Co-designing Digital Services for Collaborative and Sustainable Logistics

Bates, O., Lord, C., Thornton, L., Friday, A., Allen, J., Bektas, T., Cheilotis, K., Cherrett, T., McLeod, F., Piecyk, M., Piotrowska, M., Wise, S.
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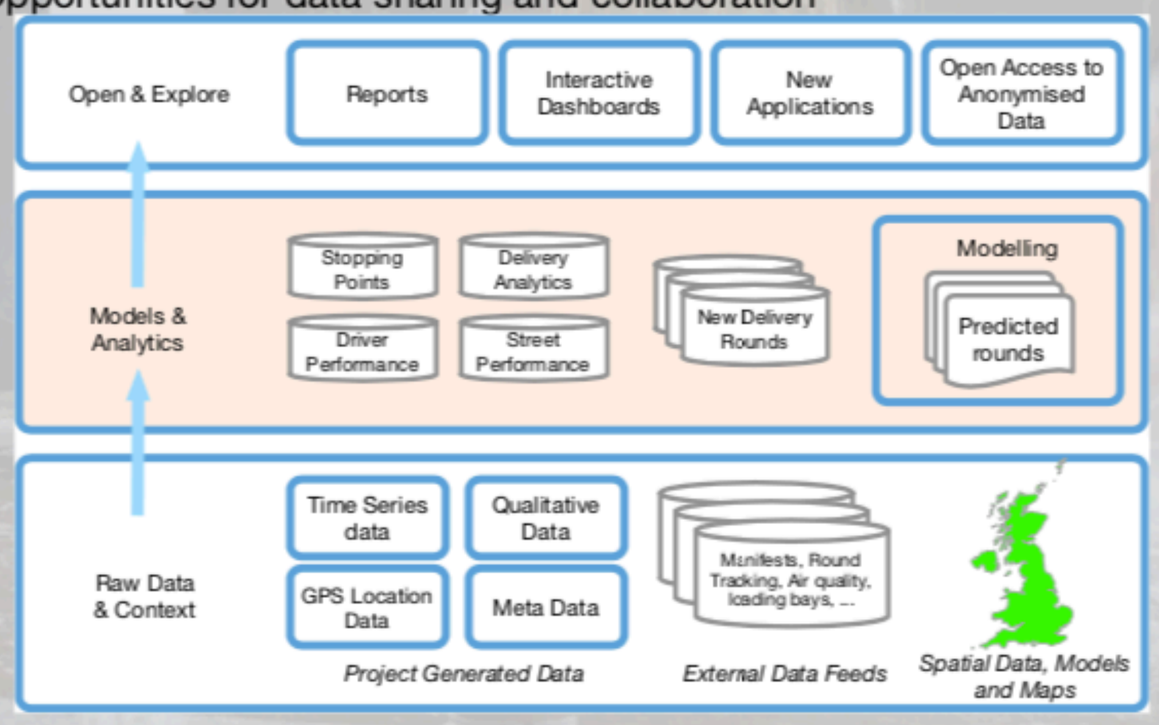
Data-Driven Empirical Work

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



O. Bates, A. Friday, J. Allen, F. McLeod, T. Cherrett, S. Wise, M. Piecyk, M. Piotrowska, T. Bektas, T. Nguyen, ICT for Sustainable Last-mile logistics: Data, people and parcels. In Proceedings of ICT4S (ICT for Sustainability) 2018, Toronto, Canada May 2018

Data-Driven Approach to Design Thinking

Digital tools to support collaboration


Working with real data


More holistic analytics

F. McLeod, O. Bates, T. Cherrett, A. Friday, S. Wise, M. Austwick, J. Allen, M. Piecyk, M. Piotrowska, T. Bektas, T. Nguyen, K. Ghali, Exploring the temporal and spatial impact of seasonal parcel demand on urban freight. Presented at the 22nd Annual Conference of The Chartered Institute of Logistics & Transport, Logistics Research Network (LRN), 2017

Developing digital services


Data processing and cleansing


Policy Maker Dashboard

Design probes and interface prototypes

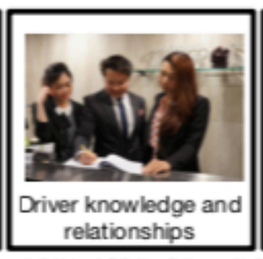
Effective workers and collaborative models of work


Understanding a day in the life of a courier


Collecting driver traces and observations

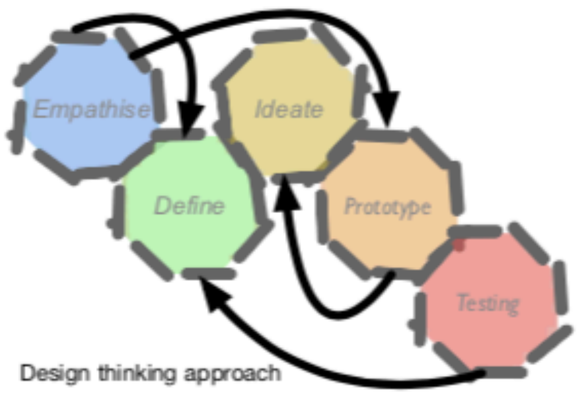

Driver analysis


Emphasising tacit knowledge


Driver knowledge and relationships


Indoor navigation

O. Bates, A.Friday, J. Allen, T. Cherrett, F. McLeod, T. Bektas, T. Nguyen, M. Piecyk, M. Piotrowska, S. Wise, N. Davies, Transforming last-mile logistics: Opportunities for more sustainable deliveries. In Proceedings of CHI 18, Montreal, Canada April 2018



Design thinking approach

Open process and standards


Stakeholder Workshops


A multi-s:akeholder approach

- Open Processes
- Legislative Framework
- Independent
- Data Standards
- Privacy and Trust

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


Fieldwork with a neutral consolidator

Collaborative Digital Systems

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

F. MacLaren, F. McLeod, O. Bates, PARCEL CARRIER COLLABORATION – CAN BIG CITIES LEARN FROM SMALL COMMUNITIES?, CILT Focus, April 2019.

Next Steps and Recommendations


Data access, quality and availability


Courier effectiveness


Validation and linking to representative data


Data Trust

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University of Westminster
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UCL The Bartlett Centre for Advanced Spatial Analysis
University of Liverpool
EPSRC Engineering and Physical Sciences Research Council
GRANT Ref. EP/N02222X/1