The Future of Transport and Mobility

Karla Jakeman
Innovation Lead – Connected Transport
@Karla_Jakeman

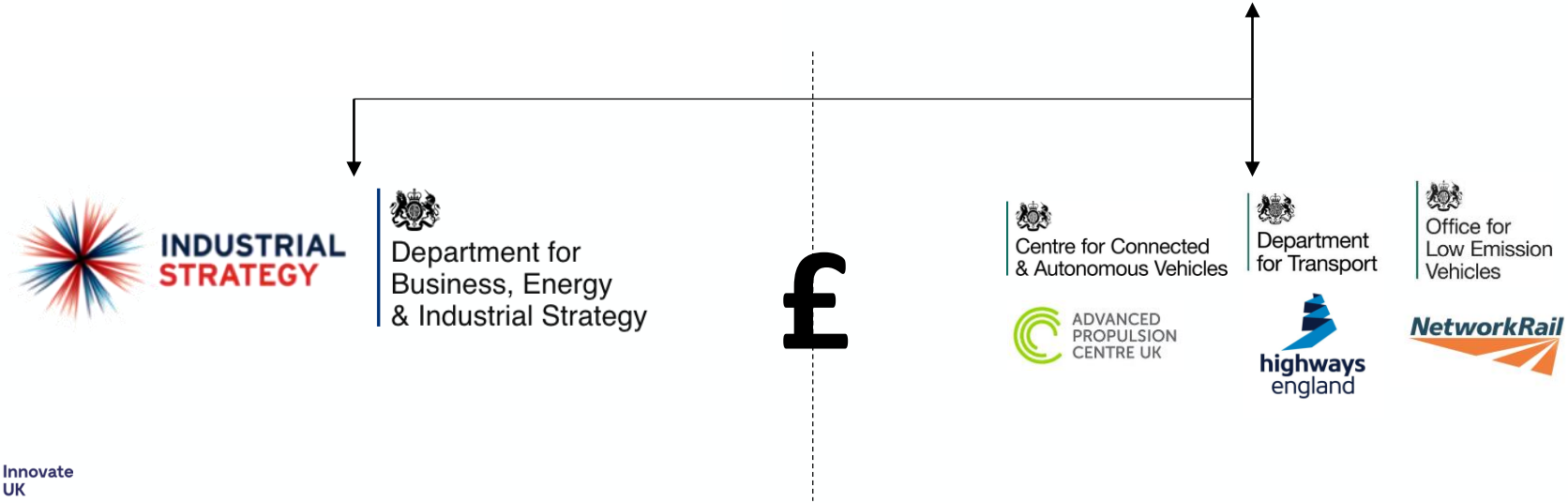
Innovate UK – part of UK Research and Innovation

UK Research and Innovation

Innovate UK

The UK's innovation agency

We drive growth by de-risking, enabling and supporting innovation to make businesses and their products a commercial success



Land Transport – Grant Focus Areas -last 12 months

Office for Low Emission Vehicles

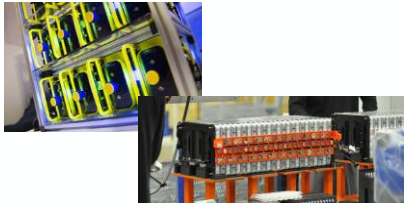
£40 million

Centre for Connected & Autonomous Vehicles

£60 million

Faraday Battery Challenge

£23 million



Department for Transport

£10 million

Office for Low Emission Vehicles

£25 million

NICHE Vehicle Network

£2 million

highways england

£20 million

Department for Business, Energy & Industrial Strategy

ADVANCED PROPULSION CENTRE UK

£65 million

UKRI Innovate UK

ISCF (Industrial Strategy Challenge Fund)

The Industrial Strategy Challenge Fund is part of government's Industrial Strategy, the long productivity and earning power in the UK.

The fund is a core pillar in the government's commitment to increase funding in research and development by £4.7 billion over 4 years to strengthen UK science and business.

It will invest in the world-leading research base and highly-innovative businesses to address the biggest industrial and societal challenges today.

What are the challenges?

The challenges have been informed by industry and are where:

- we already have world-leading research and businesses that are ready to innovate
- the global market is large or fast-growing and sustainable

Faraday battery challenge

The Faraday battery challenge will help to lower carbon and tackle air polution by improving batteries. It will develop high-performance batteries for electric vehicles and other applications that are more cost-effective, durable, safer of lower weight and also recyclable.

Driving the electric revolution

Driving the Electric Revolution will be the catalyst to building £5bn more Power Electronics, Motors and Drives (PEMD) products in the UK by 2025, encouraging industry across 7 sectors to invest and collaborate with academia to establish a PEMD supply chain.

Manufacturing made smarter

Manufacturing Made Smarter aims to ensure the long term prosperity of UK Manufacturing, raising total productivity by 30%, making the UK a global leader of the 4th Industrial Revolution and delivering clean growth.

Transforming foundation industries

Transform the UK's Foundation Industries so that they are internationally competitive in manufacturing products vital for our economy in an environmentally sustainable way.

The Low/Zero Emission Vehicles

Office for Low Emission Vehicles

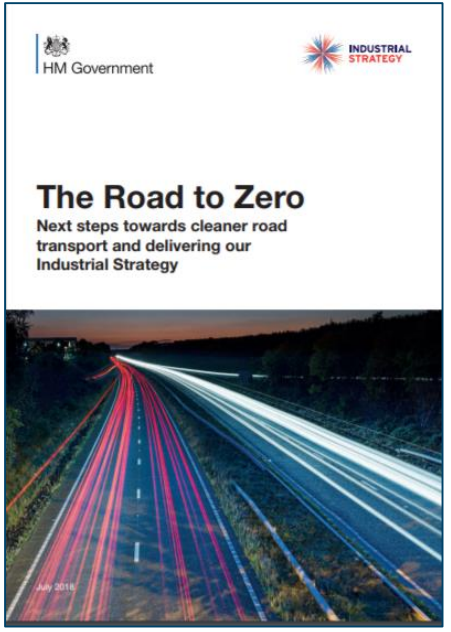
Series of competitions supporting the wider automotive industrial strategy in the form of UK based low emission R&D:

- Contribute to the growth of the UK automotive sector
- Increase and accelerate the introduction of vehicle-centric technologies to the L/ZEV market
- Support the UK's contribution to national and international emission targets

- Total project funding - **£357.5 million**
- **23 competitions** delivered so far

Road to Zero Ambitions

- At least 50%, and as many as 70%, of new car sales and up to 40% of new van sales being ultra low emission by 2030
- All new cars and vans to be, effectively, zero emission by 2040.



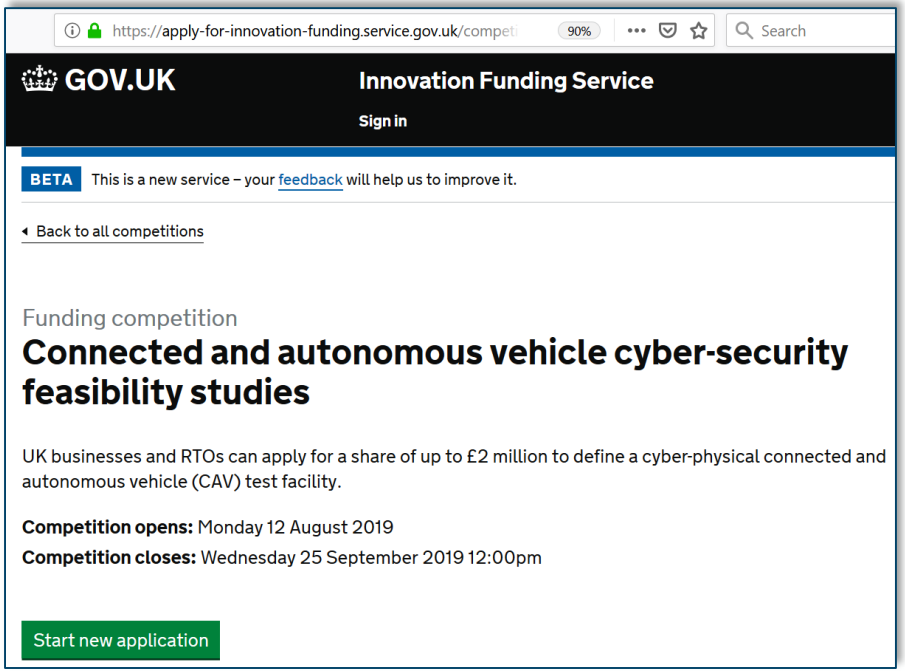
Integrated Delivery Programme IDP15 - The Road to Zero emission vehicles – £24.5 million multi strand competition funded by OLEV:

- **Electric machines and power electronics**
- Energy storage and energy management
- Lightweight vehicle and powertrain structures
- Highly disruptive zero emission technologies

UKRI Innovate UK

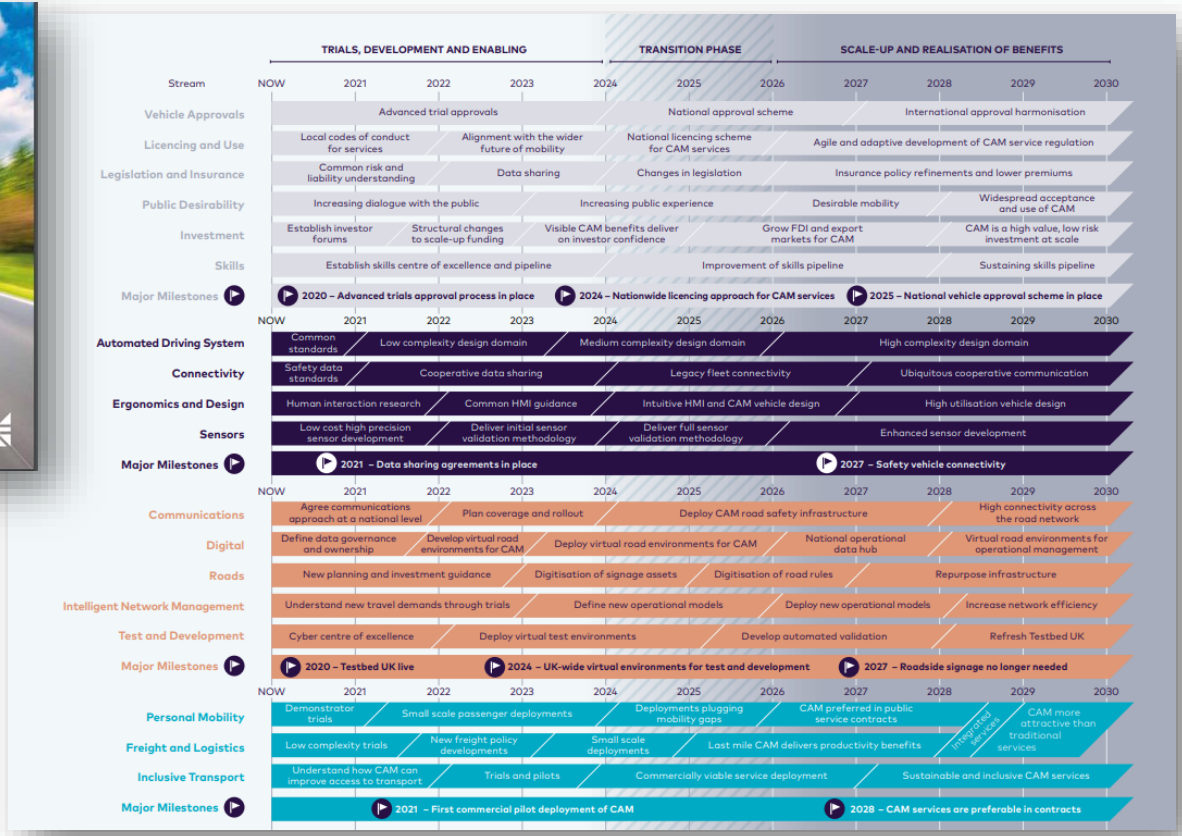
Connected & Autonomous Vehicles
Cyber security feasibility studies

- A competition recently closed to support a number of feasibility studies to investigate new methods and facilities for developing and assuring cyber security of connected vehicles within the road environment and autonomous vehicles.
  - Projects must inform an intended future
  - Cyber facility competition and outline future test and development services (both physical and virtual)
  - Up to 5 projects with upto £400k each.
  - Project duration is 3 months, starting 1st Jan 2020.



Innovate UK

CAV Roadmap



https://zenzic.io/content/uploads/2019/09/Zenzic_Roadmap_Report_2019.pdf

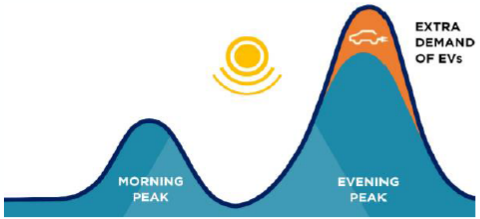
UKRI Innovate UK

Vehicle to Grid V2G

V2G OPTIMIZES THE UTILIZATION OF EXPENSIVE ASSETS – THE EV BATTERIES

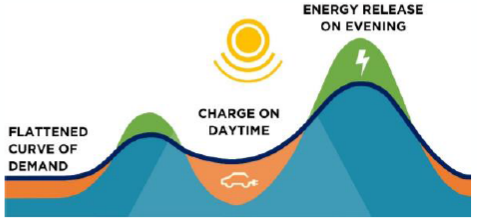
Vehicle to Grid (V2G) includes all technologies and systems that achieve a more tight integration of EVs with the Power Grid:

- EVs act as **controllable loads**, to smooth demand peaks
- EVs can act as **distributed storage**, providing energy back to the Grid
- EV drivers earn **rewards** in exchange for grid services



UNMANAGED EV CHARGING

SMART EV CHARGING



VEHICLE-TO-GRID

Connected Transport

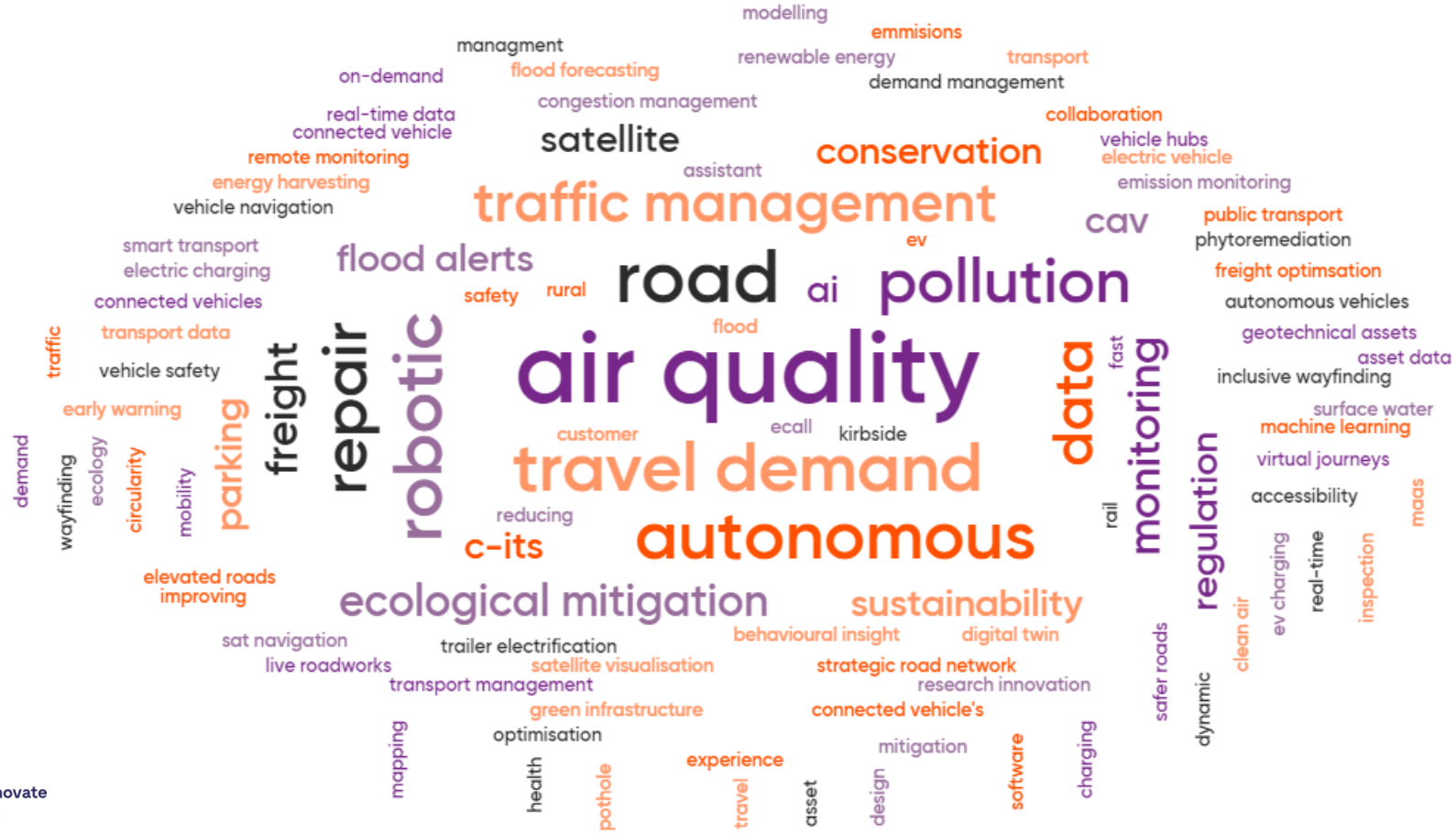
- 16 competitions over the past 4 years
- 200+ organisations
- £60m of funding
  - £20m of which is from Highways England

Theme	Qty of Projects
1. Design, construction and maintenance	2
2. Connected and autonomous vehicles	3
3. Customer mobility	2
4. Energy and environment	4
5. Operations	3
6. Air quality	9

23 projects across 2 competitions

Innovate UK

What is going to change?



Innovate UK

Innovate UK

Thank you

@Karla_Jakeman
@InnovateUK

Innovate UK

Innovate UK