Using Big Data to improve the passenger experience
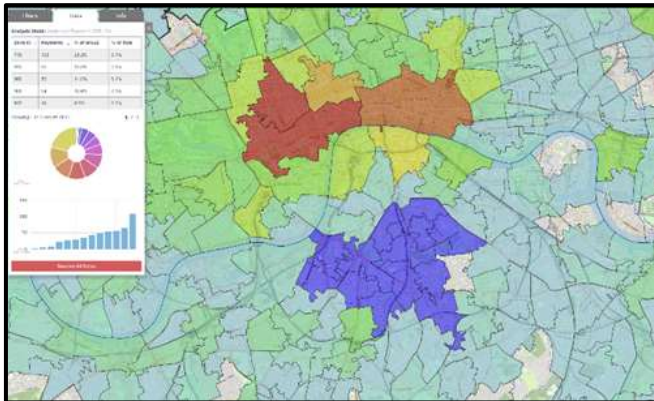
Mobile Network Data (MND) is Big Data
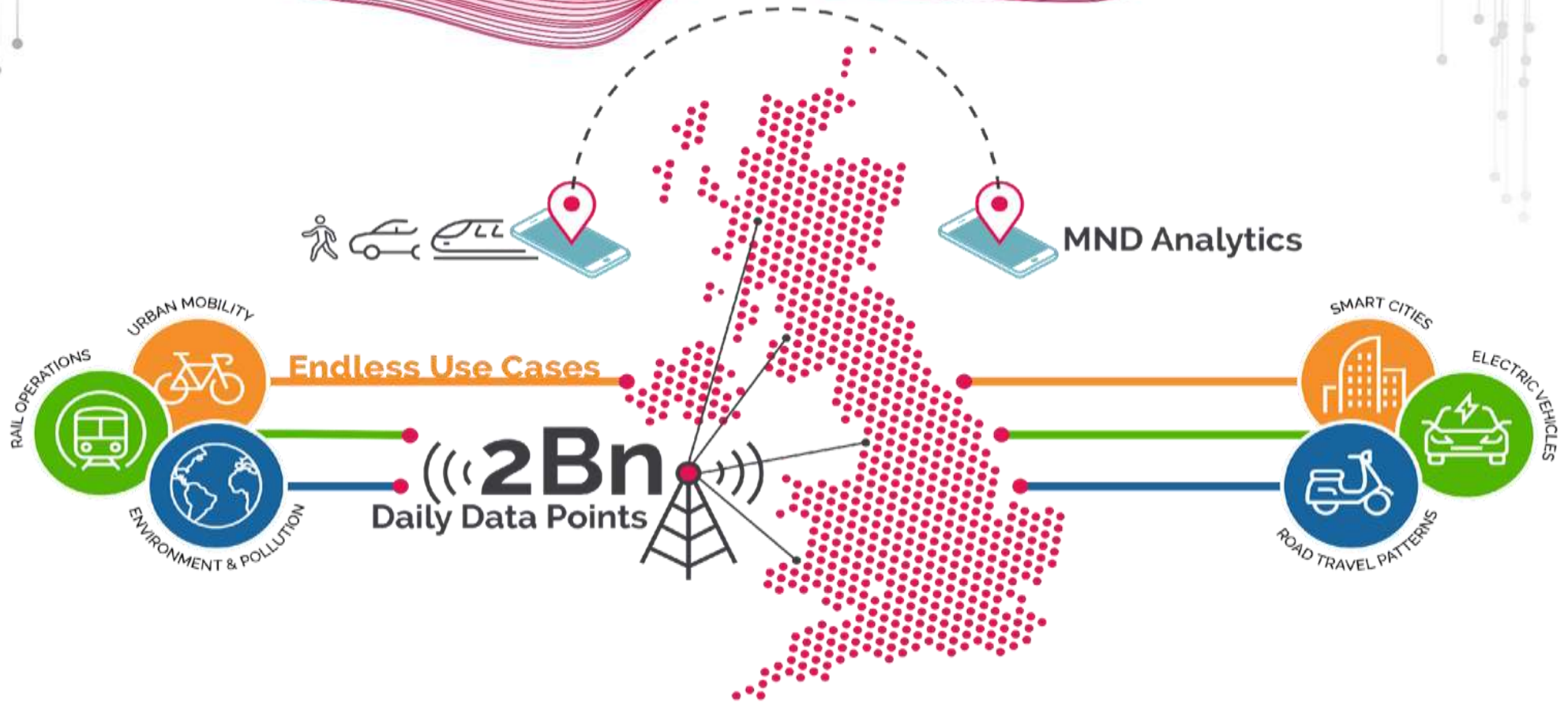
What are People Movement Analytics?
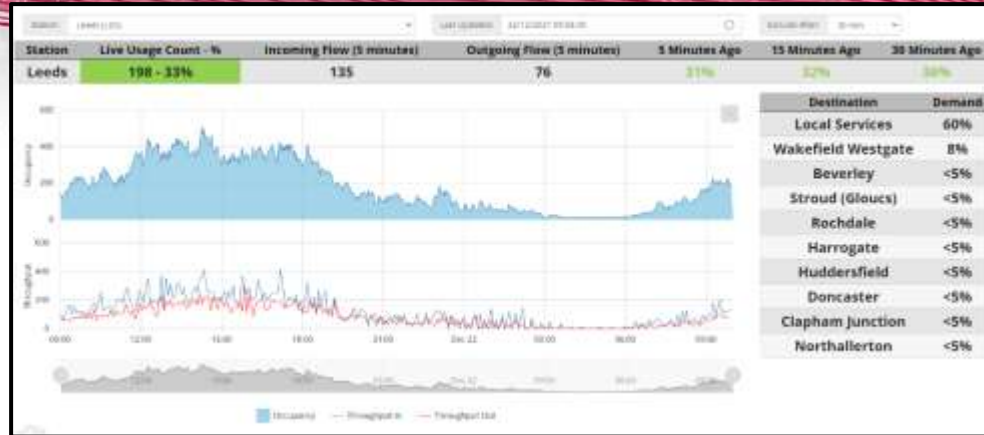
Leeds Station Hourly Occupancy & Throughput

London Domestic Tourists & Spending

Leeds Station Destinations

Active   **In a vehicle**   **By train**

- How people move around
- Modes of transport used
- Time of day & frequency
- Origin & destination
- Dwell time
- Commuters, Leisure, Tourists
- Home and Work
- Regular visitors and travellers
- And much more!

GDPR Compliant

Mode Allocation

Providing Context to Movements

We can provide context a such as socio demographics to movements:

- Gender
- Age band
- Home
- Work
- Income
- Deprivation index
- MOSAIC classification
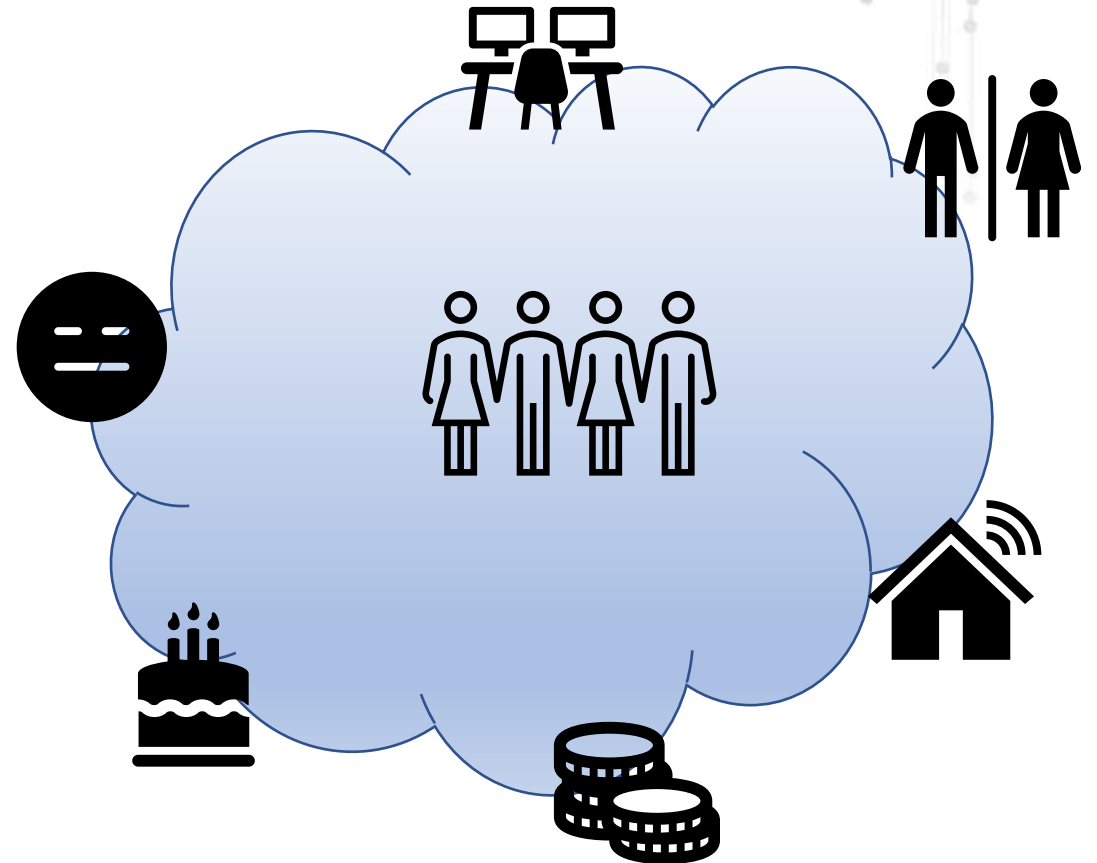
Turning Big Data into Valuable Insights

transportdata™

One-off transport-planning datasets for **Modelling** and **Simulation**

Delivering to **engineering consultancies** and internal **Amey** projects

Consultancy with dedicated analysts

MND well-understood by the customer (**high quality bar**)

railanalytics™

Comprehensive rail analytics product

End-to-end journeys across the entire rail network… and beyond

Real-time station occupancy & throughput

Deeper understanding of passenger profile & economic impact,

people movementportal…

Self-service automated data & insights

Low cost, **fast** turnaround

Wide range of templates for **various use-cases** and markets

Highly **scalable**

Making MND accessible to **new customers**

Use Case:
Passenger Movement on the Rail Network

Challenge: Provide detailed passenger information

- Real train movements

- Station-to-station & multi-leg trips

- Full journey detail, multi-mode, catchment areas

- Passenger wait times, destination prediction

- Rail market share (rail versus road)

- Economic factors (e.g., carbon impact, delays)

- Real-time monitoring of station capacity

Use Case:
Optimising Bus Timetables

**Challenge: Provide detailed travel patterns across the city including hourly profiles to offer buses services matching actual requirements**

- Analysis of travel patterns within the city

- Provide detailed view by time and day of the week

- Contextual information - age/gender/reason for travel

- Consider existing bus routes and their catchment areas to understand potential market

- Visualised outputs for easy interrogation

- Helping to review routes and frequency of services

Hourly Patterns

GIS Based Travel Patterns Analysis

What about Trams?

Can be used in different contexts:

- Scheme design and appraisal

- Route planning

- Regular timetable update

- New ticketing approach including concession types and multi travel

- Multimodal interchanges, bus stations, park and ride
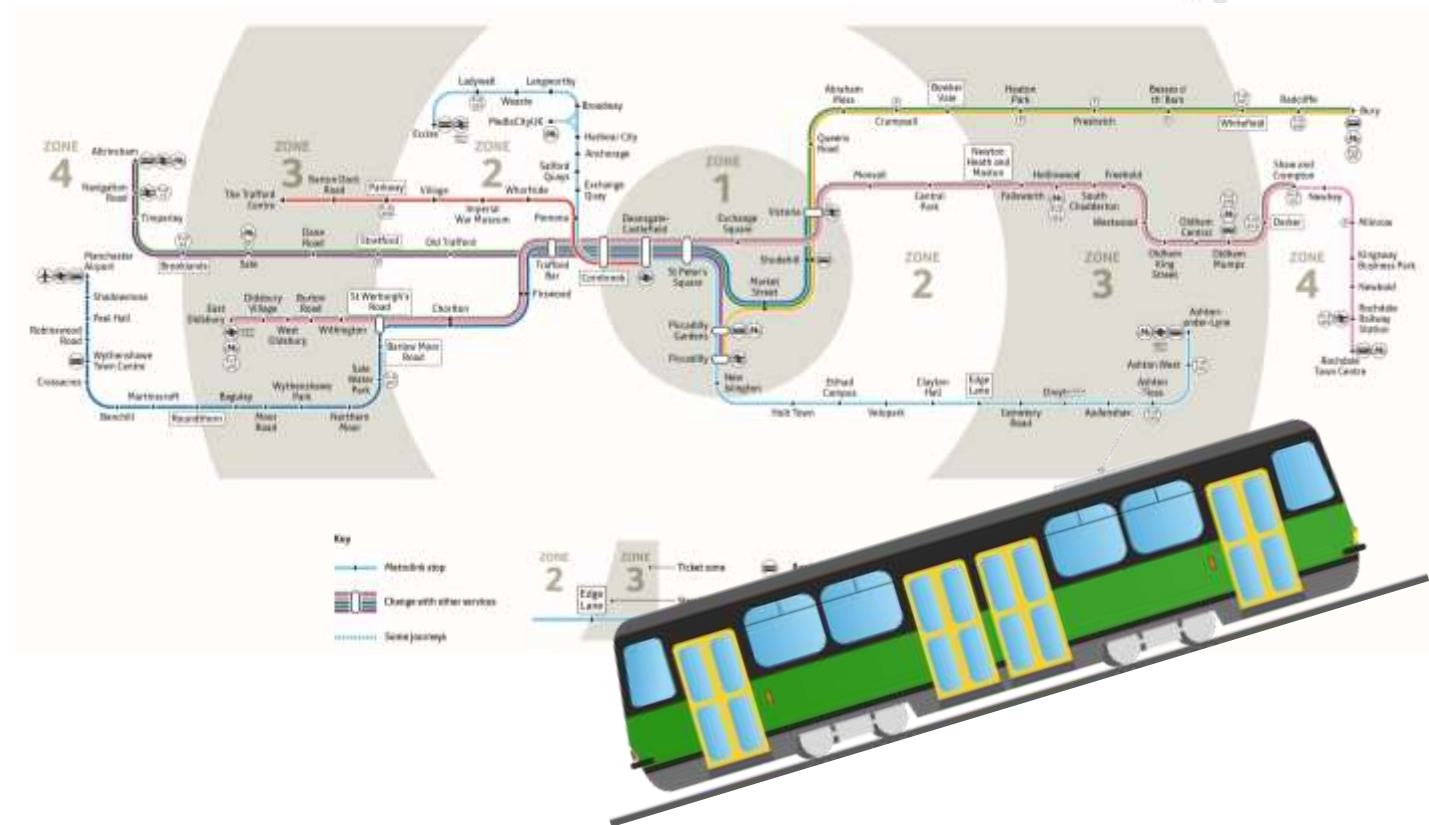
Use Case:
Tourism & Nighttime Economy

Challenge: Understand domestic tourist behaviour

- Cities want to understand how tourism is changing post-pandemic and how spending is related to visitors

- Fusing Mobile Network Data with payments data to analyse trends

- Interactive heatmap tool shows:
  - Visitors
  - Dwells
  - Origins & Destinations
  - Spend
  - Spend ratios
  - Hotspots

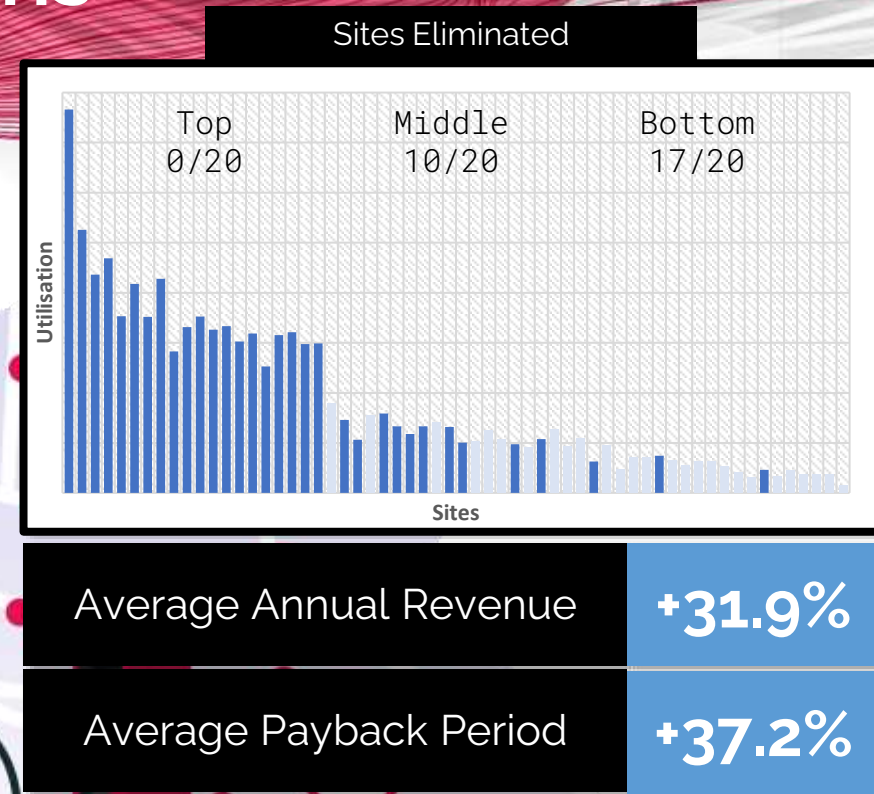- Range of filters and tools to visually study data

Heatmap of Tourist Activity

Use Case:
EV Charging Locations

Challenge: Identify the best location for EV chargers

- Huge investment in new locations
- Current insight too general and lacking accuracy

Our MND solution:

- Proved existing data sources don't work
- Eliminated 17/20 worst sites
- Increased average site revenue by 32%
- Able to forecast potential performance of new sites

Sites Eliminated

Top 0/20   Middle 10/20   Bottom 17/20

Utilisation

Sites

Average Annual Revenue	+31.9%
Average Payback Period	+37.2%

The People Movement Portal: Insights for Everyone

Example Portal Report

- Self-service, interactive, web-based portal

- Create datasets from predefined templates

- Highly scalable and repeatable

- A range of outputs:

  - Interactive map

  - Analysis report

  - APIs

  - Dashboards

  - Data download (e.g., csv)

☑ **Reduce cost** of MND

☑ **Fast delivery time**

☑ Wide range of **templates**

☑ Detailed **analytics & insights**

☑ **Toolkit** to explore the data

Thank You

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