Smart Cities and Communities: Connecting Citizens
Session 4 - Smart Mobility & Smart Infrastructure

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Chief Innovation Officer, Digital Greenwich

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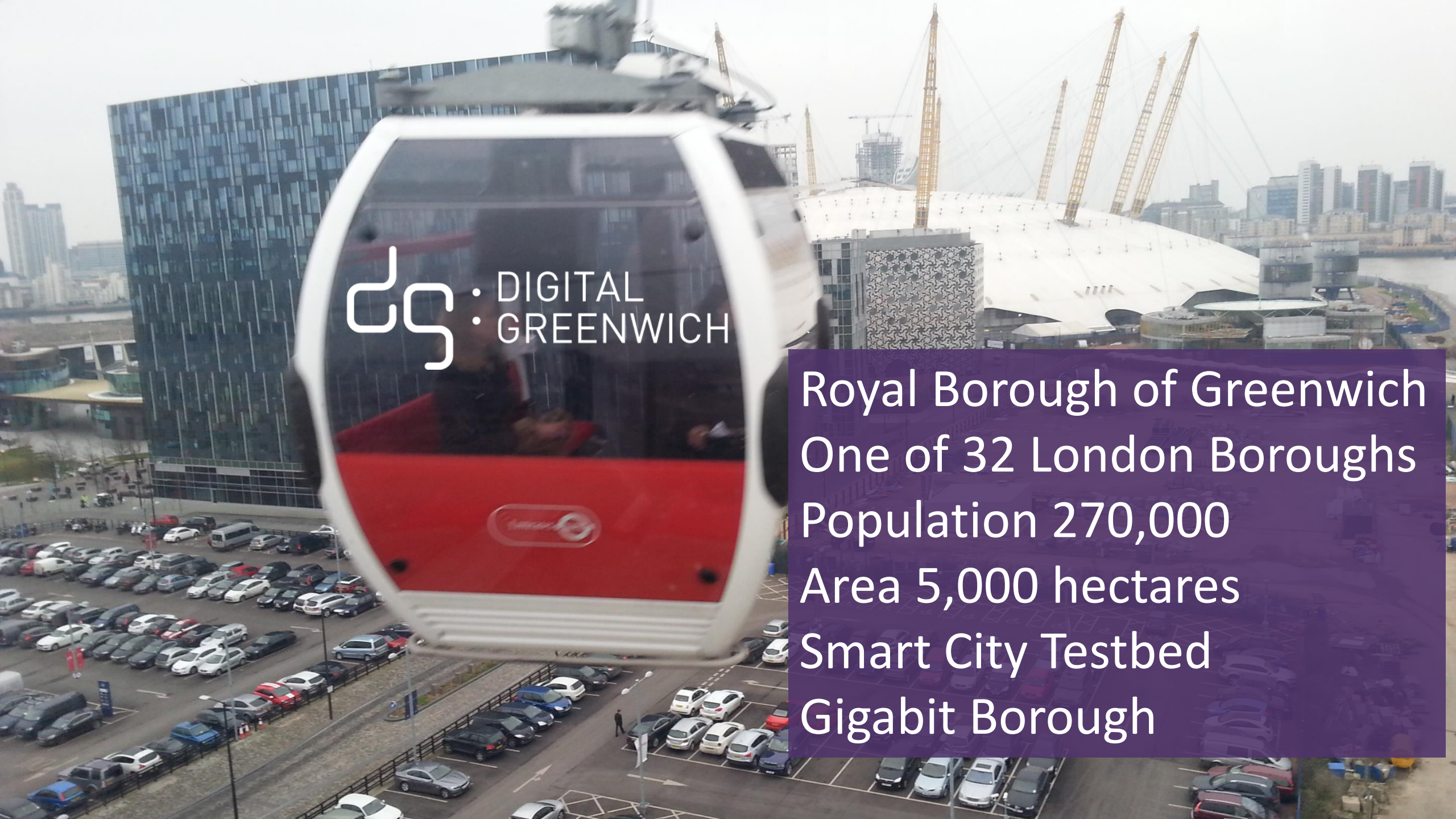

Royal Borough of Greenwich
One of 32 London Boroughs
Population 270,000
Area 5,000 hectares
Smart City Testbed
Gigabit Borough

Smart mobility projects

- GATEway – driverless urban pods
- Move-UK – advanced on board sensors
- Atlas – AV mapping feasibility
- MAVEN – road train algorithms
- Dubai RTA – driverless regulation
- eRCV – 26T refuse collection vehicle
- MERGE – future AV ride hailing

- Just won UK CAV test bed
- - UK Smart Mobility Living Lab
- Current bid H2020 ART07 DRIVERS
- Current bid V2G

- Implications and opportunities for cities: urban mobility, built environment & integrated spatial planning

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The Role of Technology in Improving Journey Planning

- The future of moving
- Future things to do while moving
- Future journey planning

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Trainline.com Limited [GB] https://www.thetrainline.com/buytickets/combinedmatrix.aspx?Command=TimeTable#Journey/BRACKNELL/LONDON%20WATERLOO/09...

Bracknell to London Waterloo

Return journey · 1 adult · Add a Railcard · Change

991 people have viewed this route today

We've selected a ticket based on price and your search time

Feel free to pick a different one

OUT				RETURN			
Thu 9th Nov 2017				Thu 9th Nov 2017			
Bracknell (BCE) to London Waterloo (WAT)				London Waterloo (WAT) to Bracknell (BCE)			
<Earlier			Later>	<Earlier			Later>
BCE 06:32 → WAT 07:37	BCE 07:02 → WAT 08:06	BCE 07:32 → WAT 08:34	BCE 08:02 → WAT 09:06	WAT 18:20 → BCE 19:20	WAT 18:50 → BCE 19:50	WAT 19:20 → BCE 20:20	WAT 19:50 → BCE 20:50
1h 5m 0 changes	1h 4m 0 changes	1h 2m 0 changes	1h 4m 0 changes	1h 0 changes	1h 0 changes	1h 0 changes	1h 0 changes
Cheapest Standard Single							
£13.30	£13.30	£13.30	£13.30	£13.30	£13.30	£13.30	£13.30

TOTAL

£26.00

1 adult, 0 children

Continue >

Quick buy ticket

OUT Thu 09 Nov

Bracknell to London Waterloo
1h 5m, 0 changes

RETURN Thu 09 Nov

London Waterloo to Bracknell
1h 0m, 0 changes

Anytime Day Return £26.00

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WATERLOO
STATION
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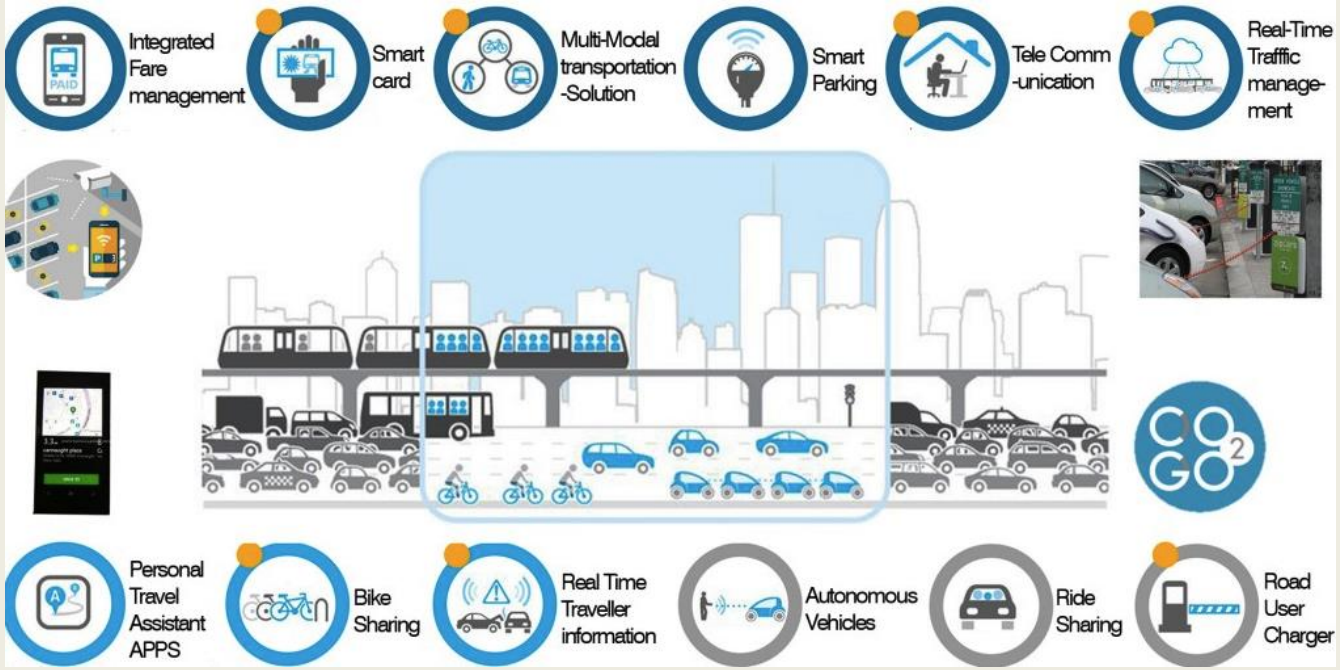
ON SOUTH WESTERN RAILWAY
KEEP THE PUBLIC SAFE
RMT
RMT
SAFE TRAINS for all

The future of meetings - Kingsman: Secret Service

Meet the future in Greenwich

UK Smart Mobility
Living Lab™
@ Greenwich



Competitive tender for best shuttles and automation systems

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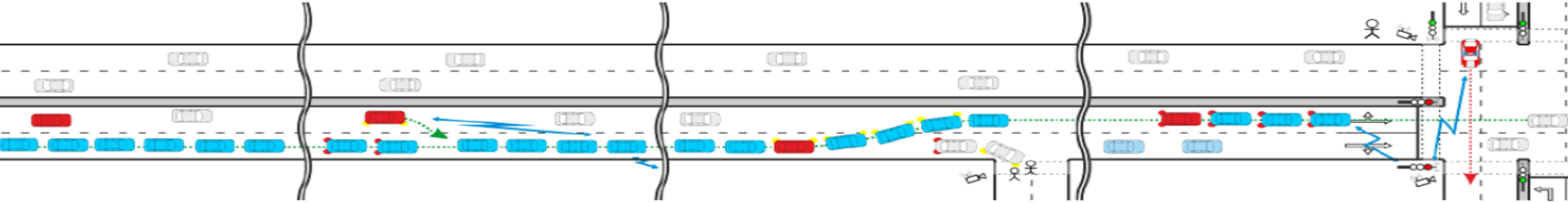
MAVEN project summary

- MAVEN will develop management regimes for highly automated driving in urban areas.
- Road infrastructure will be able to monitor, support and orchestrate vehicle and VRU movements to guide vehicles at signalized intersections and corridors in urban areas.
- With the new possibilities of automated vehicles the project will go beyond the state-of-the-art of Advanced Driver Assistance Systems (ADAS) and C-ITS applications such as Green Light Optimal Speed Advisory (GLOSA), by adding cooperative platoon organization and signal plan negotiation to adaptive traffic light control algorithms.



MAVEN is funded by the EC Horizon 2020 Research and Innovation Framework Programme, under Grant Agreement No. 690727

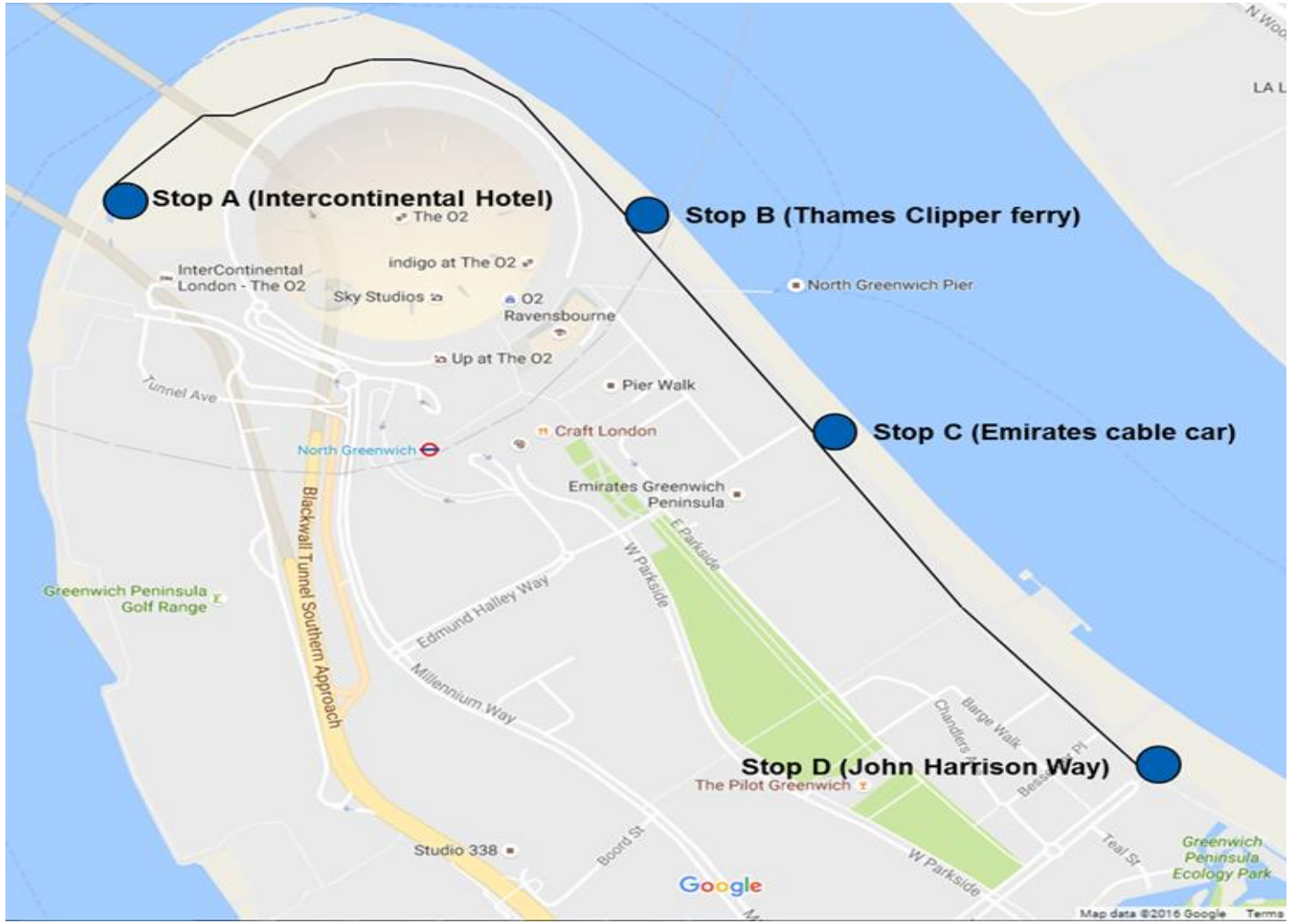
European Commission

The O2
GATEWAY-PROJECT.ORG.UK
GATEway
DIGITAL
GREENWICH

Greenwich travel today

- 1065 million vehicle km travelled by motor vehicles per year
- 821 million vehicle km travelled by cars per year
- 78,626 private & light goods vehicles owned / licenced
- 66 km of A roads
- 438 km of minor roads

Trial route


Stop A (Intercontinental Hotel)
Stop B (Thames Clipper ferry)
Stop C (Emirates cable car)
Stop D (John Harrison Way)
The O2
indigo at The O2
InterContinental London - The O2
Sky Studios
O2 Ravensbourne
North Greenwich Pier
Up at The O2
Pier Walk
Tunnel Ave
Craft London
North Greenwich
Emirates Greenwich Peninsula
E Parkside
W Parkside
Blackwall Tunnel Southern Approach
Greenwich Peninsula Golf Range
Edmund Halley Way
Millennium Way
Barge Walk
Chandlers Ter
Bessant Pl
The Pilot Greenwich
Teal St
Greenwich Peninsula Ecology Park
Studio 338
Boord St
Google
Map data ©2016 Google
Terms

The future of journeys

Meeting
Eating
Washroom
Gaming
Cinema
Sleeper
Ambulance
Police
Beautician
Hot spot
Battery

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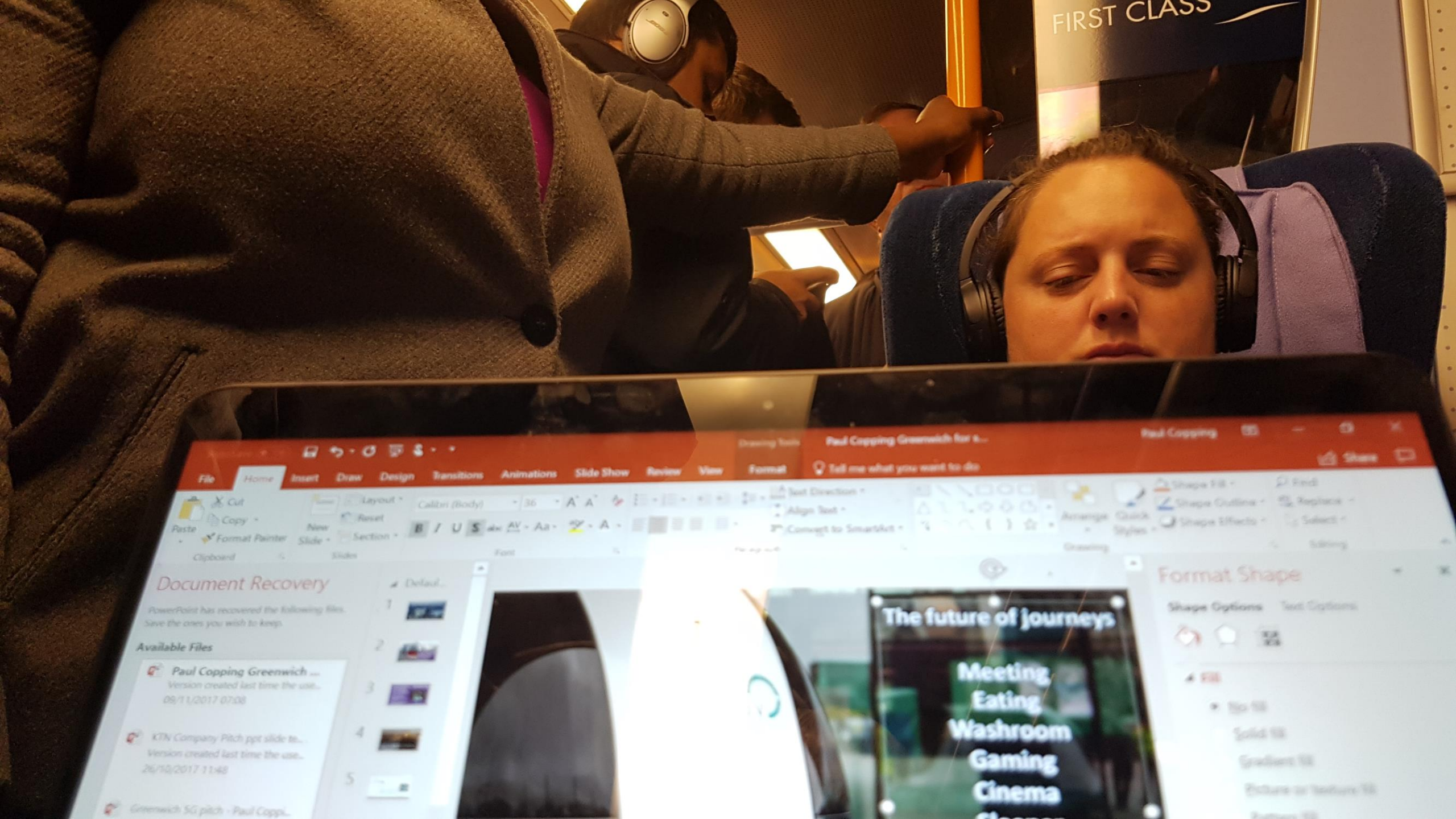
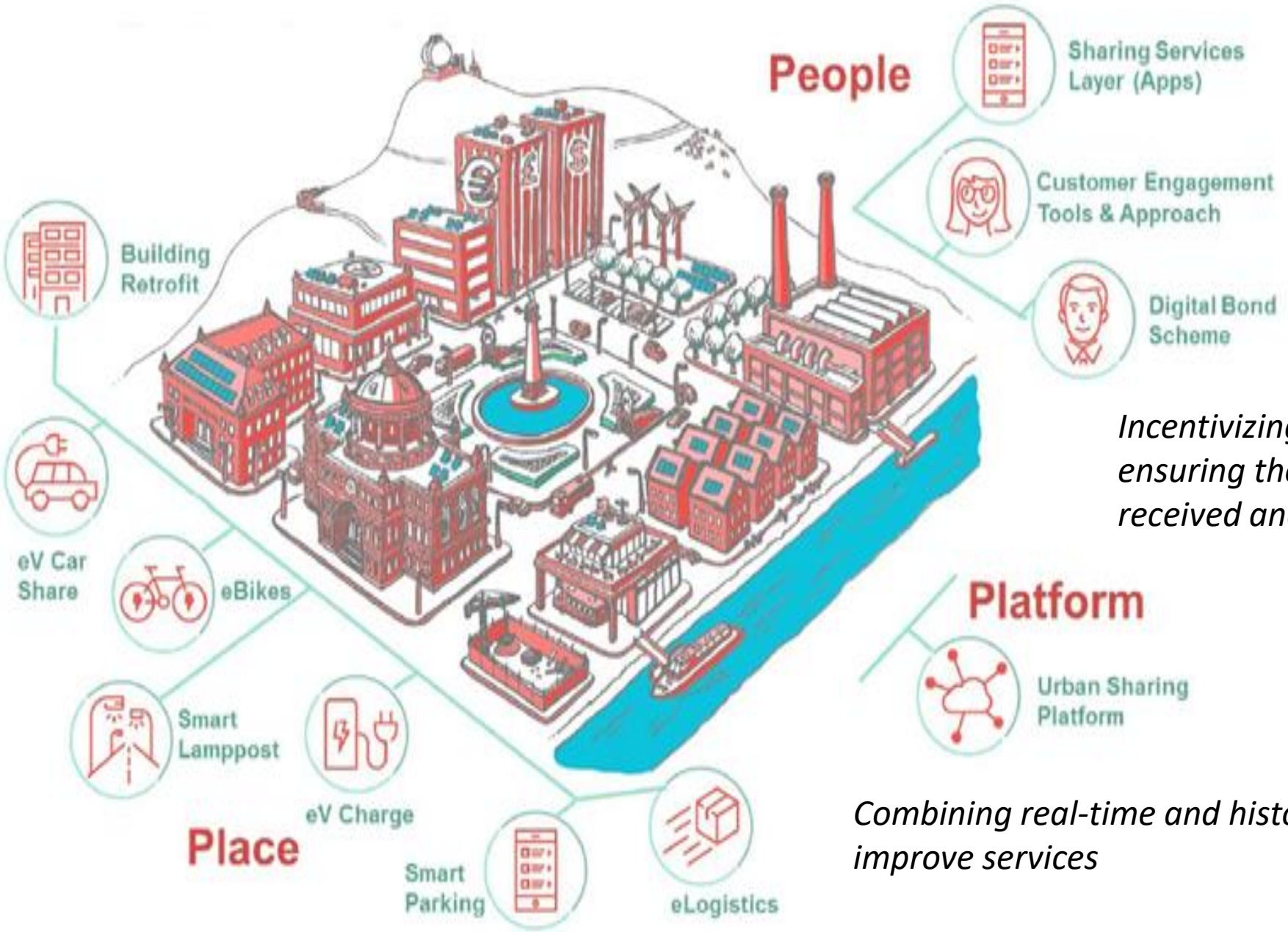

FIRST CLASS
File
Home
Insert
Draw
Design
Transitions
Animations
Slide Show
Review
View
Format
Document Recovery
Available Files
Format Shape
The future of journeys
Meeting
Eating
Washroom
Gaming
Cinema

SHARINGCITIES

LISBON - LONDON - MILAN
BORDEAUX - BURGAS - WARSAW

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement N° 691895



Incentivizing measures, ensuring they are well received and utilised

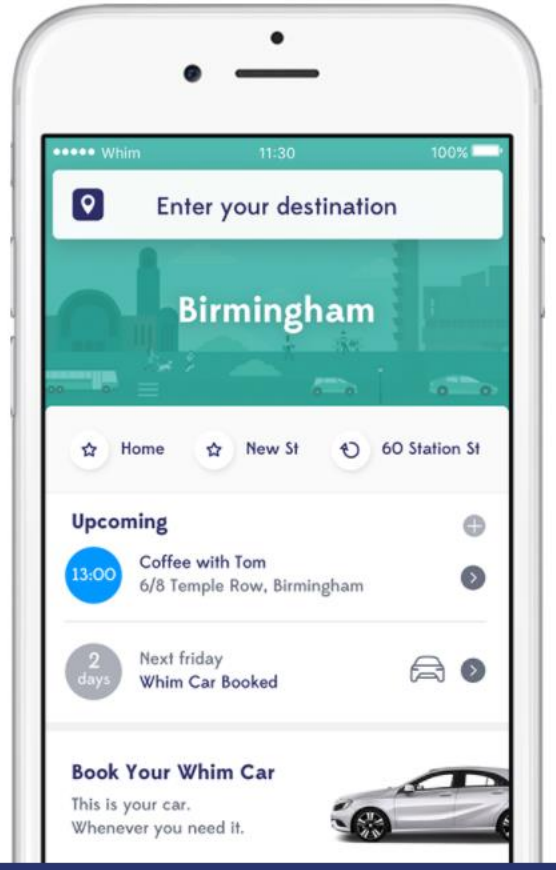
Ground truthing technologies and solutions

Combining real-time and historical data to improve services

Whim app – Your travel
https://whimapp.com/uk-en/

Travel application for all transportation.

Whim frees you to travel wherever and whenever. In West Midlands Whim already includes Gett taxis, National Express busses and Midland Metro trams, and soon also city bikes and rental cars. You can find all the routes, fees, tickets, timetables, booking and travel options in one place so that you can focus on the essentials. Choose a monthly package to cover all your daily journeys (coming soon), or just pay as you go.



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London Big Data Air Quality Initiative

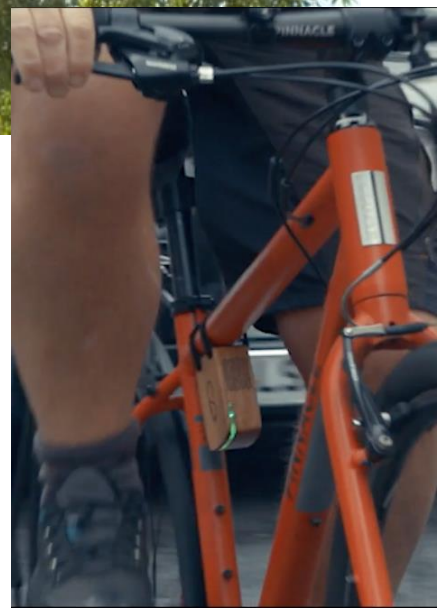
The initiative involves deploying a range of IoT sensors and the use of big data techniques to gain a better understanding of air quality issues in the Royal Borough of Greenwich.

- Deploy and compare a variety of IoT-enabled air monitoring devices
- Analyse IoT data along with open and context data e.g. weather, traffic, health from other sources
- Evaluate usefulness of Machine Learning methods to correlation & prediction
- Demonstrate insights and report recommendations
- Identify value generation opportunities for mobile operators

Collaboration partners: ROYAL borough of GREENWICH, GSMA, Ordnance Survey, Everimpact

Relevant to SDGs: 3 GOOD HEALTH, 11 SUSTAINABLE CITIES AND COMMUNITIES, 13 CLIMATE ACTION

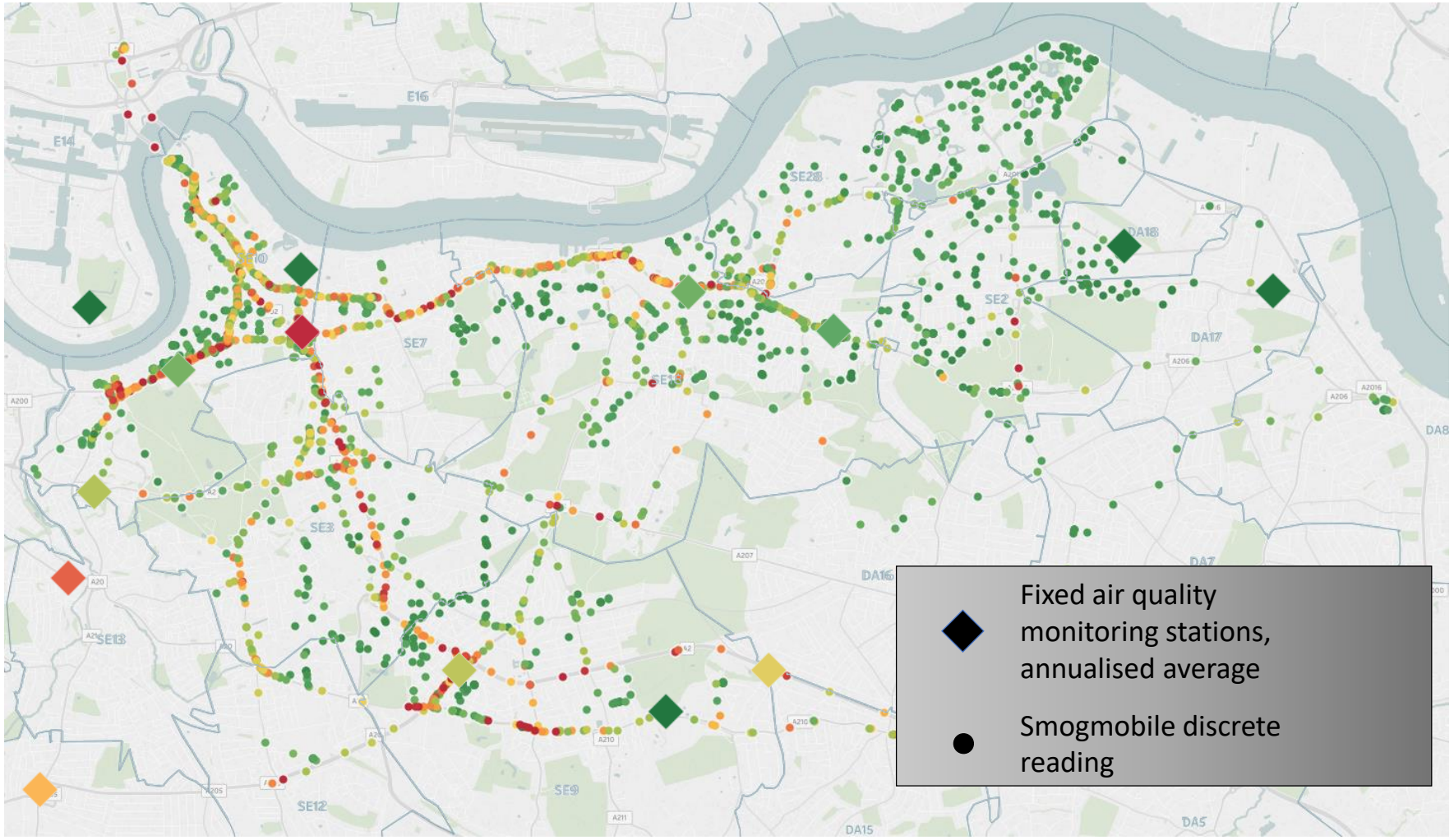
Developments in the IoT for air quality



Significantly lower cost and smaller, portable sensors mean it is now practical to measure air quality at a very local level. In addition these sensors make their readings available in 'real-time' or 'near real-time'

- Although sensors may not be as precise as traditional fixed air quality monitoring stations they can provide fill-in information
- Greenwich has nine active air fixed quality stations – covering an area over 18 square miles, and nearly 280,000 residents
- IoT sensors are reaching size and cost points that mean they are 'personal' devices. 'Crowdsourcing' of information can help device owners as well as the more general population
- In future maybe air quality sensors are part of the mobile chipset – just as GPS is now integrated

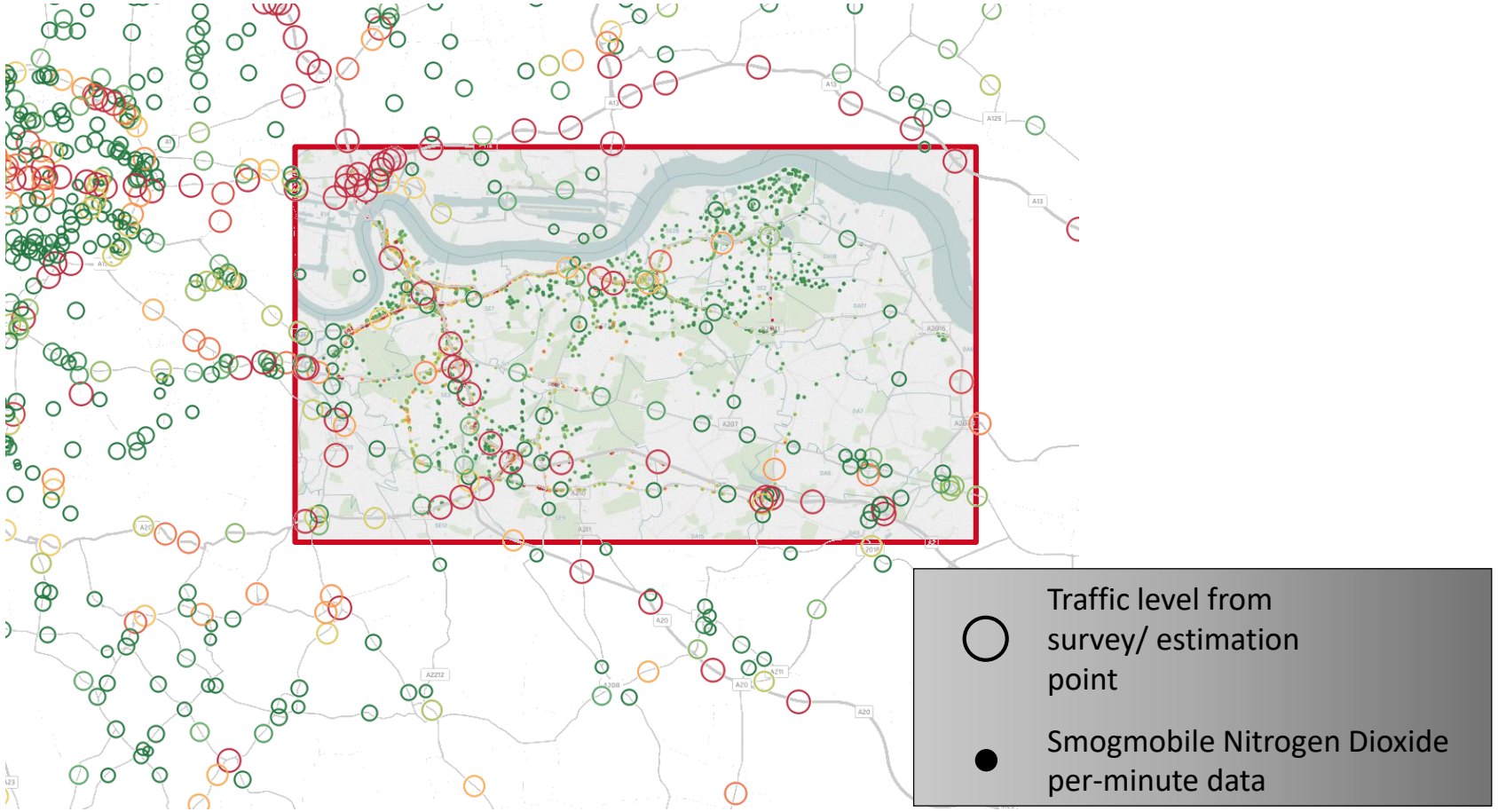
Greenwich Nitrogen Dioxide air quality survey, July 2017
Smogmobile, used as a Proxy for multiple IoT Devices



Source: Enviro Technology Services Ltd on behalf of GSMA
http://www.et.co.uk/the-smogmobile

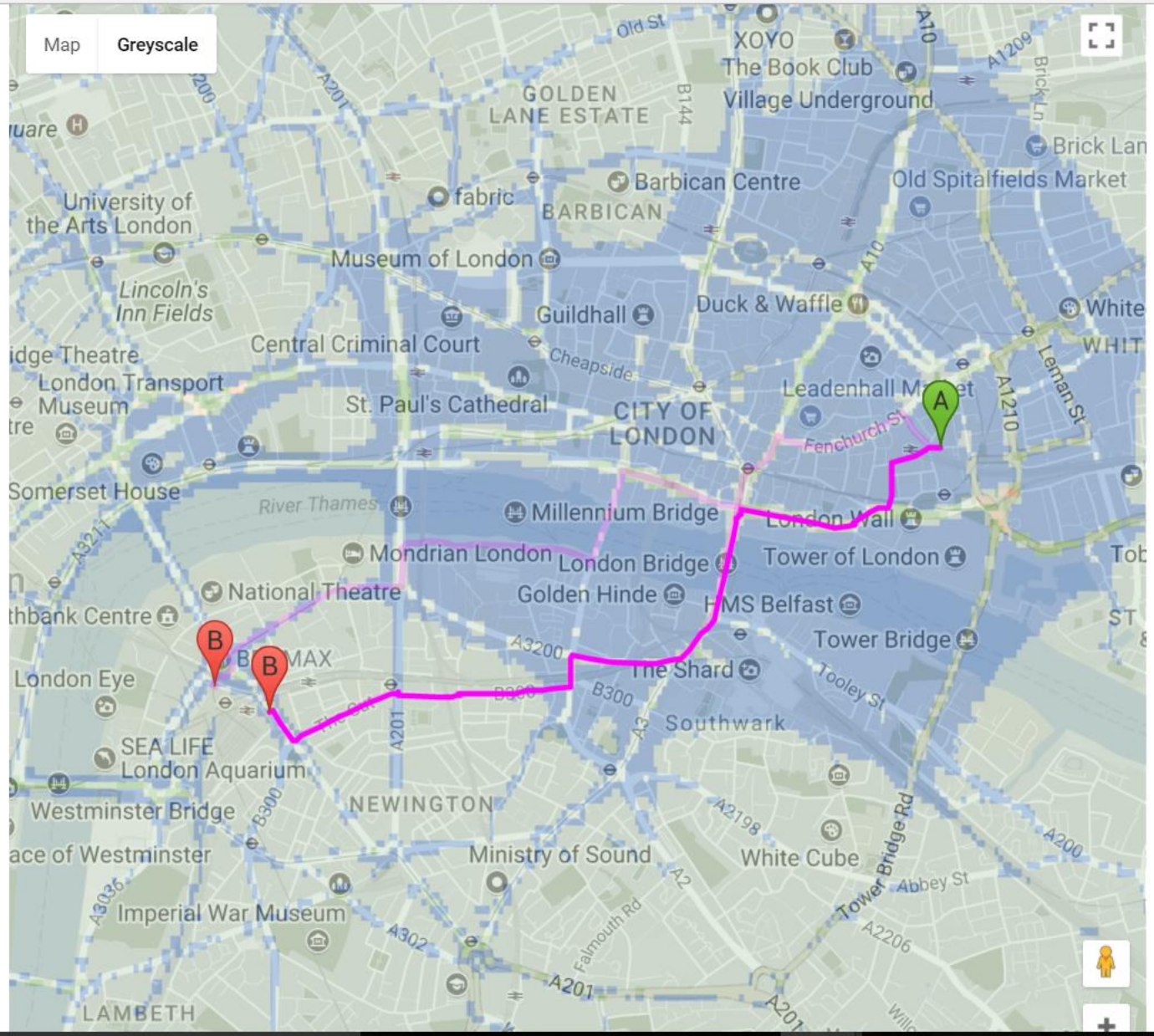
Traffic correlation with Nitrogen Dioxide

- Overlaid visualisations show correlations between multiple data sources
- There are more traffic survey points than fixed air monitoring stations in Greenwich
- Even more detailed IoT data reveals where the pollution builds up



Source: Enviro Technology Services Ltd on behalf of GSMA
http://www.et.co.uk/the-smogmobile

www.breathelondon.org/plan-lower-pollution-travel-route



America Square Confer

Waterloo Station, Wate

Walking Cycling Transport

Go!

Suggested routes:

Union St/B300 2.0 mi. About 42 mins

A3 2.0 mi. About 42 mins

Stamford St/A3200 2.1 mi. About 45 mins

Walking directions are in beta. Use caution – This route may be missing sidewalks or pedestrian paths.

A No.1, America Square, 17 Crosswall, London EC3N 2LB, UK

2.0 mi. About 42 mins

1. Head **west** on **Crosswall** 151 ft

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The Role of Technology in Improving Journey Planning

- The future of moving
- Future things to do while moving
- Future journey planning

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