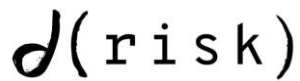


# An Innovation Community

for future transport systems based around  
Connected Automated Mobility

Membership of the SMLL Innovation Community provides an opportunity to be part of the evolving marketplace of new mobility and is excellent value for organisations not usually connected with transport and travel.





# UK Investment in CAM

The Connected and Automated Mobility revolution is a transformative and disruptive change that will impact all of the traditional assumptions and business models that have underpinned the automotive and transport sectors for the last fifty or more years.

Studies have shown that the UK is well-positioned to be a global leader in this transformation because of a robust, broad, and healthy eco-system of organisations willing and eager to work together to mutual benefit.

“ Phil Proctor Head of Research at National Highways says:

**I'm excited that National Highways is joining the Smart Mobility Living Lab Community. It will support our future decision making for the strategic road network by facilitating collaborative working and unlocking knowledge that will create new opportunities and improve the future of mobility.**

**I look forward to sharing expertise across this Community and accelerating the delivery of National Highways' strategic goals and commitments.** ”







“ The most successful and sustainable solutions to societal, environmental and economic challenges will be delivered through collaboration. SMLL membership allows Grid Smarter Cities to meet with like-minded partners to co-develop solutions to tomorrow’s problems using the technologies of today. ”

Neil Herron, Founder & CEO, Grid Smarter Cities

**The reasons most often highlighted by potential investors in the UK CAM sector are:**

- The UK has a research base (in the university, charitable and industrial sectors) that is globally competitive and important. There are a large number of researchers, and organisations, that are doing research into the science and technologies that enable many of the new capabilities that come together to create CAM opportunities;
- The UK has a large number of startups and innovative SMEs in the CAM area;
- The UK has a very strong IT and software sector;
- The UK defence and security sector has strong cyber-security skills;
- Research and innovation funding is available
- The supporting infrastructure (Catapult centres, KTNs, University-linked incubators and CAM Testbed UK) is strong and, in some cases, globally unique;
- The UK service industry (for instance in Insurance and Legal) that supports the introduction and use of new technologies into the public realm is very creative and competitive.



# Specific industries and their supply chains will benefit directly from collaboration around CAM

CAM technologies cover a broad range of skills and knowledge. Automated Mobility is an application of robotic and AI technologies. Connected Mobility is an application of IT and (mobile and fixed) communications.

Mobility is a ubiquitous component of most economic activity and of the individuals' participation in society.



## FREIGHT & LOGISTICS

The logistics industry will benefit early on from lower levels of autonomy and increased levels of connectivity.

The SMLL Innovation Community are interested in trialling Mobility Hubs and new modes for transporting goods, in particular for first mile, last mile and into rural communities.



## AUTOMOTIVE

CAM is a potentially existential threat for the traditional automotive industry and its supply chain, disrupting the way that people and freight move around, and vehicle ownership models. But there is also huge potential for new business models, especially for services, with a society-led requirement for provision of services accessible for all.

SMLL Innovation Community members are engaged in promoting a positive vision for the UK automotive sector and share a desire to influence the evolution of automotive technology in ways that benefit UK economy and society.



## MOBILITY SERVICES

CAM service providers all operate in markets defined by regulation. The advent of ubiquitous mobile connectivity has eroded the technological basis of most regulatory difference (cf Uber and London's Black Cabs). CAM technologies and new approaches to their regulation, open up the promise of eliminating modal differences and changing the concept of competition between mobility services.

Membership of the SMLL Innovation Community is an exclusive portal into new perspectives and early warning of commercial opportunities.



## INSURANCE

The motor insurance industry in the UK faces an uncertain future.

The SMLL Innovation Community is a private and supportive group, willing to provide unbiased feedback on future scenarios and insurance propositions. The breadth of members is a vital pool of representatives of the human element in all travel modes.





## **PUBLIC AUTHORITIES**

City planners, land owners and highways infrastructure managers are valued contributors to the SMLL Innovation Community because of their long-range investment plans and a healthy focus on customer needs.

The asymmetrical mix of community members forms a perfect extension to their own innovation teams.



## **CONSTRUCTION**

In the construction industry the early adopters of CAM are likely to be groundworks contractors working on major infrastructure projects.

Members of the SMLL Innovation Community are keen to understand and influence the impact on the construction supply chain by CAM technologies, and be ahead of the curve in anticipating the growing inter-dependencies on other affiliated sectors.



## **UTILITIES**

The energy sector and communications sector are fast becoming key components of the transport eco-system in ways undreamed of a decade ago.

By having members of these sectors as active collaborators in the SMLL Innovation Community, the whole membership benefits from the panoramic insights available.

“**SMLL is about setting the pace for urban mobility across the world for generations; we believe human-centric artificial intelligence technologies to be critical to that mission. Working with SMLL gives us the opportunity to share our people-centred vision for urban mobility systems, and ensure that the next generation of automated vehicles are built to accurately identify, understand and respond to the full range of human behaviours.**”

Maya Pindeus, Chief Executive Officer, Humanising Autonomy



## **ACADEMIA**

Universities and research organisations are at the frontier of innovation in CAM in the UK and embedded into almost every government funded research activity.

As members of the SMLL Innovation Community they are a window into the dramatically different, and technically extremely challenging CAM concepts being given their first chance to be demonstrated. Members can expect easy access to findings and IP available for exploitation.



# CAM Testbed UK & SMLL

SMLL is part of CAM Testbed UK, six core facilities within a three-hour drive offering a comprehensive set of capabilities for the testing and development of connected and automated mobility (CAM) technologies. Funded by the Centre for Connected and Autonomous Vehicles, CAM Testbed UK is able to offer interoperability to customers that is unrivalled worldwide.

CAM Testbed UK is a collection of UK business supporting the development and testing of CAM technologies, products and services in the UK. CAM is central to the strategies of all the CAM Testbed UK members and the investments made by industry in CAM Testbed UK were all made in the expectation that CAM will be a pivotal and rapidly growing part of the economy.

The period to 2030 is a critical period when many of the technologies, products and services will be piloted and introduced to market for the first time. CAM Testbed UK believes this decade will be as important and transformational as the adoption of the internal combustion engine in the first two decades of the twentieth century which led to the way our cities, towns and villages were built and re-built, and the way that lives were lived throughout the century. We believe it is difficult to over-estimate how significant the changes are that will result from this transition to CAM.

CAM Testbed UK is formed of companies who have invested, collectively, many tens of millions of pounds in developing R&D and test capabilities for CAM. In some cases facilities are still under construction but CAM Testbed UK members recognise the need to continue to invest in these facilities in future years, to continue to enhance and adapt facilities to meet the evolving needs of these technologies, products and services. They are able to commit to this degree of forward investment because the UK government is committed to remain a leader in the global CAM market.

The precise path of the future development of CAM technologies, products and services is unknowable and is dependent on the regulations that set market boundaries. The UK is a place where regulation is a supporter and enabler of innovation. The organisations in CAM Testbed UK are at the very heart of influencing the regulations and standards guiding the safe transition to CAM for the UK.



**The commitment, leadership and investment by the UK government in CAM Testbed UK, is evidence of its desire to sustain a global leadership in CAM.**

**Members of the SMLL Innovation Community have exclusive access to the much larger CAM Testbed UK community and its activities.**

### CAM Scale-Up Programme

CAM Scale-Up programme

in partnership with PLUGANDPLAY

This scheme offers hand-picked start-up/SME participants an opportunity to develop innovative CAM solutions at pace. Chosen SMEs get the opportunity to collaborate with corporate partners throughout the programme. The goal for participants is to complete the programme with ready-for-market products and services.

### Interoperable simulation across CAM Testbed UK

Many CAM technology developers prefer to test their product in a simulated environment in the early phases of R&D.

CAM Testbed UK is leading an initiative to ensure that the simulation capabilities of its partner testbeds in the UK form a coherent, interoperable platform for testing organisations so that they can progress through the complexities of the real world testbeds in a simulated environment first.

### Safety Case Framework: The Guidance Edition

For Creators & Reviewers 2021

CAM Testbed UK is continuously evolving best practice guidance for safety case development, required for the safe testing and trialling of connected and automated mobility (CAM) technologies in the UK.

The regularly updated guidance helps trialling organisations and reviewers save time and money, with a unified approach to safety case development.

The guidance is produced in collaboration with safety standards and PAS requirements issued by BSI.

### Consumer Safety Case Scheme

CAM Testbed UK are leading the development of an independent UK consumer safety rating framework for CAM technologies such as Automated Lane Keep Systems.

“ **Transport is a systems game, with many players. The SMLL Innovation Community enables us to test and extend our products, working with great collaborators focused on delivering impact and a bright future for transport in the UK and beyond.** ”

Robin North, CEO, Immense Simulations Limited





# Community

SMLL is building a community of organisations who gain mutual benefit from working closely with each other, exploring development opportunities and addressing technical challenges collaboratively. This community is based on the future of connected, automated, shared and electric mobility. Their aim is to generate and gain access to exclusive insight into the development of technologies.

The emerging mobility eco-system is diversifying rapidly and now non-traditional or marginal transport sectors such as telecommunications, energy, risk, retail and others are taking a keen interest in new mobility concepts. The community is a perfect entry point for organisations seeking to understand and build evidence for future business scenarios.



**Membership is excellent value for organisations not usually connected with transport and travel in CAM.**



“

**SMLL's Innovation Community is the most tangible community we found in the space of Intelligent Transport Systems.**

”

David Owens, Head of Technical Trials, Networks, Virgin Media O2

**By getting involved with the SMLL Innovation Community, members have the option to participate to varying degrees, by networking and consuming carefully curated information, by sharing insight from their own R&D projects, by investing in creating new knowledge, or by contributing technical capability to the testbed.**





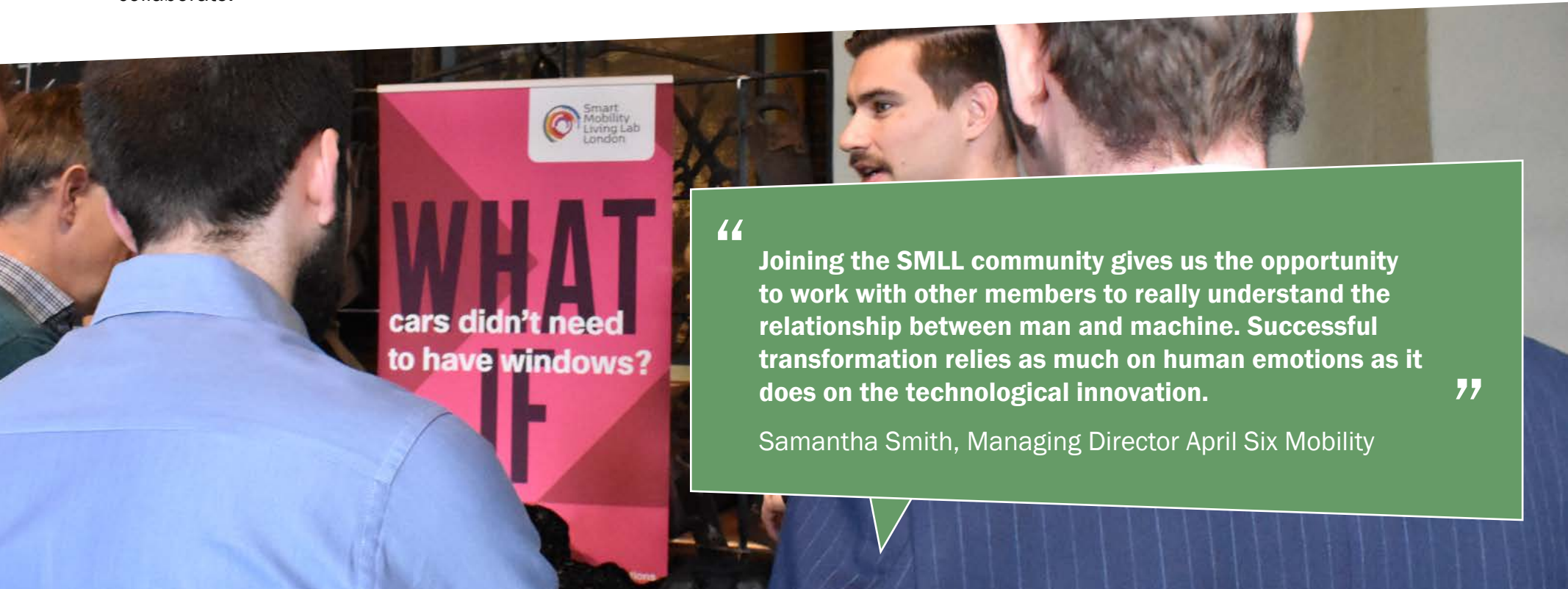
# Collaboration

A key facet of the SMLL Innovation Community is the provision of a proactive environment to foster collaboration among the membership, in pursuit of exclusive actionable insight.

Members all start with an interest in the future of connected, automated, shared and electric mobility. And a desire to build sustainable profitable businesses.

In order to generate unique insight into the development of real-world applications and their impacts, members seek information and evidence. CAM has become so complex, so interconnected, that achieving these goals requires everyone to share, and collaborate.

The membership provides an entry point to relevant information and expertise. But what comes next depends on the members coming together to formulate unique research questions, and exploit the findings in their own business strategies.



“

Joining the SMLL community gives us the opportunity to work with other members to really understand the relationship between man and machine. Successful transformation relies as much on human emotions as it does on the technological innovation.

”

Samantha Smith, Managing Director April Six Mobility



**Journeymakers share a vision to be a technology maker, rather than a technology taker, shaping the development of CAM to ensure it benefits UK society, UK economy and UK environment - and their organisation**

**“ Being part of the innovation community allows us to meet like minded-people, government stakeholders, and businesses who share our vision of a better future by combining data, technology and innovation in the public transport sector. The diversity of members covers the mobility ecosystem and beyond to accelerate and drive change in the every day mobility. ”**

Benjamin Pfeifer, Chief Commercial Officer, ioki





# Membership benefits

The SMLL Innovation Community welcomes members from all different types of organisations: micro businesses, SME's, corporates, academia and local authorities. To gain the most out of the membership subscription fee, we encourage our members to make use of all of the benefits available to them.



## RESEARCH INSIGHTS

- Proactive industry and policy insights, report summaries
- Monthly news digest
- Technical repository for reports, benchmarks, standards
- Broad membership base to invite feedback from on new concepts



## ACCESS TO EXPERTISE

- Invitations to technical webinars and workshops
- Personalised one-to-one consultation with TRL specialists via our Discovery Moments programme

“ **The biggest advantage of being part of the Innovation Community is the opportunities to collaborate, pool our specialisms and create exciting new mobility technologies together.** ”

Natalie Hughes, Director of Partnerships and Corporate Accounts,  
The Algorithm People





### **NETWORKING**

- SMLL conferences, seminars and events
- Networking events and key notes
- Show and tell events to promote own activities
- Interaction with leaders from other industries outside the members' sector



### **USE OF SMLL OFFICE & MEETING SPACES**

- Use of SMLL Customer/Visitor Management Suite
- Office space and Hot Desking at Woolwich and Plexal

“

**Being a member of the SMLL Innovation Community will enable Eurovia UK to learn how highway infrastructure will need to adapt and evolve over the next 10 years as we embrace the inevitable smart, connected and autonomous mobility of the future. This learning will help us remain at the forefront of providing relevant highway infrastructure construction, maintenance, operations and management services.**

”

Yogesh Patel, Group Process and Improvement Director  
- Eurovia







### **VISIBILITY (BRANDING)**

- Active promotion and demonstration of the Member's capability within the community and externally
- Member company logo and promotional video displayed on the SMLL website and on our brandwall, kiosks in our facilities.
- The right to use the SMLL logo



### **INFLUENCE**

- Invitations to meet key personnel shaping the regulatory environment
- Guided contributions to public consultations
- Interpretation of consultation findings

“

**As Part of the UK Government CCAV project ServCity we see the Innovation Community in London as critical in the delivery of the project as we pilot trial our vehicles on the public road and link with the available infrastructure.**

”

Robert Bateman, Project Lead - ServCity Project,  
Nissan Europe





### COMMERCIAL

- Communication of market opportunities - commercial and R&D funding channels
- Introductions to members who have funding in place
- Access to quick and multidisciplinary response to complex questions to support strategic decisions



### COLLABORATIVE R&D

- Co-ordination around commercially or grant funded programmes
- Communication and facilitation of Opt-in R&D projects within the membership
- Discussion with a TRL/SMLL technical counterpart about use of SMLL test facilities in support of your R&D

“ The SMLL community represents an excellent opportunity for Jenoptik to actively engage with this rapidly developing and exciting sector. It gives us the chance to develop and test our technologies within a nurturing, collaborative environment. ”

Geoff Collins, Sales & Marketing Director,  
Jenoptik Traffic Solutions





# London: a star role on a global stage

London was selected as the ideal real-world testbed for future mobility technologies and services because of its complexity. The premise is simple: If it works here, it will work anywhere.

London also offers something unique: it puts organisations into the limelight.

“ What is unique about the SMLL is the engagement with the Local Authority representatives and the public trial locations. That means that every wheel turned, by which ever mode, will be show cased directly in the public eye. The richness of the members brings an international community together on a testbed backed by local authorities, local groups and the public. These communities are vital for us an SME to build relationships and showcase our new technologies in the real-world environment. ”

Dan Hubert, CEO and founder, Appyway





# TRL's involvement in CAM

1960

The first driverless car, the Citroen DS was tested at the TRL test track. Since then we've been scientifically evaluating the performance and safety of driverless vehicle technology.



2015

TRL led the GATEway project, which trialled and validated automated vehicle use cases. We demonstrated the safe and efficient integration of automated vehicles into complex real-world environments.



2020

TRL opened the SMLL testbed to commercial customers and research organisations to test and validate system performance in both simulation and real-world situations.



Recent CAM trials:

Endeavour

HGV Platooning

Automated construction plant

ServCity

E-scooters

Electro-Roads

Zero Emission Road Freight Trials (ZERFT)

Various hydrogen powered system trials

AZORA remotely-operated AVs

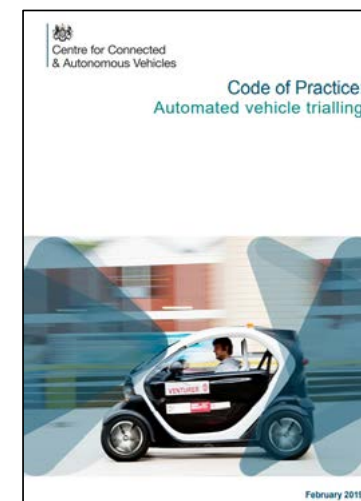
Encode teleoperated AVs



## Regulatory insights

TRL have long played a key role supporting the UK government in implementing evidenced based policy and regulation around CAM. TRL is the main provider of technical advice to the European Commission DG GROW. We are helping to set the future European priorities for legislative vehicle safety requirements for new automated vehicle technologies.

TRL participate in a wide range of working groups and committees, such as the UK Parliamentary Advisory Council for Transport Safety (PACTS), ISO, British Standards, EEVC working groups, and UNECE working groups. TRL consultants are active members of steering groups and committees as recognised experts for the BSI CAV standards programme and CertiCAV.





# TRL and SMLL: the journeymakers

SMLL Ltd is owned by TRL Ltd.

TRL is owned by the Transport Research Foundation: a non-profit distributing company that enables our experts to give independent advice without influence from shareholders or finance companies.



For more information about the Innovation Community and to discuss the benefits package and fees for joining the Community, please contact Carlota Da Veiga Pestana, SMLL Sales Lead [cdaveigapestana@trl.co.uk](mailto:cdaveigapestana@trl.co.uk)