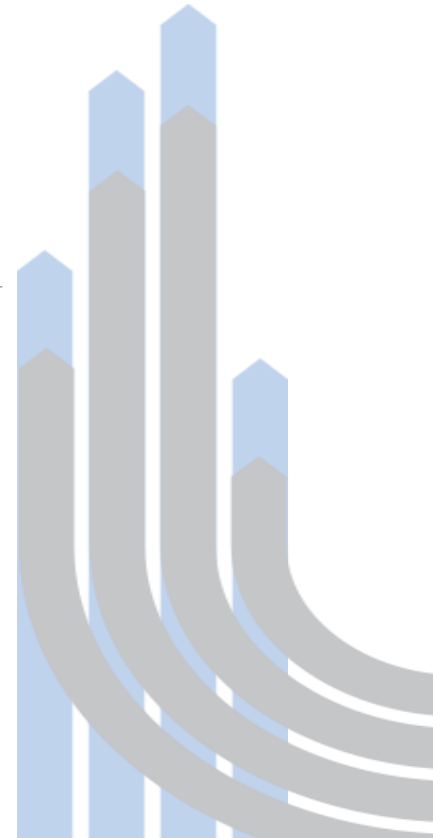


Connected and autonomous vehicles at the crossroad: Opportunities and challenges







David Wong
Senior Technology and Innovation Manager

ITU Symposium on the Future Networked Car
Geneva
8 March 2018



Unprecedented opportunities, but we're not there yet

1.8m (or 2/3) British new car buyers benefit from driver assistance systems

		Fitted as Standard	Optional fitment	Total
Collision Warning System		1,071,728 (39.8%)	727,052 (27.0%)	1,798,780 (66.8%)
Parking Assistance		589,720 (21.9%)	993,638 (36.9%)	1,583,358 (58.8%)
Automatic Emergency Braking		764,751 (28.4%)	665,118 (24.7%)	1,429,869 (53.1%)
Overtaking Sensor		140,024 (5.2%)	993,638 (36.9%)	1,113,662 (42.1%)
Adaptive Cruise Control		185,802 (6.9%)	788,986 (29.3%)	974,788 (36.2%)
Blind Junction View		8,078 (0.3%)	253,121 (9.4%)	261,199 (9.7%)

Source: JATO Dynamics analysis based on SMMT new car registration data 2016



safety

- Low-speed AEB – ↓38% real world rear-end crashes
- 2,500 lives saved, 25,000 serious accidents prevented (2014-2030)



efficiency

- Urban roads, peak traffic, low numbers of AVs: -12% delays, +21% journey time reliability
- ITS using V2V and V2I: ↓CO₂ emission ≤20%



mobility

- 6/10 with limited mobility – ↑ quality of life
- 47% older people – more easily fulfil day-to-day tasks



productivity

- £51bn value added p.a. by 2030
- 320,000 additional jobs by 2030 (25,000 in automotive manufacturing)

Four overarching challenges

Technology and infrastructure



- Sensor fusion, AI, machine learning, deep learning for L4/5
- Fully fail-operational system
- HMI and control handback
- High precision mapping
- Virtual testing and validation
- Digital (e.g. LTE-V, 5G, ITS G5, satellite): coverage, reliability, bandwidth, capacity
- Physical infrastructure

Policy, regulation and standards



- Insurance/liability framework
- Highway Code and Construction & Use Regulations
- Harmonised international regulations (UNECE Reg. 79)
- Type approval, certification and future MOT
- Data protection and data sharing
- Driver licensing and future 'driving test'
- 5G and IoT standards

Business models



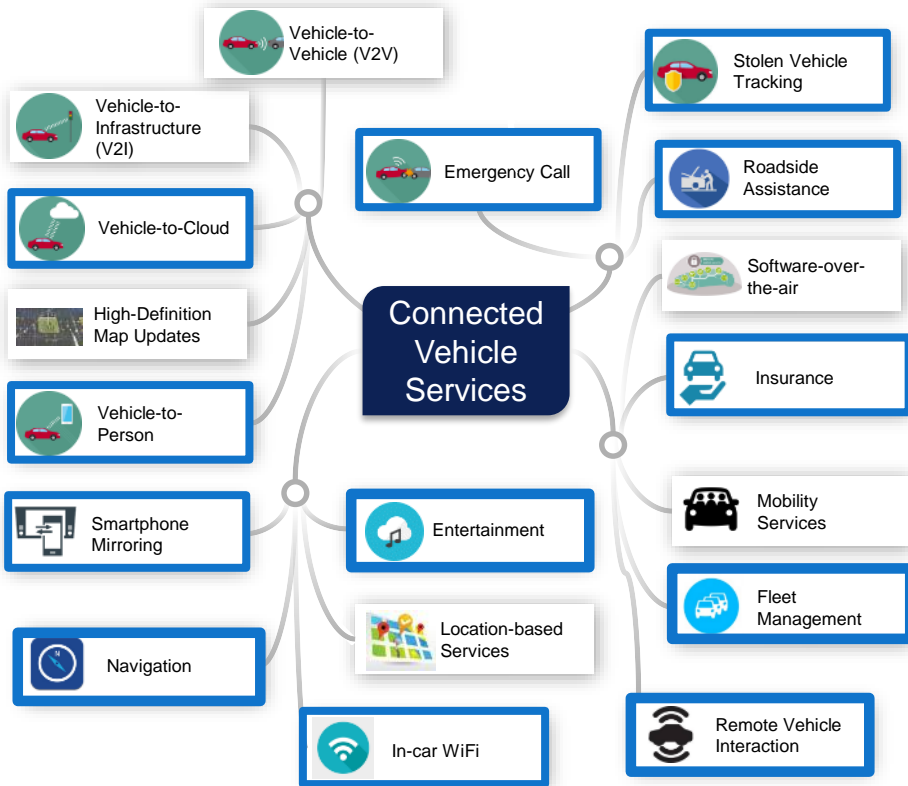
- New opportunities from 'servitisation' and 'horizontalisation' of the product
- New insurance business models (e.g. PAYD)
- Who pays for connectivity?
- Towards integrated mobility solutions

Behavioural issues and public acceptance



- Public perception and misconceptions
- Co-existence with legacy motor parc and other traffic
- Social behaviours (e.g. playing chicken)
- Reshaping future cities and urban centres

5G is welcome, but will not be a panacea



Mobile coverage on the UK road network

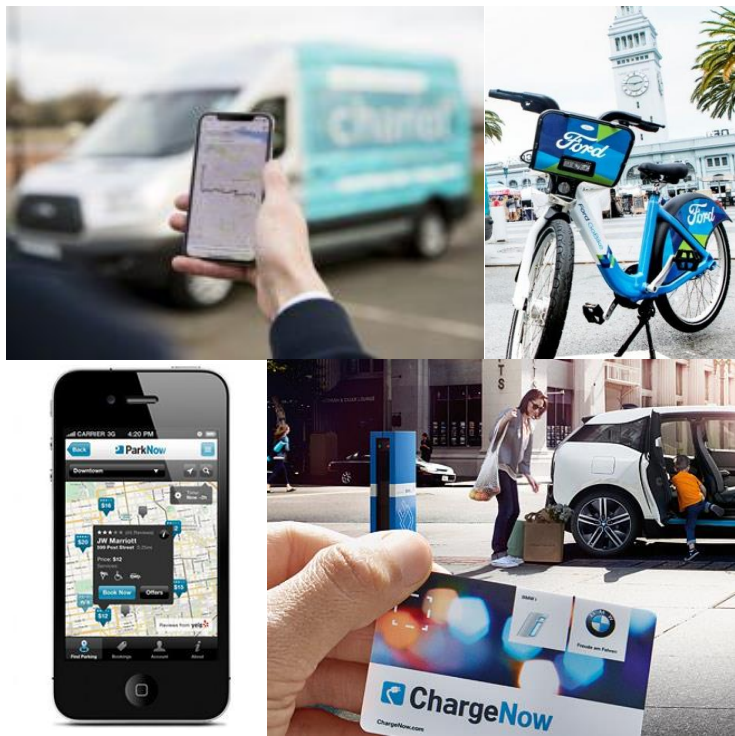
	Miles (%) of road in Britain with...		
	Full network coverage	Partial network coverage	No network coverage
2G	211,753 (86%)	28,975 (12%)	4,561 (2%)
3G	119,057 (48%)	111,679 (45%)	14,554 (6%)
4G	43,070 (18%)	65,950 (27%)	136,271 (56%)

Note: percentages might not add up to 100% because of rounding. Partial network coverage means that at least one of the four network providers – Vodafone, O2, EE, Three - will offer a signal.

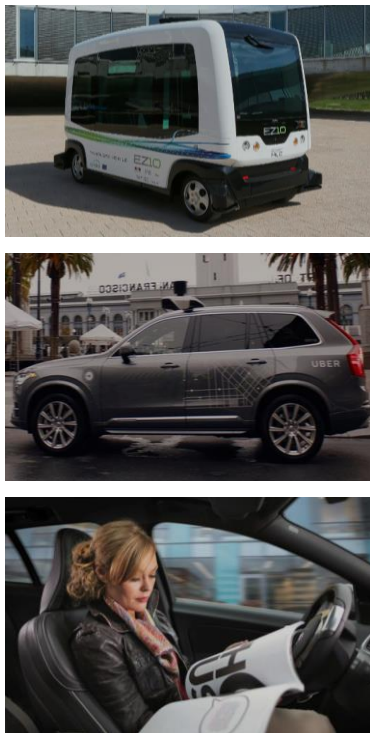
Source: RAC Foundation analysis using Ofcom data, 2015.

From CAVs to connected mobility and lifestyle solutions

Mobility



Options



Integrated

	Taxi Services		Ridesharing
	Bike Sharing		Parking
	Micro-mobility		E-Mobility
	Car Sharing		Public Transport
	Corporate Car-Sharing		Integrated Mobility
	Car Rental		Ecosystem Partnership

Vehicle-as-a-Platform



UK testing ecosystem

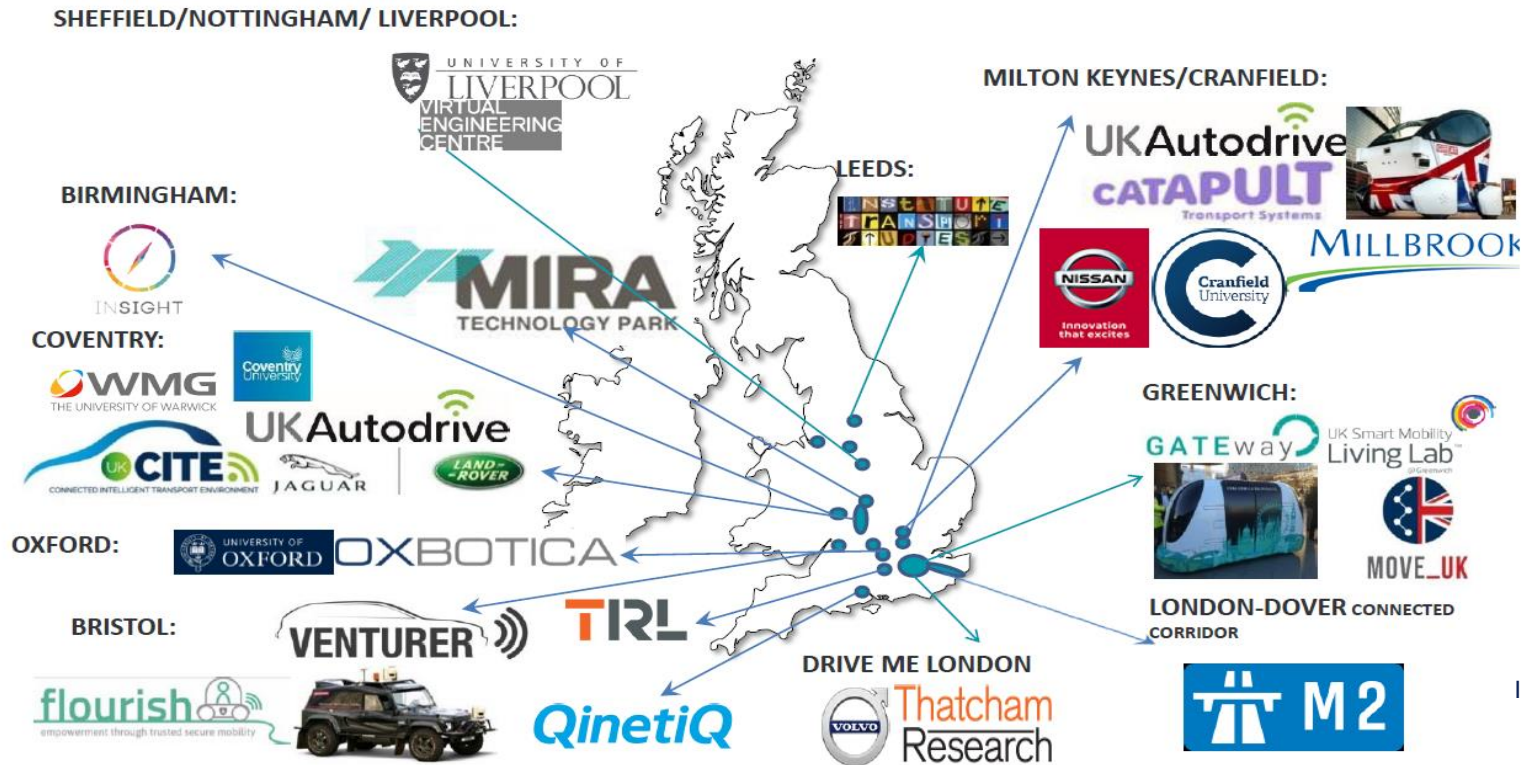


Illustration courtesy of C-CAV

Thank you

The Society of Motor Manufacturers and Traders Limited
71 Great Peter Street, London SW1P 2BN
www.smmt.co.uk

SMMT, the 'S' symbol and the 'Driving the motor industry' brandline are registered trademarks of SMMT Ltd.

