipeline

Opportunities for data sharing and collaboration

Models & Analytics
- Shipping Points
- Delivery Analytics
- Time Performance
- Street Performance
- New Delivery Rounds
- Predicted rounds

Raw Data & Contact
- Time Series data
- Qualitative Data
- GPS Location Data
- Meta Data
- Project Generated Data
- External Data Feeds
- Spatial Data, Maps and Models

Data-Driven Approach to Design Thinking

Digital tools to support collaboration

Working with real data
More holistic analytics

Developing digital services

Data processing and cleansing
Data Schema
Design probes and interface prototypes
Policy Maker Dashboard

Effective workers and collaborative models of work

Understanding a day in the life of a courier
Collecting driver traces and observations
Driver analysis
Emphasising team knowledge
Driver knowledge and relationships
Indoor navigation

Open process and standards

Stakeholder Workshops
A multi-stakeholder approach

Collaborative and trusted logistics services - Carrier's carrier case study

- Developing a unified system based around common data - for example, barcodes, parcel status, proof of delivery - so that processes remain the same for the carrier, irrespective of the carrier
- Building and maintaining trusted relationships with clients, carriers, and couriers
- Ongoing agility and flexibility in core operations; expect variation in loads, demand and delivery times

Next Steps and Recommendations

Data access, quality and availability
Courier effectiveness
Validation and linking to representative data
Data Trust