We're helping
our customers
plan the
transport systems
of the future

O₂ Motion's anonymised travel data is
helping assess demand for shared
mobility services in urban areas

CATAPULT
Connected Places

O₂
business

Mobility as a Service

O₂ Motion data helps show how people really use transport

" *O₂ Motion data provides a unique and powerful view of how populations interact with transport systems. We're delighted to work with Connected Places Catapult to help assess the transport systems of the future.* **"**

Chris Wroe, Head of Product Engineering, O₂

Challenges

- New methodology is needed to derive complex travel patterns from mobile network data
- Need to understand people's attitude towards new mobility services
- Requirements to understand multimodality, where private on-demand services are integrated to the public transport system
- Need the ability to assess the impact of mobility-as-a-service

Products

- O₂ Motion mobile network data (MND)

Benefits

- Anonymised and aggregated Origin-Destination Matrix gives a clear picture of travel demand and how journeys are made
- 'Trip-chain' data provides information around how trips are distributed across 24 hours
- Ability to create activity-based models which plug directly into large-scale 'agent-based' transport models for use in urban areas

The Demand Modelling and Assessment through a Network Demonstrator (DeMAND) project focuses on the development of a new methodology to assess the need for the introduction of new shared mobility services in urban areas and how these integrate with Public Transport to improve services for users.

The demand for travel was created by using two O$_2$ Motion datasets, trip-based origin-destination matrices and trip-chains for an average day in March.

Connected Places Catapult (CPC) is the UK Centre of Excellence for urban innovation and mobility with a role to catalyse the innovation market in the UK and globally. They used these data sets to create a synthetic population and a data-driven agent-based model using an activity-based approach to derive complex travel patterns from mobile network data aggregated at trip-chains level.

This model represents how people move, their transport choices and preferences, while enabling the testing of a variety of mobility services (demand-responsive transport, micromobility, last mile deliveries) either integrated with the current public transport system or not.

Identifying the demand and catchment area for mobility services is a straightforward application of the model, which, in combination with an online survey, allows Connected Places Catapult to plan and integrate services for bus, rail or aviation and to anticipate possible early adopters depending on the characteristics of the service.

The trip-chain data helped us capture current travel demand and key insights to tailor business models for new mobility services for the movements of people and goods, enabling more sustainable growth in cities and supporting the levelling-up of nearby rural areas.

Dr Patrizia Franco, Connected Places Catapult

25m users

Our huge reach, approaching 30-35% of the UK mobile market, allows for an unparalleled dataset reflecting public travel – more reliable than surveys or focus groups

Tried and tested in the Northeast

Creation of a transport digital twin of Tyne and Wear and the Northeast of England enables a detailed understanding of door-to-door travel patterns in the region

Innovative transport proposals

Prototype to provide decision makers with a tool to appraise mobility-as-a-service schemes and emerging on-demand mobility services

Transport sector insights

Almost one million trips and over half a million trip-chains combined to generate a realistic demonstrator for urban mobility

> " O_2's data gave us a solid base to support the development of a large scale demand model which can test innovative policy interventions to decarbonise road transport at regional level. "
>
> **Dr Patrizia Franco,
> Connected Places Catapult**

Activity-based travel patterns

A data-driven, agent-based transport model provides an integrated and multimodal representation of the movements of people and goods and can support identifying the future of mobility strategies to decarbonise the transport systems