Progress with Automated Vehicles in the UK

Prof. Phil Blythe, Chief Scientific Adviser, Department for Transport

TRB Session 129: Findings from the Automated Vehicles Symposium 2017
Role of Government - why do we want to get involved?

- safety
- mobility
- efficiency
- productivity
Department for Transport Key ITS Innovations
Five Pillar’s of future ITS
### Five Pillars of future ITS

**Connected**
Moves as part of system...in time, multi-modal
DATA: The key to new network management – people and freight

**Automated**
FULLY automated – can move when empty
HIGHLY automated – needs a “driver”

**Electric**
Ideally electric or other future energy source

**Pricing**

**Shared**
Increased interest in shared fleets and use of “mobility as a service”
The key to place-making benefits
The UK approach

Open regulatory approach

Over £100m for collaborative R&D

£100m for testbed infrastructure
UK Trials and Demonstrators

- UK is committed to providing an environment where innovation for Connected and autonomous vehicles can flourish
- Looking at the regulation and legislation needed as well as providing test beds to work through the technical and practical challenges of bringing automated and driverless vehicles to the UK
- Consider the user requirements and social impacts of CAV’s
So, what are we doing…

**Code of Practice** for testing CAVs - clearly sets out that tests must be conducted in line with UK road traffic law.

**AEV Bill** - has been described as ‘the world’s first driverless car insurance legislation’.

**Automated & Electric Vehicles Bill**
New rules to ensure safe and effective insurance for self-driving cars.
Ah, Britain. The only parliament in the world where someone turns up by horse drawn carriage to promise everyone else driverless cars.
Consider Information

- There are several schools of thought about how autonomous automated vehicle may use information:
  - from **full autonomy**: using information only sensed by the vehicle itself; to
  - **connected**: where information from the road, other vehicles and the infrastructure augments that gathered by the vehicle sensors;
Information:

- Mapping and positional information
- Sensed data from vehicle
- Traffic conditions
- Interaction with traffic management
- Insurance information
- Mix of equipped and non-equipped vehicles (and versions of vehicles)
- Information needed for insurance purposes and post accident
- What other modes are doing
- Joining all this together to enable a MaaS
So, what are we doing…

CAV and related R&D is extensive
Through CCAV, the Government has provided c£200m of grants through competition to 51 CAV projects.

A mixture of Collaborative R&D and Feasibility Studies.

Portfolio involves around 150 organisations from industry, academia and local/national Government Authorities.

c£56m of private investment.
So, what are we doing…

CAV Test Beds in England
Building the Information Eco-System

- Secretary of State’s priority ‘Make UK the best place in the world to do transport digitally’
- DfT established Data Board to understand what data we have, the quality of the data and how to make this available
- Understand what local authorities and other stakeholder data could be available and what Government needs to do to make this data available
- Understanding MaaS and user requirements
- Enabling a connected vehicle infrastructure
Preparing the landscape

- Information
- Insurance data required
- Trials on real worlds in both urban and interurban environment
- Developing the Connected-ITS infrastructure to support autonomous and driverless vehicles
- Wide range of social and behavioural research underway
- ‘Ride and Drive’ events to expose users to highly automated and driverless cars
Connected Intelligent infrastructure (CITS)
Mobility as a Service

- Seen as one of the key tenants of Future Mobility
- Likely to utilise a number of automated vehicle operations
- UK established new team in C-CAV to oversee this
- Major announcements in 2018 on Future Mobility demonstrators and regulatory issues
Early outputs from ‘driverless car trials’

- Highly automated and/or fully autonomous vehicles – a policy dilemma?
- Mixing human drivers with self driving vehicles on the road: Building trust without compromising efficiency
- Reducing the cost of a journey – a key user benefit of CAV technology?
- We need to be better at communicating and demonstrating the benefits and the capability of the technology;
  - People generally feel that wider mobility benefits are for other users
  - Significant reservations remain about the ability of technology to replace human drivers entirely.
- 5000 end users currently being exposed to highly automated and driverless vehicles to gauge attitudes and levels of acceptance
Key Take-aways

- Recognising the potential safety, mobility, productivity and efficiency benefits of self driving vehicles the Government establish CCAV in 2015.
- CCAV’s missions is to help make the UK a world leader and go-to place for the design, development and deployment of CAVs.
- CCAV works across regulation, testing infrastructure, R&D and Cyber security.
- Through CCAV, Government are investing over £250m up to 2020 across R&D and infrastructure projects.
- The UK is recognised as having one of the most open, and forward thinking, regulatory frameworks in the world for testing and deployment of CAVS.
- The Industrial Strategy outlined an ambition to have fully self-driving vehicles on the road by 2021.
Professor Phil Blythe
Chief Scientific Advisor,
UK Department for Transport
phil.blythe@dfi.gsi.gov.uk

Professor Phil Blythe
Professor of ITS
Transport Operations Research Group
Newcastle University
Phil.Blythe@newcastle.ac.uk