

CASE STUDY

Immersive Vehicle Training Showcase

Showcasing virtual training

WHO WE ARE

The Connected Places Catapult (CPC) is an independent, trusted, expert broker operating at the intersection between the public and private sectors and between local, regional and national decision making. We promote UK innovation and broker relationships between government, academia and industry providing support and solutions for innovators to commercialise their projects and research. With our deep expertise in technology, we bridge the gap between buyers, suppliers, innovators and industry. Our agile approach enables us to convene our partners to act rapidly to create new market collaborations responding to public funders and industry needs. We boost demand for innovation to unlock wider economic and environmental benefits.



Our client says

We wanted to send our thanks to the CPC team for the IVT showcase we've built together. It is already paying dividends inside and outside DVSA with potential users, senior leaders and stakeholders as we stimulate debate about the art of the possible. We've learned that technology should enable and not lead change. Immersive technology will be part of a blended approach to training in the near future and that will transform traditional training models.



Steve Kendall – Policy Manager (Specialist Vehicle Tests and Approvals) Strategy, Policy, Digital and Technology Directorate, Driver & Vehicle Standards Agency

Challenge

The Driver & Vehicle Standards Agency (DVSA) is an executive agency, sponsored by the Department for Transport (DfT) employing 4,800 people across the UK including 2,800 front line staff. DVSA carry out driving tests, approve people to become driving instructors, approve MOT testers and collision investigators. They carry out vehicle tests to ensure lorries, trailers and buses are safe to drive. They carry out roadside checks on drivers and vehicles and monitor vehicle safety recalls while ensuring services offer value for money in a changing ecosystem.

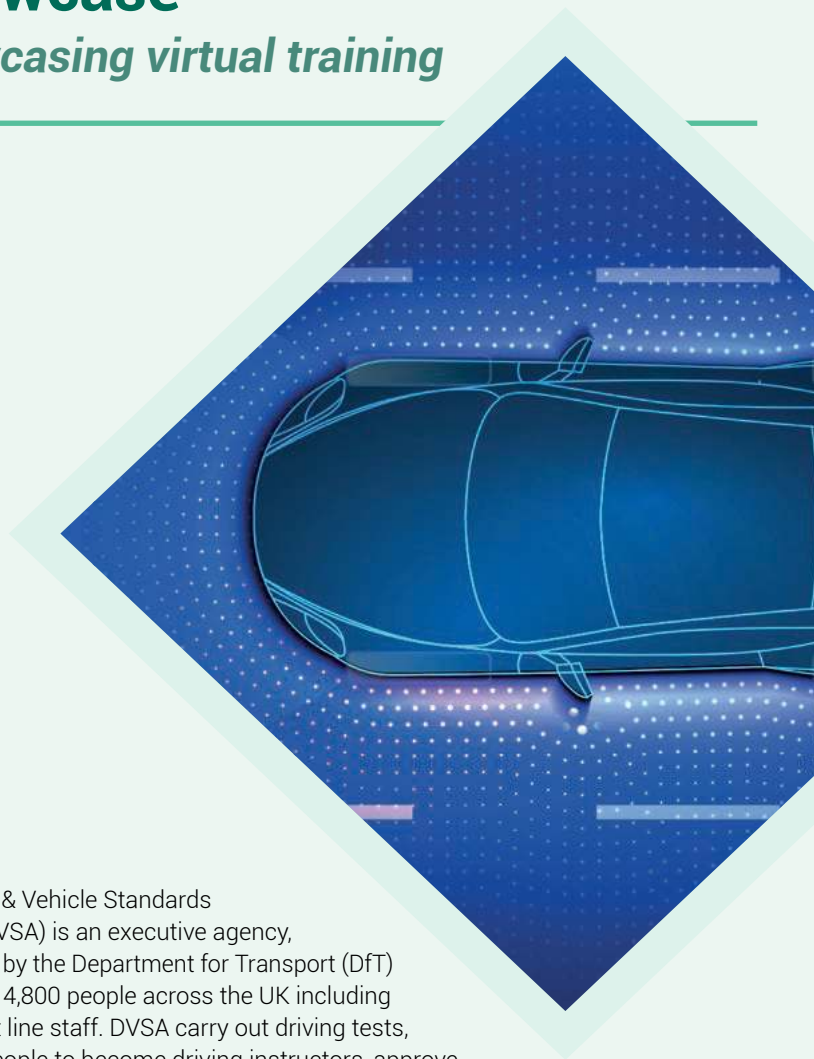
Front line staff face the challenge that vehicle types, shapes, sizes, mechanical components and functions will change beyond all recognition as a result of connected and autonomous technologies. These vehicles will be fitted with external and internal sensors that need to be understood and maintained. It is vital DVSA staff have the capability and training to inspect future vehicles and are constantly up to speed on related technology.

Currently, newly appointed DVSA vehicle testing staff are trained and assessed using a limited number of test vehicles that are old, expensive to replace and do not demonstrate modern vehicle systems. These are not equipped to show realistic defects and probable scenarios. Operational delivery staff attend two national training locations using classroom and large workshop facilities which incur travel and accommodation costs creating down time and lack of local availability. DVSA recognises that an innovative approach is required to training and assessment.



Driver & Vehicle
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Solution

DVSA is committed to investigating the use of immersive technologies and tools in training. DVSA research shows that staff prefer practical, interactive, participatory workshops. Immersive training could equip front line staff to respond to challenges in a rapid, cost-effective and agile way.

DVSA commissioned the CPC to deliver a VR training showcase that focused on wheels assemblies and a small number of inspection tools. DVSA worked with the CPC's Immersive Technology and Human Factors expertise to develop the showcase, to trial and demonstrate how this training could look, function and be used operationally. The five-month project started in November 2019. A key aspect of the project was addressing whether the uptake of immersive training solutions could create an industry in the UK.

The VR showcase was required to produce tangible evidence of the use of immersive vehicle testing training representing a limited cross-section of work that staff encounter daily. The CPC team developed 3D content and interactive tools to deliver the showcase.

The DVSA arranged three key stakeholder review events at the CPC Milton Keynes office and the DVSA Bristol office. The plan was for DVSA clients to showcase the VR training tool at '**We are DVSA**' events and targeted focus groups around the UK to gain user feedback. Due to COVID-19 this showcasing stage has been postponed.

Outcomes

The showcase demonstrates that an immersive training tool can be used by expert vehicle assessors/training staff to expose experienced and novice technicians to an unlimited number of vehicle scenarios and/or mechanical, electrical and computational faults that they may encounter during their careers. All within a safe, flexible and virtual training environment.

Virtual Reality training demonstrator/showcase delivered to DVSA ([Video Link](#))

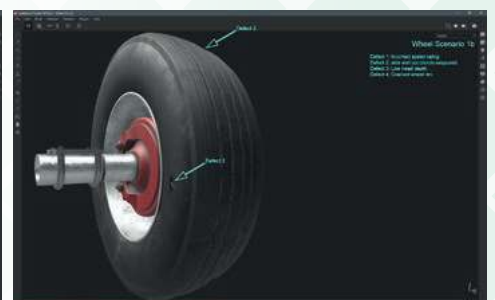
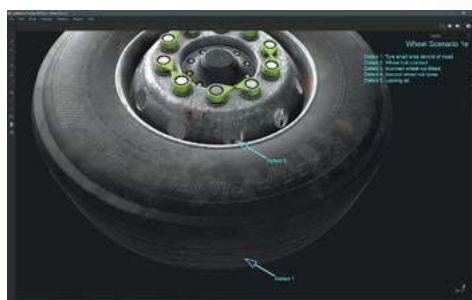
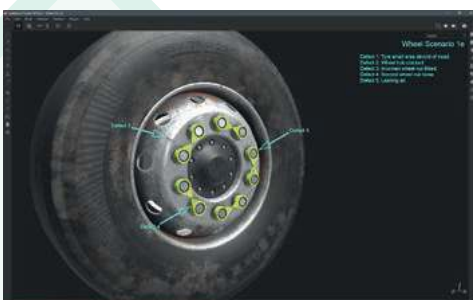
- ◆ Allows users to inspect 5-wheel, tyre and hub assemblies based on three commercial vehicle types.
- ◆ Enables users to use virtual hand tools (a torch, hammer, tyre depth gauge and tyre pressure gauge) to inspect, detect and identify predetermined vehicle defects.
- ◆ Keeps a log of identified faults per user on a scoreboard.
- ◆ Uses gamification to create a competitive and informative element.
- ◆ Enables participants to remotely observe user experience on separate screens reflecting the roles of trainers, trainee peers and Occasional Staff Instructors.
- ◆ Facilitates DVSA dialogue with users to gain unique feedback on immersive technology.

CPC creates value

- ◆ CPC demonstrated that immersive technology offers flexibility in the configuration of scenarios/vehicles creating cost savings, less down time and quicker deployment.
- ◆ Increased uptake of immersive training solutions will create an industry in the UK serving this demand reducing training costs, creating efficiency and improved learning outcomes.

Benefits

- ◆ DVSA's Strategy Committee has seen and is supportive of the project.
- ◆ The project builds on previous DVSA assumptions and knowledge about immersive technology, its current capability and maturity.
- ◆ Offers flexibility in responding to technical training challenges including Connected and Automated Mobility.
- ◆ Exposed three user groups to the showcase providing feedback helping DVSA gain insight.
- ◆ Contributed to stimulating discussion with CCAV, DfT and Vehicle Certification Agency regarding emerging skills gaps in new vehicle technology and how to bridge that gap.
- ◆ Generates consistent test outcomes (identification/ detection vehicle defects).





Next steps

The showcase leveraged the benefit of CPC's unique and impartial knowledge market opportunities in upskilling front line DVSA staff who will be supporting the CAV sector. CPC can play a role in defining technical specifications that will inform the proposed CCAV Skills Requirement for a CAV Development study, exploring future technologies and tools for CAV maintenance and training. There is potential to use this within the Micromobility skills discussions with DfT.

Building the showcase will make the DVSA a more intelligent client that results in engaged and informed staff. DVSA can showcase the process, technologies, impact and benefits of using immersive technologies to train other government agency staff including the Vehicle Certification Agency and CCAV and/or teams such as MoT Nominated Testers.

The increasing uptake and use of immersive training solutions will create an industry in the UK that could have significant impacts on training costs. CPC can disseminate project outputs and learning to create new concepts/vehicles and supporting technologies. This could act as a magnet to further investment and attracting companies to locate to the UK (jobs and growth).

The showcase responds to the *Future of Mobility Grand Challenges* ([Link](#)) theme: Helping the UK become a world leader in shaping the future of mobility.

To find out more about the Connected Places Catapult and how we can help you develop the future skills that address the needs of your organisation please contact info@cp.catapult.org.uk

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