



The Future of Road Transport

Driverless Cars

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Topics

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- 3 Related Mobility Innovations
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- 5 Inspiring Implications

UK's Transport Research Laboratory

- *known as 'TRL'*

- Established 1933; transport research for UK Government
- Privatised in 1996
- 350 staff, including many world experts
- Head Office in Berkshire, with UK regional offices and growing international presence
- Market-leading research & solutions used across 145 countries, by over 1000 clients



Context of TRL



TRL and Driverless Cars



TRL self-driving car, 1950s



TRL self-driving car & bus, 1970



Testing automation in DigiCar,
TRL, 2010s



TRL self-driving car, 1960s



Testing partial automation, TRL 2000s

TRL and Driverless Cars

- *the GATEway project in 2015-17*



GATEway Consortium



***Experienced
project lead***



***Smart city
location and local
authority partner***



***Large multi-
national
organisations***



Telefonica

O₂

***World leading
research
organisations***



UNIVERSITY
of
GREENWICH

Imperial College
London

***Targeted,
capable SMEs***



PHOENIX WINGS
SMART MOBILITY CONSULTANT



COMMONPLACE

GOBOTIX
LTD



Cross-sector stakeholder advisory group

- Chaired by Lord Borwick of Hawkshead

Automotive



Technology & Operations



R&D, Standards & Legal



Location



Road safety



*Group to meet three times over the two year project;
first meeting held in February at House of Lords*



GATEway Project

- *High Level Aims*



- **Demonstrate** automated transport systems safely and effectively in a range of environments, delivered by a diverse, sector-leading consortium
- **Understand** societal, legal, technical changes and barriers to implementation based on direct experience of operation
- **Inspire** industry, public bodies and the wider public to engage with automated transport systems, improving mobility and generating new economic activity
- **Generate** valuable, exploitable knowledge of the systems required for the effective management of automated transport
- **Create** a multifaceted, validated, long term test bed for the evaluation of future automated transport systems within Greenwich's Smart City agenda
- **Capitalise** on the consortium strengths to position UK PLC at the forefront of the global marketplace encouraging inward investment and job creation

Technology-agnostic programme that enables industry, Government and society to gain critical knowledge and safely accelerate innovation

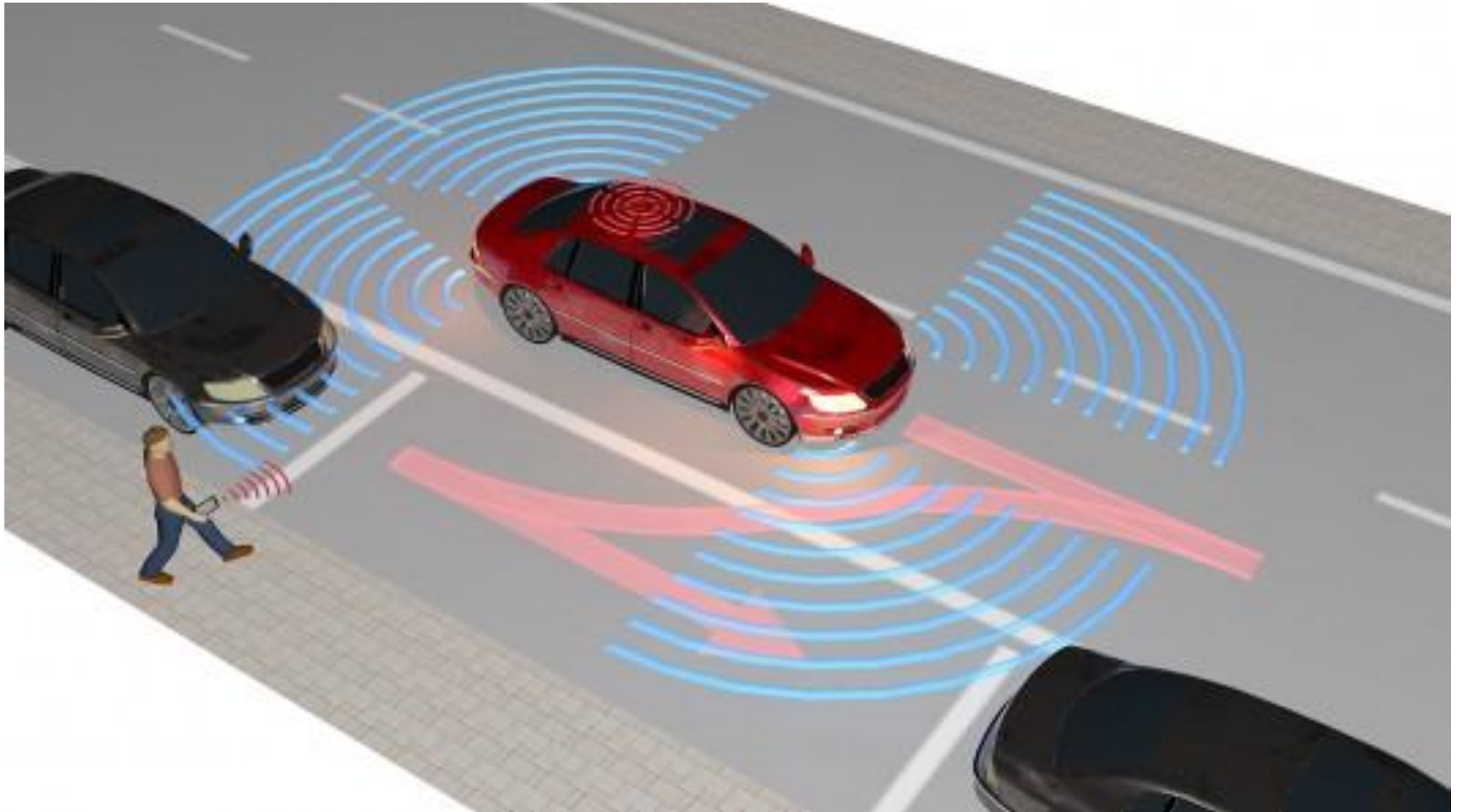
Driverless Cars: GATEway Project

- Media launch in February



Driverless Cars: GATEway Project

- *Valet Parking*



Driverless Cars: GATEway Project

- Trial testing driver behaviours with automation



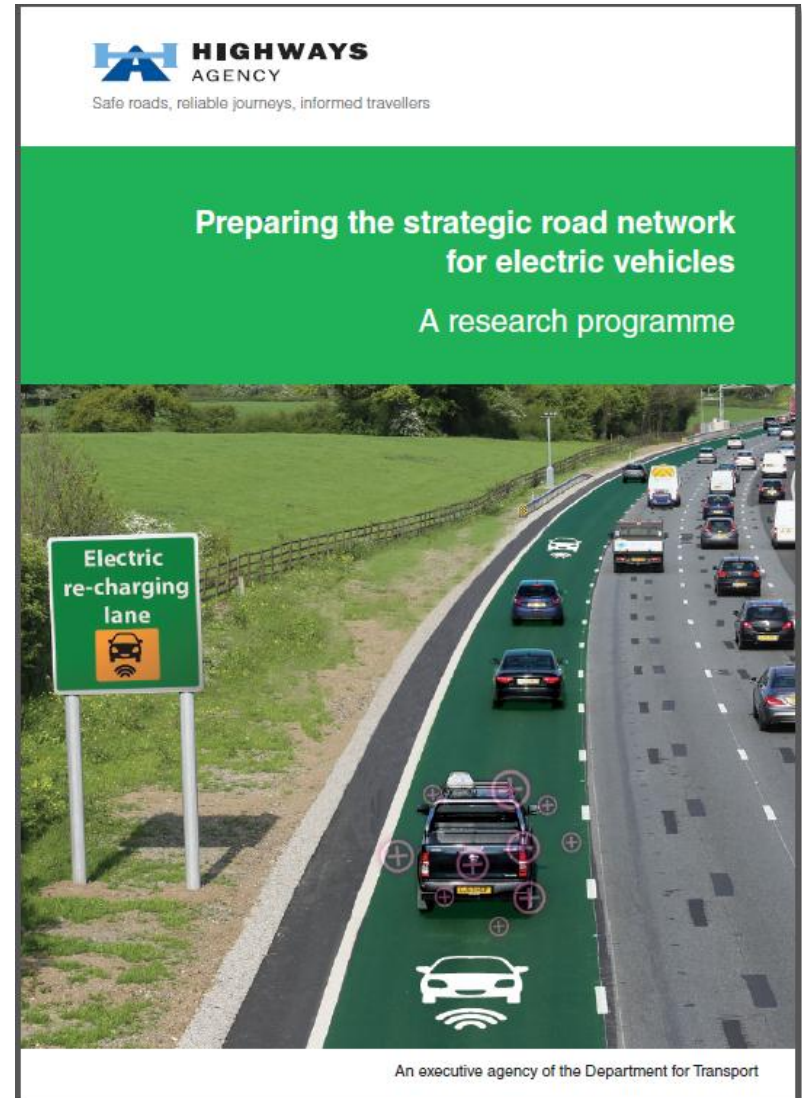
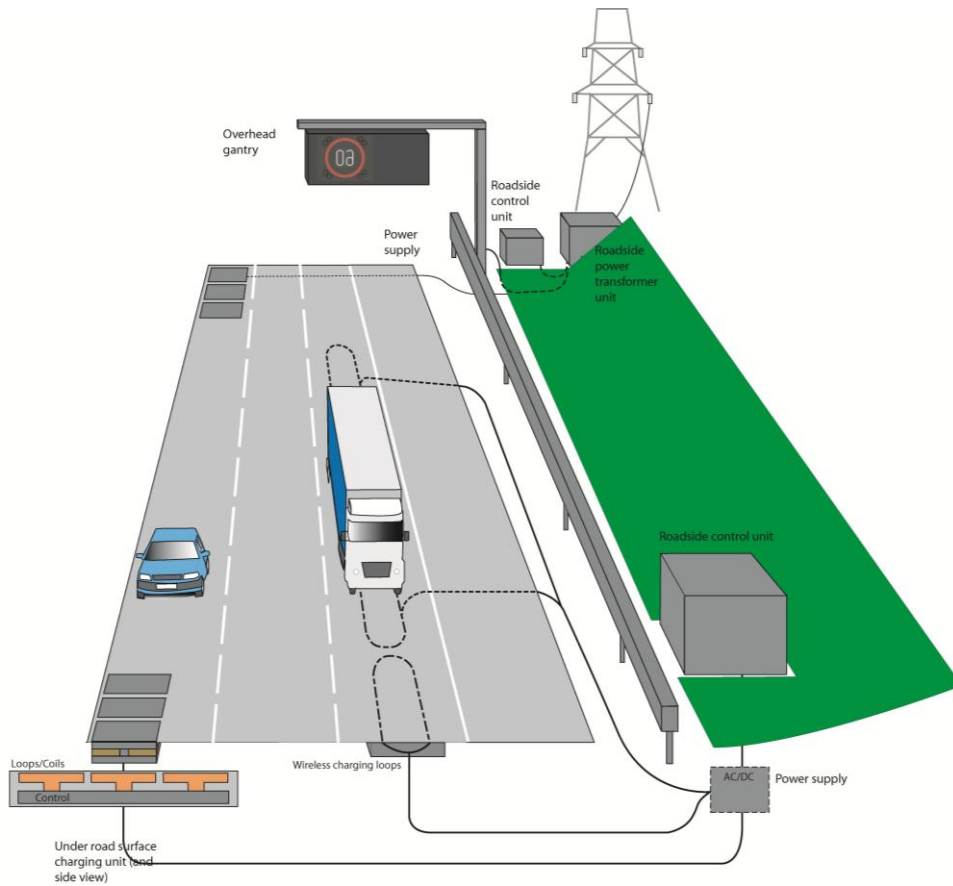
Other, Related Mobility Innovations

- *Platooning*



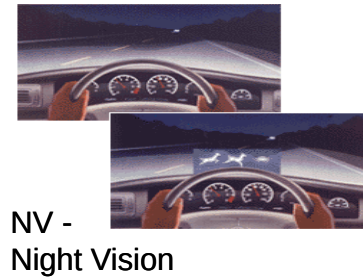
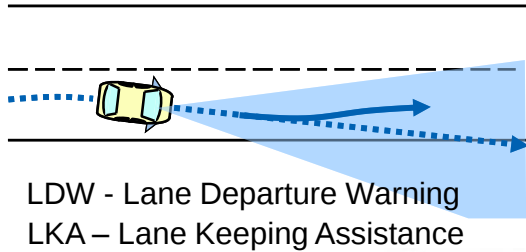
Other, Related Mobility Innovations

- Dynamic Wireless Power Transfer

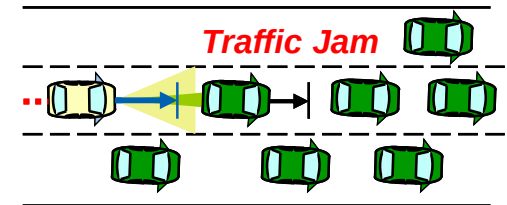
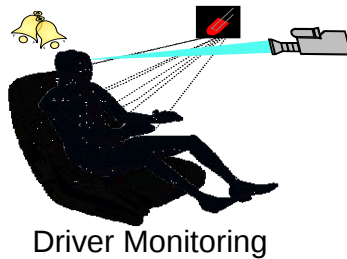
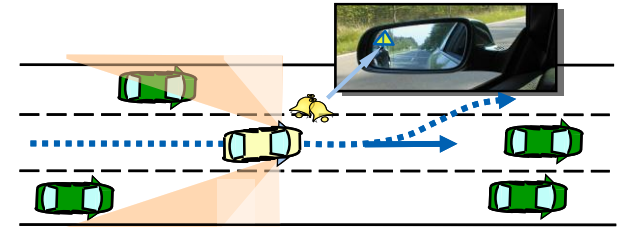


Other, Related Mobility Innovations

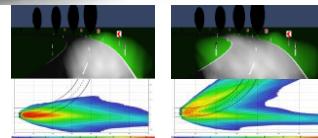
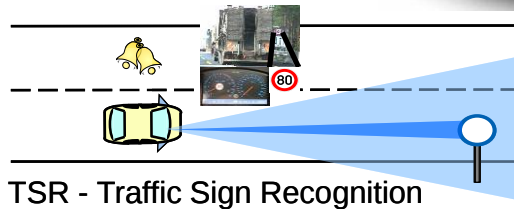
- Vehicle Safety Systems



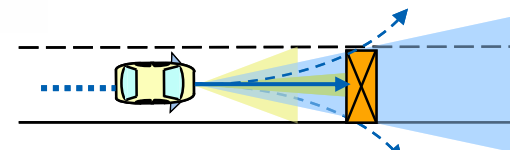
LCA - Lane Change Assist



ACC - Adaptive Cruise Control + Stop & Go



AFS - Advanced Frontlighting System



AEB - Autonomous Emergency Brake (City/Inter-urban/Pedestrian)

Other, Related Mobility Innovations

- Air Quality & Traffic-flow Management



Other, Related Mobility Innovations

- *Walking & Cycling*



Is a Revolution Coming?

There are dramatic differences of expert opinion on the timing and nature of potential solutions...

- Steady evolution of Driver Assistance systems, as per major OEMs, e.g. Nissan, Audi, Ford?

OR

- Proliferation of fully automated, driverless cars, especially in urban centres, as per Google, Uber?

- Breakthrough in ULEV propulsion technologies, giving comparable driving range to ICE vehicles?

OR

- Only gradual change in battery technology, driving necessity for smart infrastructure and wireless power?

Is a Revolution Coming?



Inspiring Implications

- Celebrating 80 years of use in 2015, the UK Driving Test could soon be redundant.
- Roadside traffic information may no longer be needed – making the Windscreen a viewing gallery.
- In mixed-use society, driverless cars could drive passively or aggressively (for an extra fee).
- Vehicle crashworthiness may fast become an obsolete, costly regulation, if vehicles do not crash.
- With software controlling vehicles, we need to be very clear about rules for life-preserving decisions.