



OCC's Approach to Smart County: An Innovation Ecosystem

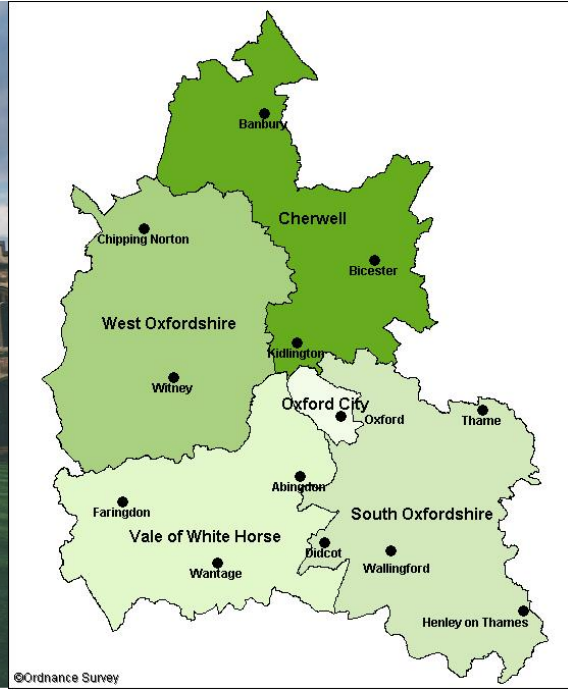
Katie Parnell

Policy and Strategic Planning Innovation Lead





Who Are We



Highways

Land Use & Waste

Public Health & Social Care

Fire Service & Emergency Planning

Consumer Protection

Education, Libraries & Museums



Multiple Timescales

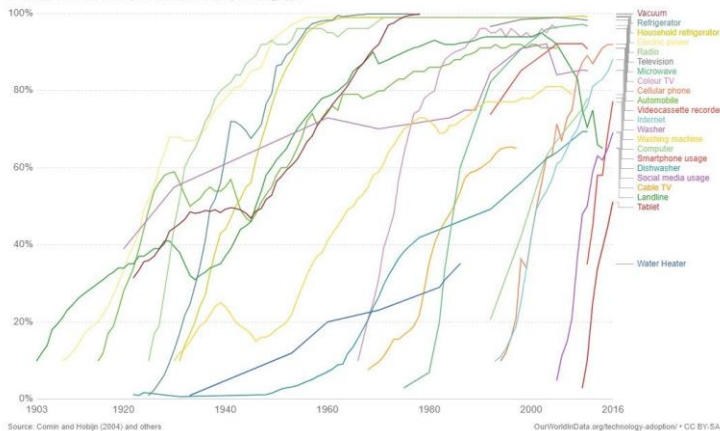
Easter morning 1900: 5th Ave, New York City. Spot the automobile.



Source: US National Archives.

Technology adoption by households in the United States

Technology adoption rates, measured as the percentage of households in the United States owning, or the adoption rates of, a particular technology. See the sources tab for definitions of household adoption, or adoption rates, by technology type.



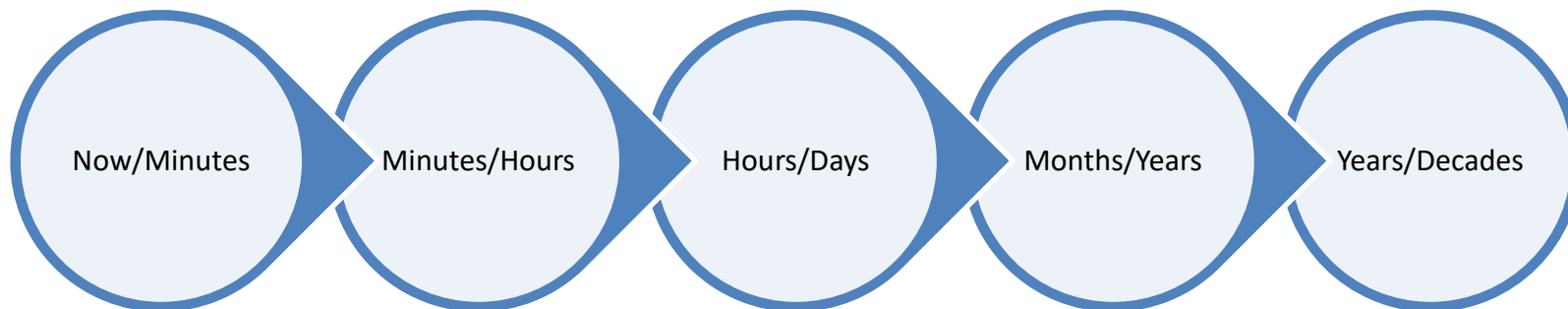
Source: Combs and Hobijn (2004) and others

OurWorldinData.org/technology-adoption/ • CC BY-SA

Easter morning 1913: 5th Ave, New York City. Spot the horse.



Source: George Grantham Bain Collection.



- Emergency/Incident Management

- Traffic Management

- Asset Management

- Education Authority

- Development Planning



Multiple Domains

Urban

- Many varied interactions, low speed, high infrastructure

Peri-Urban

- Fewer and varied interactions, low speed, low infrastructure

Highways

- Many homogeneous interactions, high speed, high and predictable infrastructure

Rural

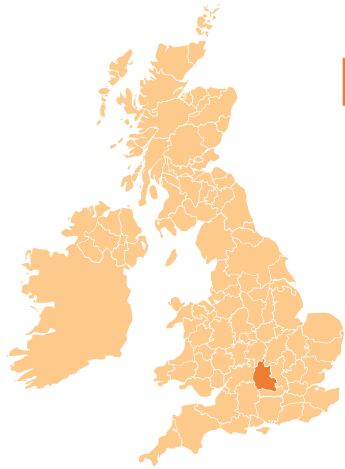
- Few but varied interactions, high speed, low and variable infrastructure

OXFORDSHIRE
>SMART
>COUNTY



Oxfordshire Economy

One of Three Net Contributors to the UK Exchequer



ECONOMY

£23bn

GVA generated each year



3.9%

GVA growth year on year since 2006



1 of 3

net contributors to the UK exchequer

POPULATION

51%

of working age population educated to degree level or above

2.6%

unemployment rate in the working age population

STRENGTHS



1st

Oxford University rank in Times Higher Education global rankings 2021¹⁰



£600m

largest fund for university spin outs in Europe: Oxford Sciences Innovation¹¹



\$1bn

track record of growing businesses with market values of over \$1 billion¹²



43,000

New private sector jobs created since 2011¹³



30m

visitors to Oxfordshire each year, many of them international¹⁴

CHALLENGES



50%

higher median house prices than the English average¹⁵



3%

annual growth in apprenticeships, well below the UK average of 12.5%¹⁶



7%

full fibre rollout, well behind many international competitors¹⁷



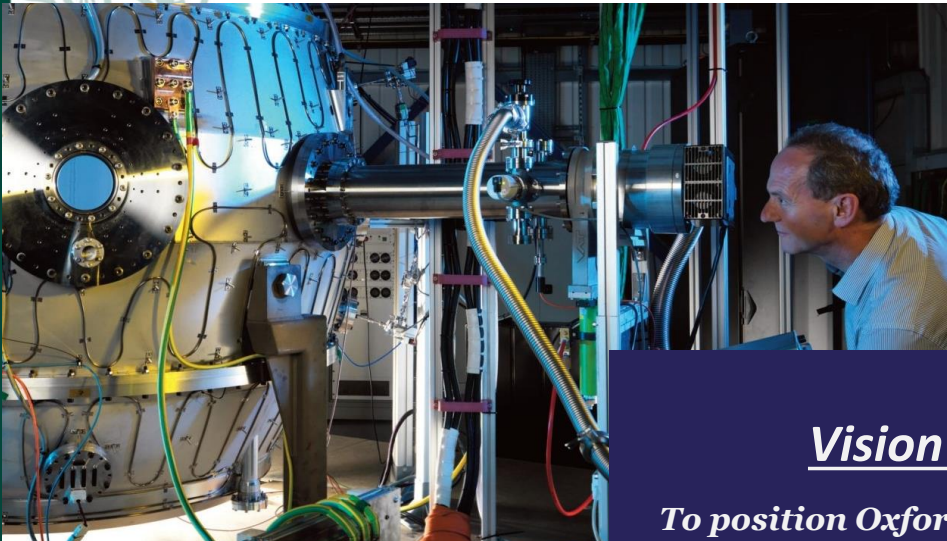
55%

increase in population aged over 85 by 2031¹⁸



OXFORDSHIRE COUNTY COUNCIL

Oxfordshire Living Lab



Vision Statement

To position Oxfordshire as one of the top three global innovation ecosystems by 2040.

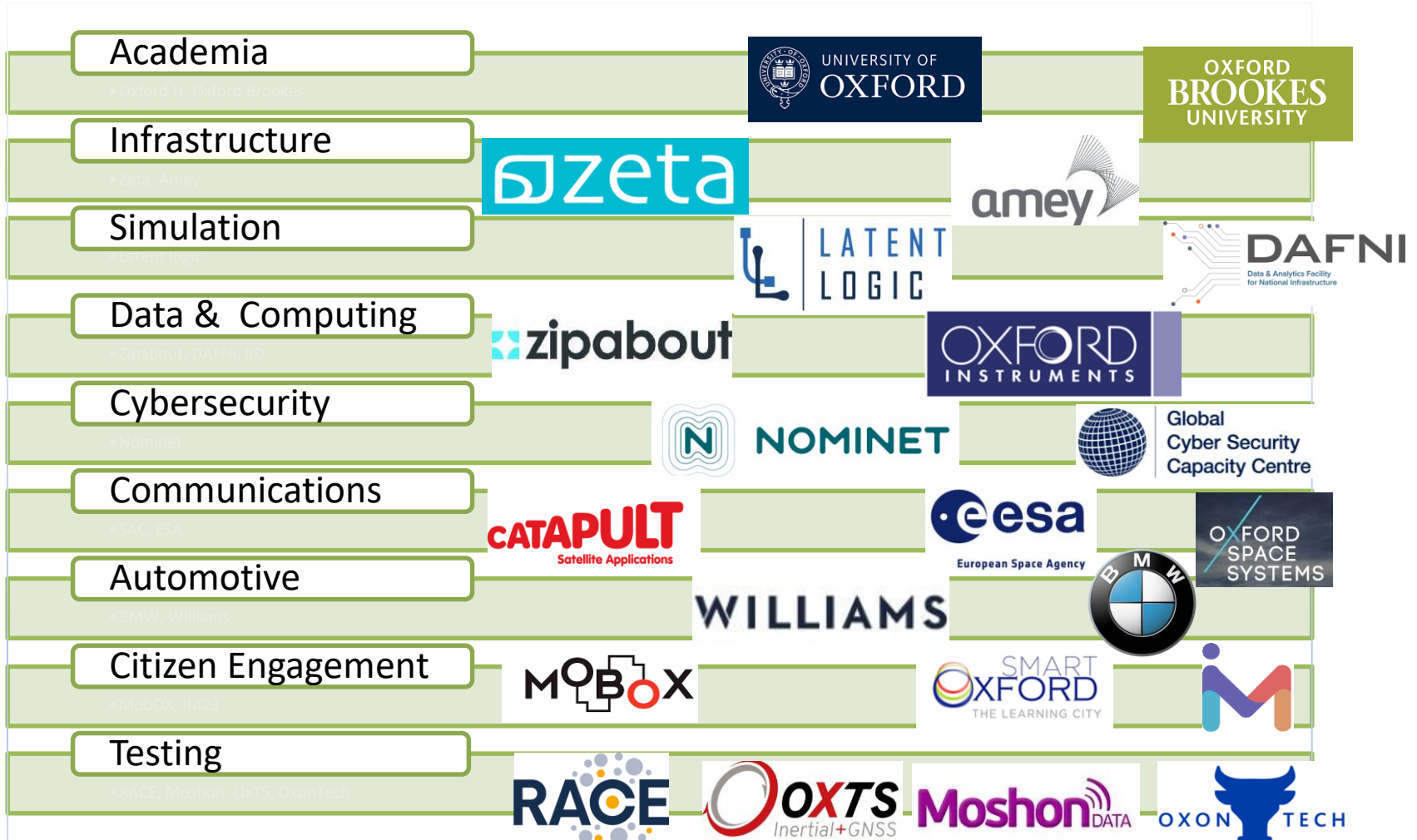
Keen to collaborate with other local authorities to exchange information and knowledge



OxLEP
driving economic growth

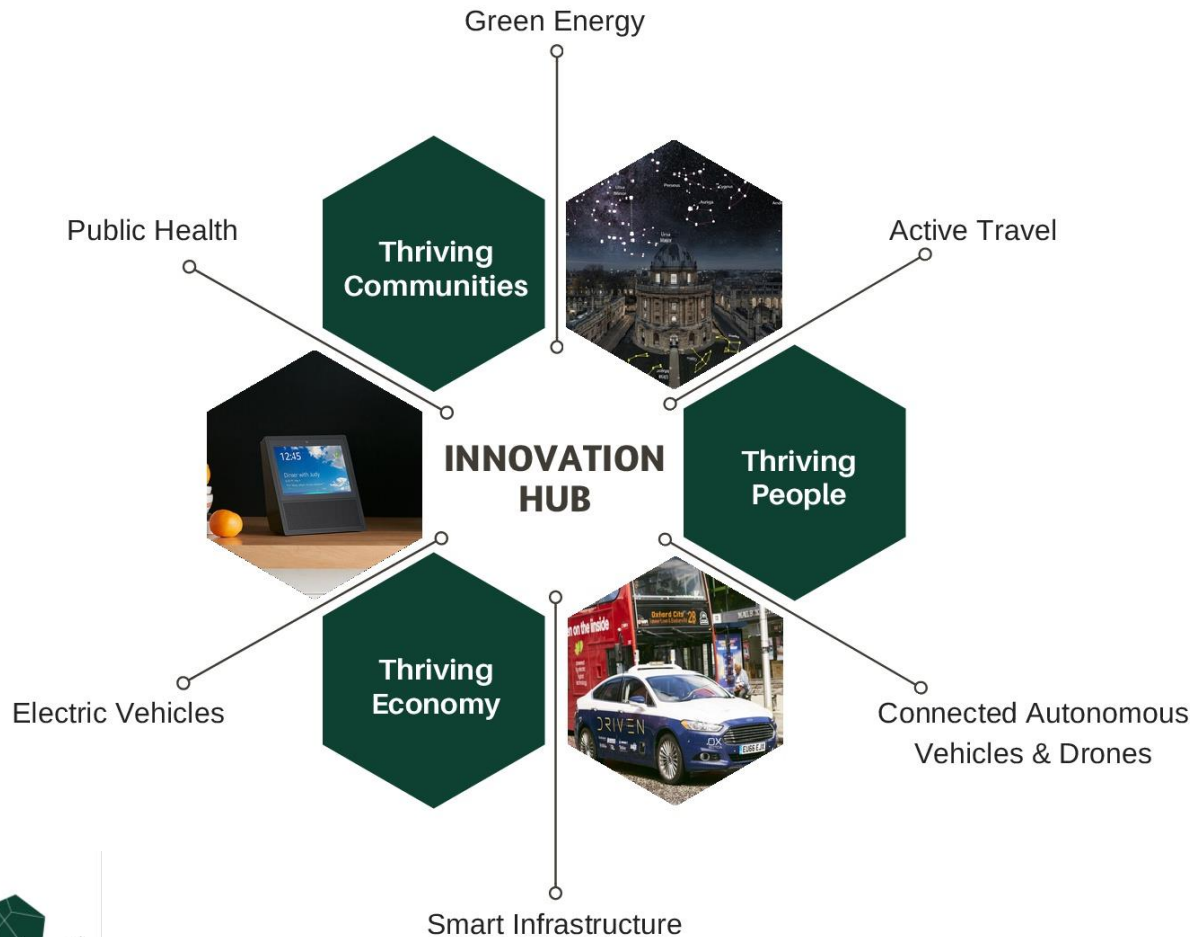


Complete Ecosystem



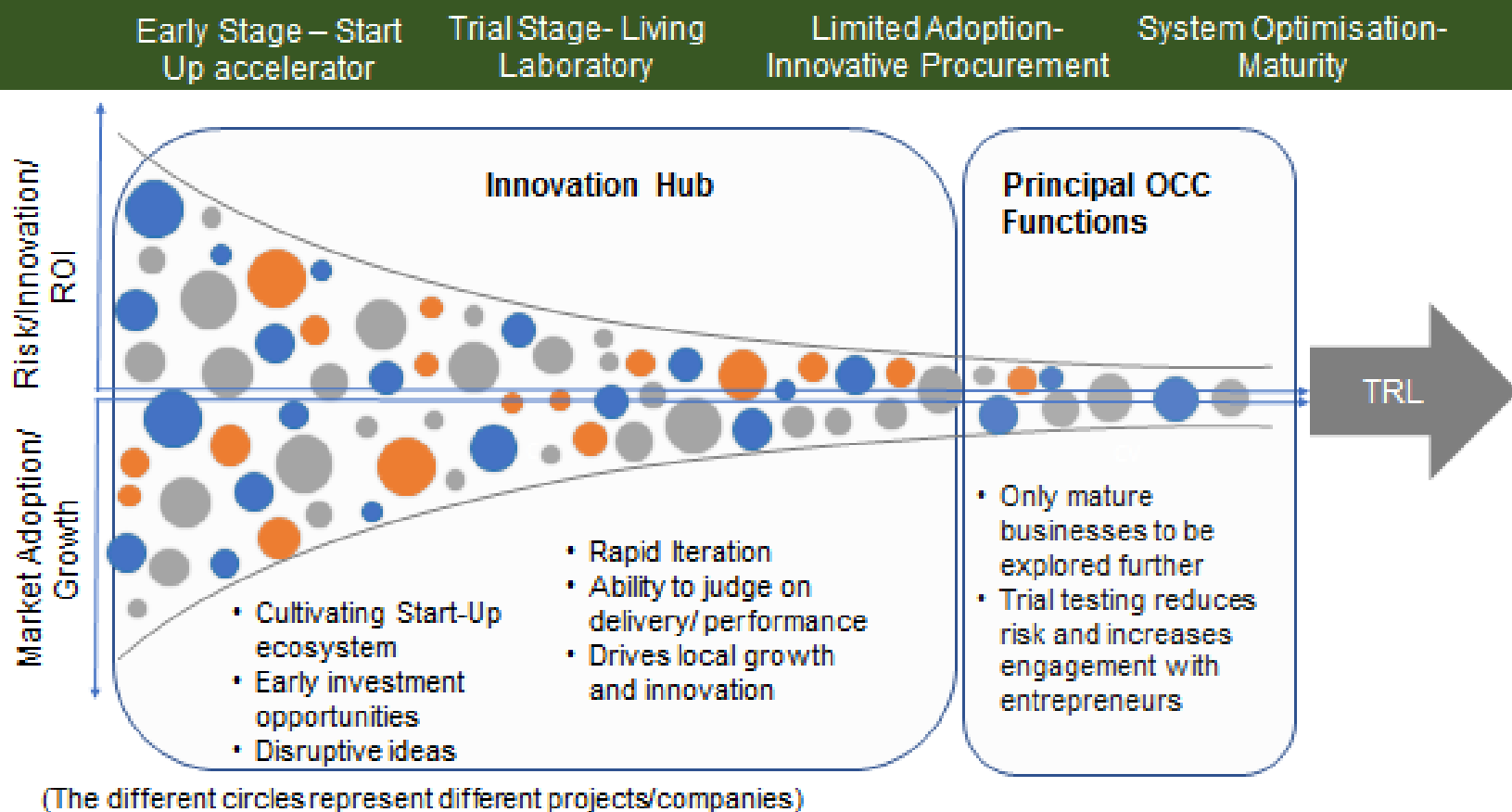


OCC Innovation HUB





Trial-evaluate-phase-scale





Electric Vehicle Team

V2Go

- Demonstrate business case of V2G in commercial fleets and benefits in terms of environmental and energy outcomes
- 3 year, £4.1M Innovate funded project
- 300 Fleet Vehicles



Electra

- Development of a smart charging infrastructure system allowing EV users to access a "Airbnb style" system for charging
- 1 year, £0.59M Innovate funded project
- Hardware and software development



VPACH

- Investigate feasibility of repurposing existing data communications infrastructure for EV Charging and communications
- 3 month, £73k OLEV/Innovate funded feasibility project



ParkN'Charge

- Feasibility of a scalable electric vehicle charging solution using shared resources
- 3 month, £120k OLEV/Innovate funded feasibility project





Health & Care Innovation

COACH

- Connecting Older Adults to Care & Health- using Amazon Alexa to deliver care visits such as medication prompt visits via technology

SAIFE

- Sensors and AI for Elders – Interoperable sensors in the home with a predictive algorithm to better assess and deliver interventions for older people in a preventative way

GP-Nursing Home Telecare

- GP consultation via telehealth to improve health in residential homes and improve GP capacity through reduction in travel time

Community Circles in Care Homes

- Bringing the community into care homes for better health and wellbeing outcomes for residents

ArcGIS Homecare Scheduling

- Visualisation and smart routing/ sourcing tool to increase homecare capacity in the county

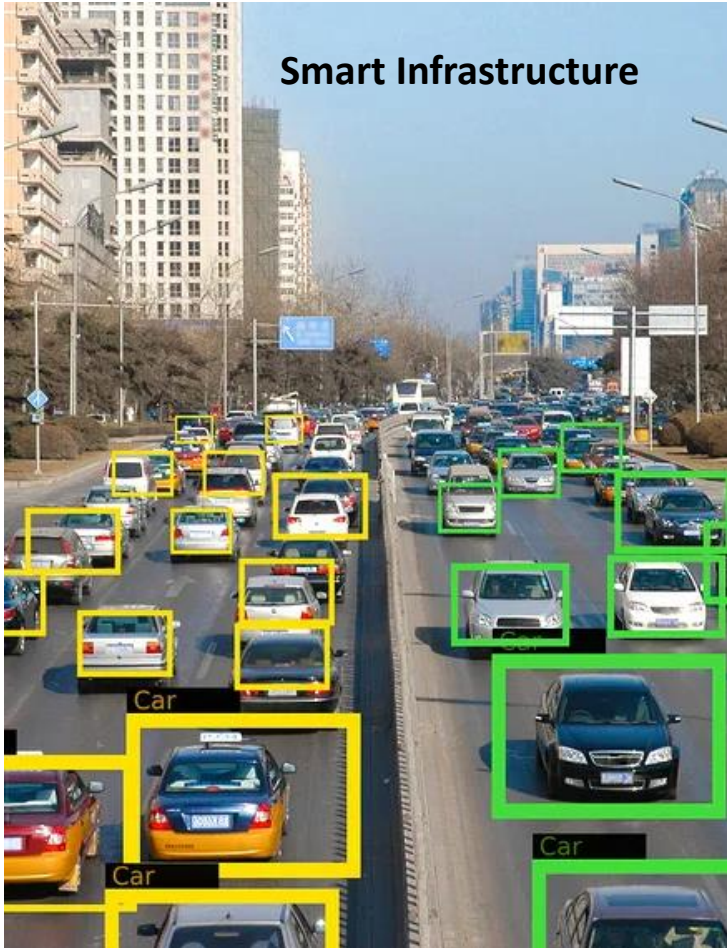
Health & Social Care Keyworker MaaS

- mapping 60,000 individual keyworker journeys to better understand deployment of staff in the county and increase keyworker capacity through reduction in travel time and smarter journey planning



Future Mobility Team

Smart Infrastructure



Integrated Comms



Quantum Technologies



Network Management



UAV (Drones) Trials





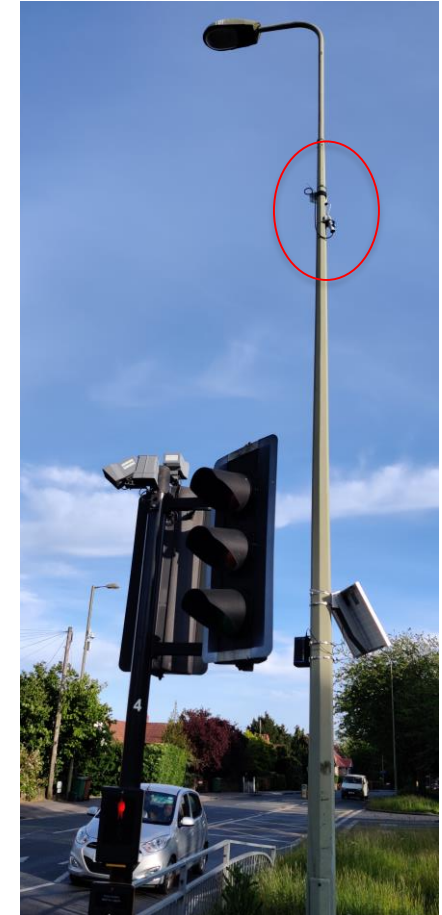
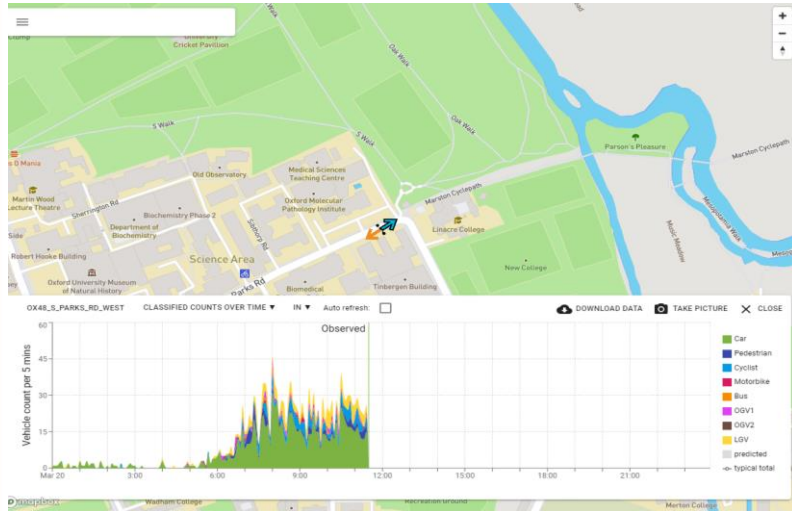
CAV Public Road Trials



- Connected Autonomous Vehicles trials in public roads, for more than 3 years
- In all conditions
- With more than 4 different suppliers
- Involved in standardisation processes with BSI and ASAM

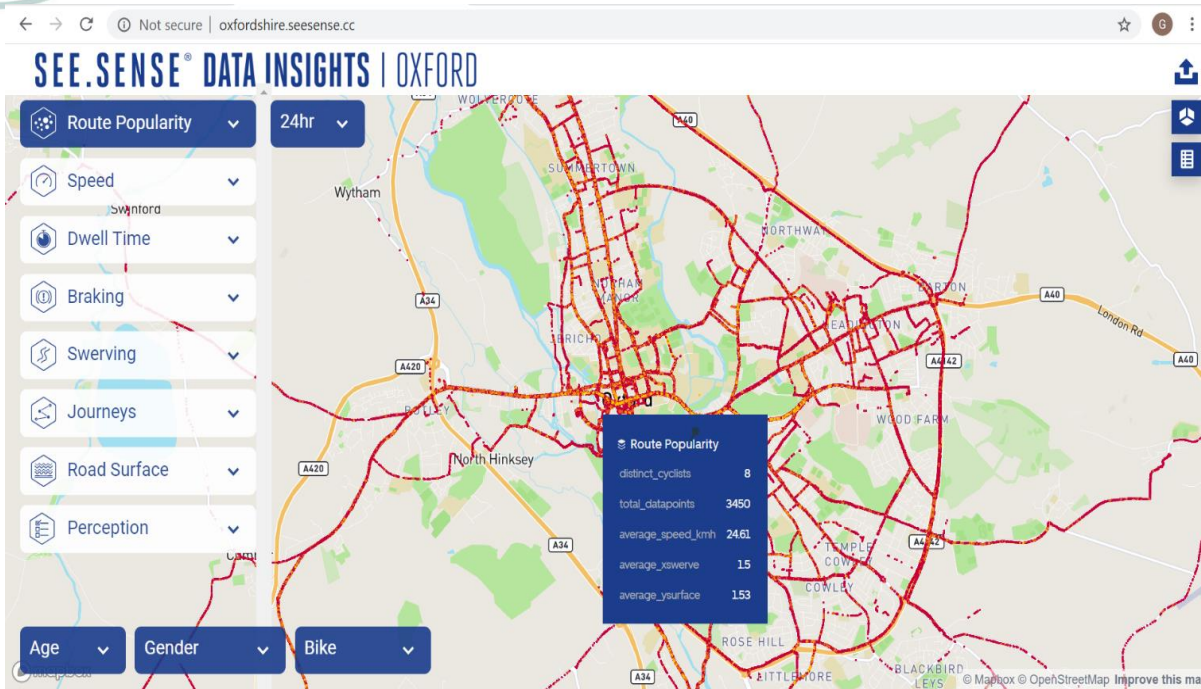


Vivacity Lab Sensors



- 100 throughout the county.
- Used in detecting speed, traffic, modality
- Also, for social distancing
- AQ effects of different modes
- Road safety through paths

See.Sense Bike Lights

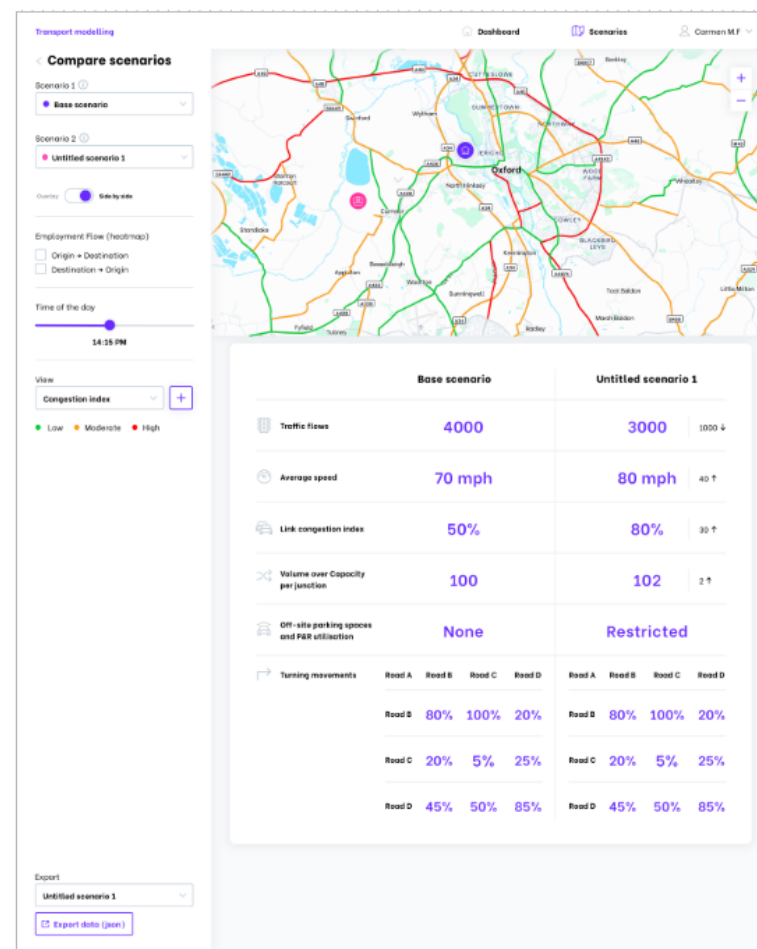


- 300 lights distributed in Oxford and Milton Park
- Insights on routes, speed, terrain
- Used as guides for traffic management and infrastructure investment



Oxfordshire Mobility Model

- First Innovation Partnership Procurement in the UK
- Invest £1.4M in a new type of strategic model, awarded to consortium of 5 SMEs
- Multimodal
- Uses OCC data for validation
- Cloud based
- Expandable
- User Friendly
- Easy to compare scenarios, change development characteristics





Innovation Framework – Planning & Development



Set out the case for considering innovation



Provide high level guidance for planners & developers, linking to more detailed information



Provide a framework of principles and aims which innovation should support / challenges it could help overcome



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