



Department
for Transport

AI & Bridge Strikes: Using Technology to Protect Assets

The Common Mission Project

Hacking 4 Transport

Presenter Name: Jess Cobbett

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OFFICIAL

Road Transport Group: AI and Emerging Tech Team

The Road Transport Group (RTG) is building AI and Emerging tech understanding, consideration and capabilities across the Group so teams can better capture AI application opportunities in their work.

To do this, we need:

- **to build the right environment and culture for innovation through psychological safety;**
- **to provide the right knowledge and information to equip teams to explore and capture opportunities in the AI and emerging tech space.**

Common Mission Project ‘Hacking 4 Transport’ Pilot



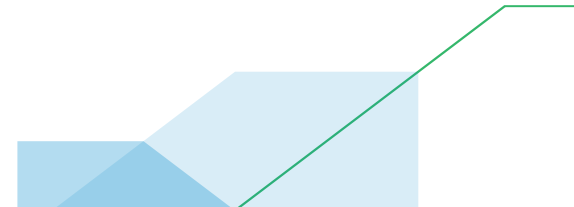
This initiative integrates 12 ‘problem statements’ from Roads Group, including executive agencies into accredited master's courses at 5 universities, aiming to foster innovative solutions to complex policies.



Loughborough University; University of Leeds; Imperial College London; Newcastle University; and Kingston University London.



The students are all from master's level programmes, ranging from MScs in Entrepreneurship, Security and Resilience, Science and Technology to MBAs, exploring subjects from big data, AI, digital technology to system design.





Department
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HACKING FOR TRANSPORT

What is it?

Hacking for Transport provides the Road Transport Group within the Department for Transport a unique opportunity to work directly with UK university students to investigate, validate and potentially solve pressing problems across Transport.

How are problems sourced?

Problems are sourced by Common Mission Project (CMP), who are the charity behind the programme, who source, curate and run each problem through their University Partners.

Problem Sponsors are partnered with a team of university students who work for 10-12 weeks in an innovation sprint to solve the problem, alongside a CMP-matched Industry Mentor.

What is the commitment?

There is no cost to the Problem Sponsor to work with the H4Transport programme. The only ask is 1 hour of pre-course innovation training in Lean Startup™, and to meet your H4 Student Team once a week during the course of the term/problem journey.

What are the benefits?

- **Get 400+ Hours in-depth research into you problem**
- **Fresh perspectives and innovative solutions using Lean Startup™**
- **Mentoring and professional development opportunities**
- **Networking potential with the H4Transport ecosystem**

Sponsor Journey



Pilot Problem Statement Topics

Real-time
insights for road
safety

Digital
transformation
goals

Enhanced
communication
during
disruptions

Fraud
prevention in
MOT testing

Accessibility for
passengers with
limited mobility

Bridge strike
prevention

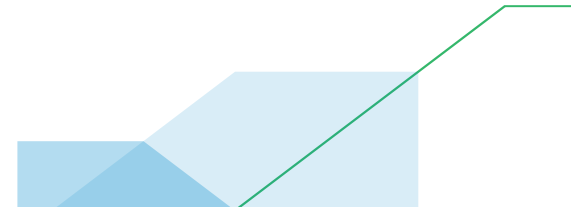
EV charging
infrastructure

Safety culture
assessment

Performance
analysis

Active travel
infrastructure

Healthcare costs
of road collisions



Imperial University: Bridge Strikes

Our Problem Statement

original

Road Strategy needs more effective ways to alert drivers of large vehicles about bridge height restrictions and strike risks in order to achieve enhanced road safety, reduced maintenance costs, and a more efficient and sustainable transport infrastructure



58 Interviews

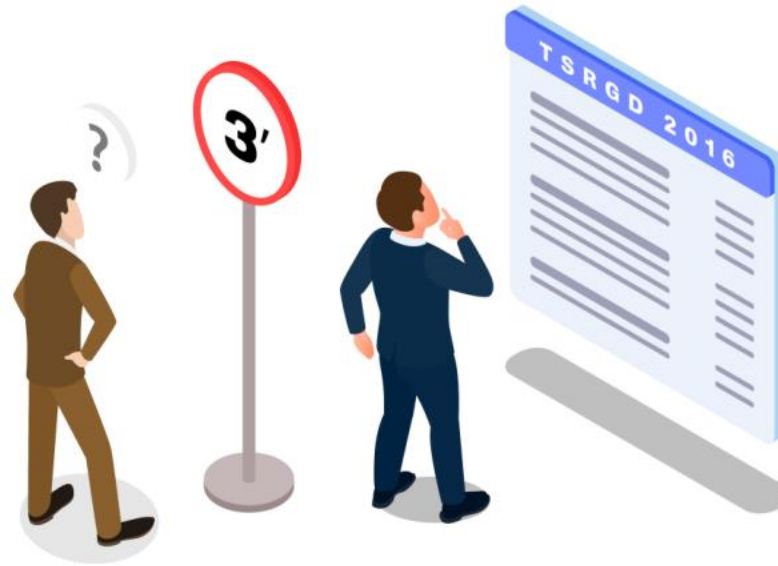
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DVSA needs more effective ways to monitor working conditions of drivers of large vehicles in order to reduce bridge strike frequency and achieve enhanced road safety

Key Findings - Signage

Majority of interviewees cannot read imperial height measurements on signage.



Traffic Signs Regulations and General Directions (TSRGD) 2016 did not conduct behavioural research in making signage

Some local councils are not aware of the 2016 TSRGD standard (Traffic Signs Regulations and General Directions).

Most of our interviewees responded that they do not feel that the problem lies with the signage

Key Findings - Driver



It's not mandatory for drivers to take specific bridge strike courses in CPC training.

DVSA monitors drivers' hours through tachograph records embedded in the vehicle.

A lot of pressure for the drivers to get to a location within certain time

Many HGV drivers frequently switch vehicles, often exceeding their work hour limitations.

Many drivers are unaware that they have a union (URTU) to protect their rights

Many drivers work through agencies, leading to little job security and unpredictable schedules

Unlike buses, HGV drivers do not report hits or near-hits to bridge owners

The average age of UK HGV drivers in 2020 was 47, with 13% over 60

Key Findings – Driver



In 2020, there was a shortage of 60,000–76,000 HGV drivers in the UK.

By mid-2021, the Road Haulage Association estimated the shortage had reached 100,000.

The UK lost 20,000 European drivers between 2019 and 2021 due to Brexit.

Younger generations are reluctant to enter the profession due to low wages and poor working conditions.

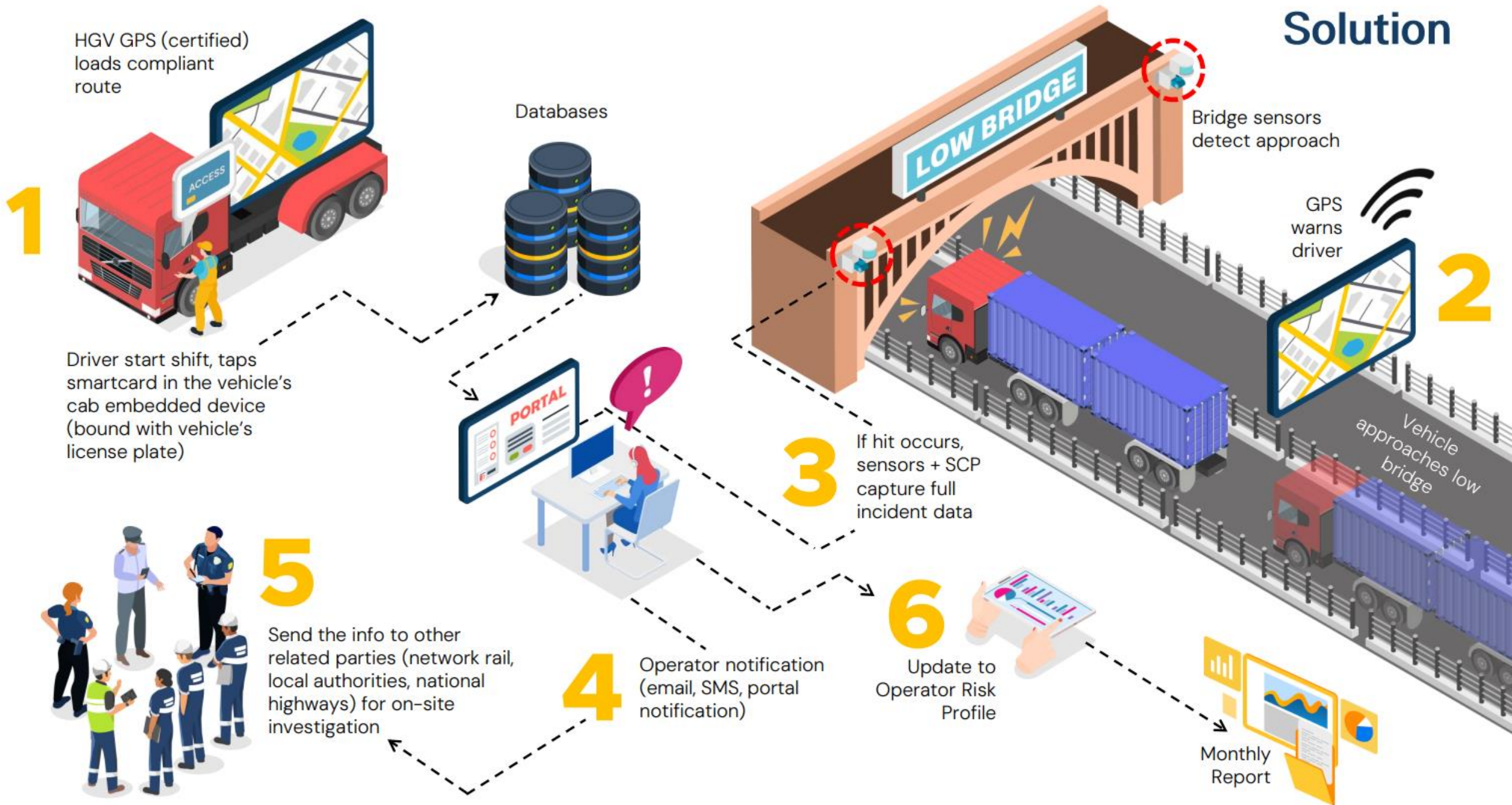
Despite an increase in wages, UK HGV drivers still earn less than their European counterparts (£16/hour on average).

Many drivers suffer from high levels of psychological distress, including depression and anxiety.

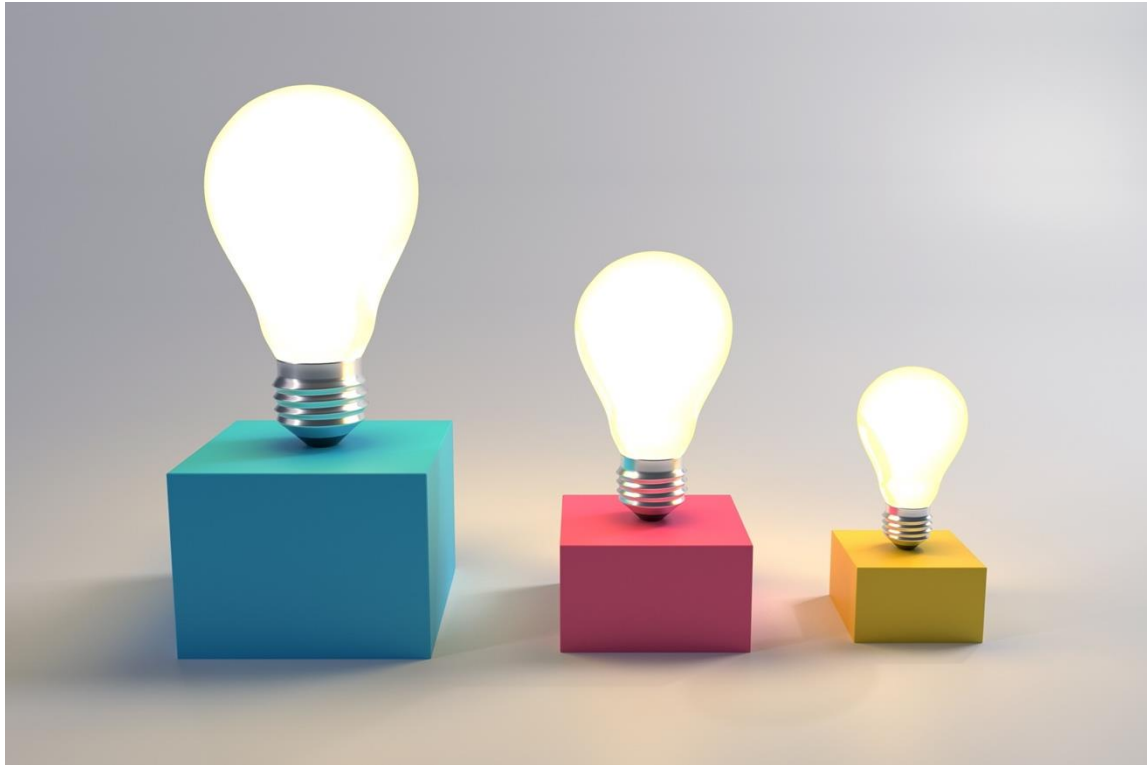
A significant link exists between severe depression and increased accident risk, with a fivefold increase in risk compared to non-depressed drivers.

This risk level is comparable to driving with a blood alcohol content of 0.08%, the legal threshold for impairment in many jurisdictions

Solution



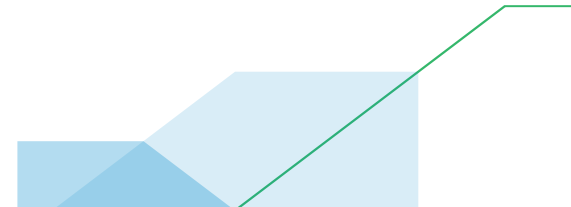
Our ask of TTF



Do you have any problem statement ideas?

Would you be interested in progressing the Bridge Strike work with DfT (or any other pilot problem statements)?

Would you be interested in an Innovation Working Group to improve collaboration between the private sector, DfT and local authorities?



Come chat!

Thank you

Jess.Cobbett@dft.gov.uk