# UK Smart Mobility Living Lab™ @ Greenwich

## Where smart, connected and autonomous vehicles come to life

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# Introducing The Living Lab

## Created by TRL, the UK Smart Mobility Living Lab @ Greenwich has been established to create an open innovation environment for connected and automated vehicles (CAVs).

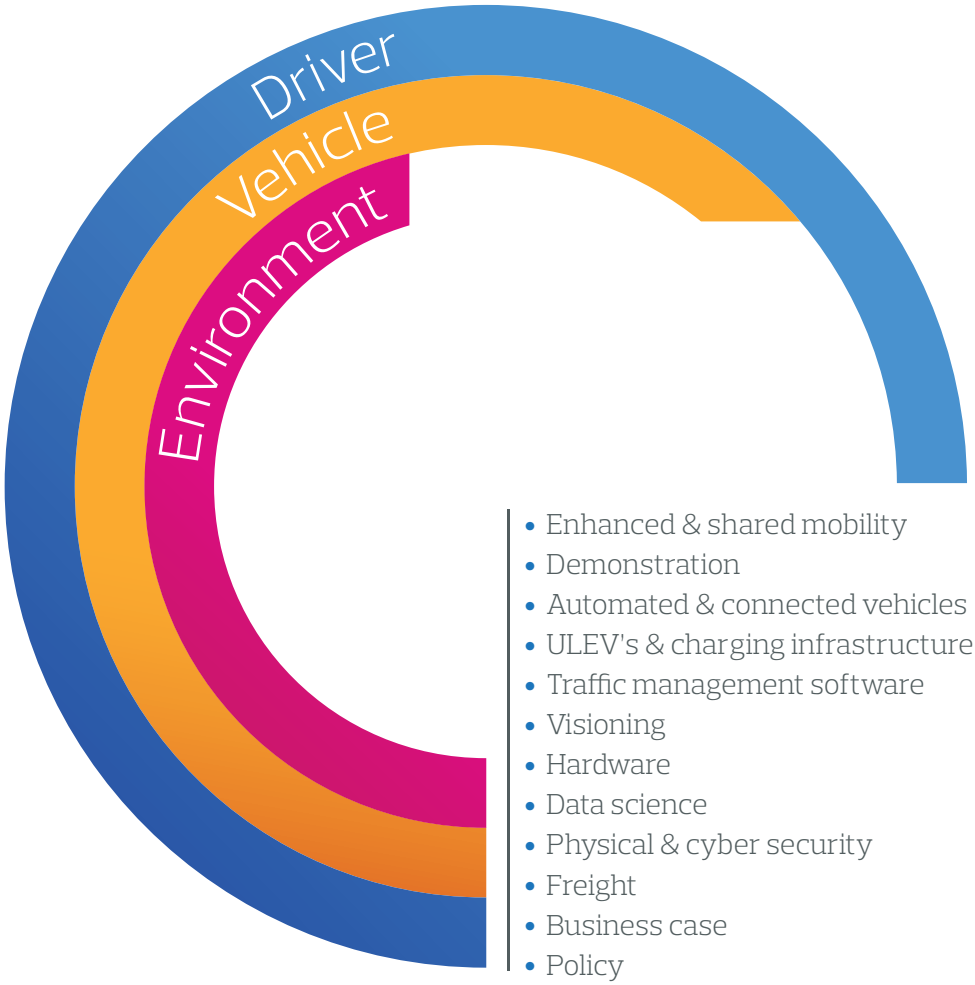
Located in Greenwich, the Living Lab provides a real-life environment where CAV systems, services and processes can be safely developed, evaluated and integrated with the local community. Based in London, Europe's only globally recognised megacity, Greenwich also provides the ideal location to explore the interoperability of CAVs with other transport services.

TRL is at the forefront of smart mobility with a current portfolio of CAV projects in excess of $25m. This is underpinned by TRL's established track record as an independent, impartial centre of excellence delivering world class research in the UK and internationally, to both public and private sectors over their 80 year heritage.

TRL's Current CAV partners include Innovate UK, EPSRC, Bosch, Jaguar Land Rover, UMTRI, Telefonica, Shell, CEDR, RSA, Direct Line Group, Westfield, Heathrow and Oxbotica

# What is The Living Lab

**The UK Smart Mobility Living Lab offers a diverse set of capabilities**




- Enhanced & shared mobility
- Demonstration
- Automated & connected vehicles
- ULEV's & charging infrastructure
- Traffic management software
- Visioning
- Hardware
- Data science
- Physical & cyber security
- Freight
- Business case
- Policy
- Simulated environment
- Regulation
- Air Quality
- Mapping
- Congestion
- Human factors & ergonomics
- Perception
- Behaviour

# Facilities

**The UK Smart Mobility Living Lab @ Greenwich** provides **onsite facilities** within The Mitre Building, a unique and instantly recognisable building in the heart of the Greenwich Peninsula, central London's most exciting new business district.

Completed in 2009 the building provides Grade A office accommodation located next to the North Greenwich Tube Station (Jubilee), and adjacent to the O2 Arena. It provides captivating views of the Peninsula, O2, Canary Wharf and City.

**Offsite laboratory facilities** are provided by TRL at its R&D HQ in Berkshire – a private and unique space for invention and collaboration in confidence.

# How Can It Help Clients

## The UK Smart Mobility Living Lab can help organisations to:

- Assist R&D by testing concepts and prototypes in the living environment of Europe's only megacity
- Bring solutions to market faster
- Launch new products, technologies or services
- Understand how technology is perceived in a real world setting
- Understand technology interoperability in complex urban environments
- Demonstrate ambition and vision to investors, decision makers, stakeholders
- Collaborate with other innovators
- Showcase their business using with Living Lab as a shop window
- Develop policy, strategy, product, solutions and business cases
- Access world leading research expertise through TRL and its international partners

# Why Is It Needed


- Growth in population
- Increasingly urbanised population
- Ageing society
- Increased demand for connected transportation
- Accessibility of transportation modes
- Always connected post millennials

- Safety targets
- Policy & regulation
- Congestion on the road network
- Electrification of vehicle fleet
- Uptake of electric & ULEV vehicles

- Growth in sharing economy
- Vehicle automation
- User behaviour
- Infrastructure design for connectivity and automation
- V2X issues
- Growth of mobility as a service
- Connection to the smart city

In this context, connected, automated vehicles (CAVs) will become a critical element in the future of mobility. Many organisations are testing CAV systems in dedicated off-street facilities in the manner established in the early 20th century. Of course, traditional methods are important, but the success of these vehicles is **critically dependent** on how they work in a living environment where **people, traffic** and **existing transport services** are operating in a wide variety of scenarios.

# Why The UK

The UK is uniquely positioned to become a premium global location for the development of autonomous vehicles and their associated technologies. Driverless vehicles can already legally be tested on public roads and the UK Government is actively supporting research, development and demonstration of connected and autonomous vehicles.

The UK offers permissive regulations, a thriving automotive sector and an excellent research base and innovation infrastructure, making it an ideal location for automotive OEM's, Tier 1's, new entrants and others to develop and test these technologies.

The UK Government has already begun work to support the research, development, demonstration, and deployment of connected and autonomous vehicles.

This includes:

- Publishing the Department for Transport's (DfT) code of practice for testing driverless cars, of which TRL played an active development role
- Establishing a new joint policy unit – the Centre for Connected and Autonomous Vehicles (CCAV) – to help ensure that the UK remains a world leader in developing and testing connected and autonomous vehicles by:
- Leading innovative policy development in this sector internationally
- Delivering a programme of research, development, demonstration, and deployment activity, worth up to £200 million, through Innovate UK
- Agile cross-government co-ordination
- CCAV provides a single point of contact for stakeholder engagement

# Why Greenwich

## Meeting the challenges of Europe's only megacity

The Royal Borough of Greenwich is inextricably linked to innovation in navigation. In the heart of London, Greenwich has a vibrant and growing community. The local authority is progressive and focused on meeting the challenges of the megatrends that we face.

**The UK Smart Mobility Living Lab @ Greenwich** is the perfect complement to this strategy. The Royal Borough of Greenwich has the vision to enable changes in mobility and recognises that a living lab environment brings opportunities and prestige to the location.

Greenwich is well connected being twenty minutes from the political, financial, media and insurance hubs in London and with a range of transport modes including roads, buses, underground, rail (including CrossRail), Docklands Light Railway, riverbus and the Emirates Airline cab. It is also home to the world's most popular entertainment venue – the O2 Arena. This mesh of services creates a unique multifaceted environment for smart mobility R&D that is readily accessible to a range of stakeholders.

**The UK Smart Mobility Living Lab @ Greenwich** has access to business clusters in;

- Internet security
- Data analytics and visualization
- Robotics and autonomous systems
- Additive manufacturing, rapid prototyping & digital design
- Service design & citizen/customer engagement
- Internet of Things applications and data integration

# What's Going On

## Example projects

The UK Smart Mobility Living Lab is home to a number of projects that are taking advantage of the opportunity to test innovative concepts in a welcoming regulatory environment.

GATEway

GATEway (Greenwich Automated Transport Environment) is an £8m project that aims to understand and overcome the technical, legal and societal barriers of implementing automated vehicles in an urban environment. The project will trial and validate a series of different use cases for automated vehicles, including driverless shuttles, autonomous valet parking and automated urban deliveries.

MOVE_UK

MOVE_UK is a £5.5m project which is focused on developing pioneering, real-world techniques to ensure autonomous vehicles will be developed in-line with current on-road vehicle use characteristics – aiding integration with existing traffic and enabling better performance than human driven vehicles, especially in safety critical scenarios. The project will enhance emerging autonomous driving system design and development practices by capturing and utilising a large repository of real-world driving data. This data will be used to model and simulate real-world scenarios and realise accelerated validation and development timeframes.

The project will also provide an evidence base to establish the necessary assessment protocols to evaluate autonomous vehicles and ultimately approve their safe use on the road and help define the requirements for the security of the data acquired and used by the algorithms to operate the vehicles.

**GATEway and MOVE_UK are jointly funded by Innovate UK and backed by the DfT and the Centre for Connected and Autonomous Vehicles (CCAV).**

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For more examples and more information on how the UK Smart Mobility Living Lab @ Greenwich can complement your R&D programme and help achieve your product development, testing and validation aims, please contact the team on:

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