

Dr Huw C Davies<sup>1</sup>, Özcan Deniz<sup>2</sup>, P. T. Jones<sup>3</sup>, Sourabh Jha<sup>4</sup>

<sup>1</sup>*Research Institute for Future Transport and Cities, Coventry University, UK, ac2616@coventry.ac.uk*

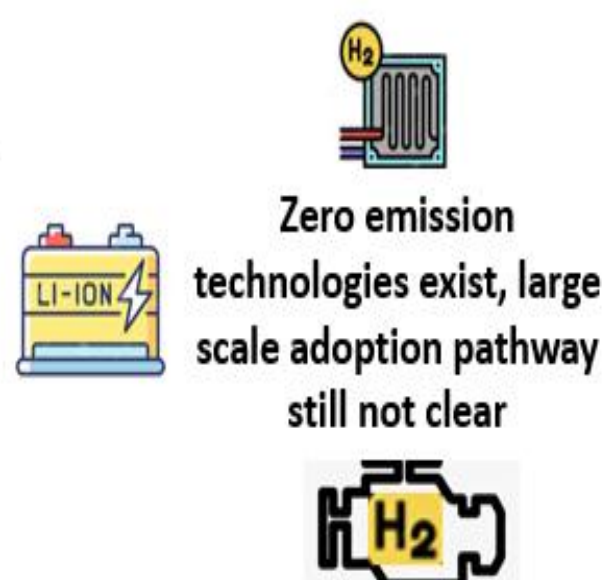
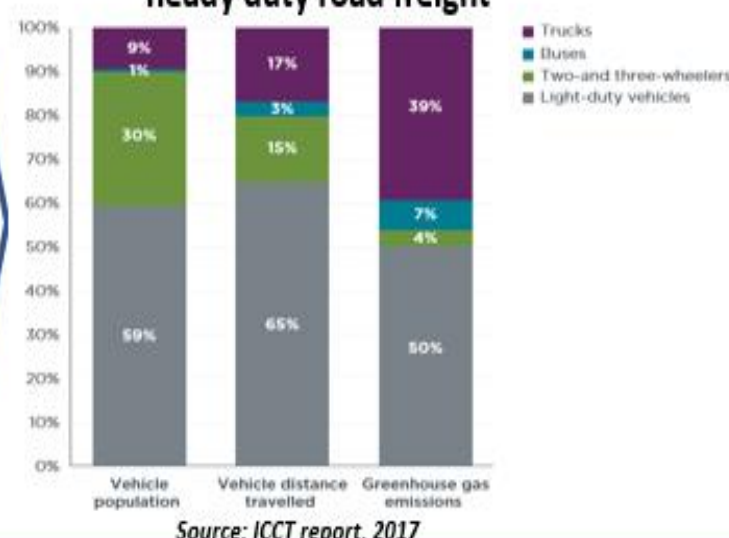
<sup>2</sup>*Institute of Vehicle Concepts, German Aerospace Center (DLR), Germany, oezcan.deniz@dlr.de*

<sup>3</sup>*Oak Ridge National Laboratory, USA, jonesp@ornl.gov*

<sup>4</sup>*Research Institute for Future Transport and Cities, Coventry University, UK, jhas2@uni.coventry.ac.uk*

**Background**

**Disproportionate share of emissions by heavy duty road freight**



Webinar

**Electrifying Road Freight – Overcoming the Diesel Vehicle Mindset**

International Energy Agency  
Hybrid & Electric Vehicle - Technology Collaboration Programme

Task 41 "Electric Freight vehicles" & Task45 "Electrified Roadways"

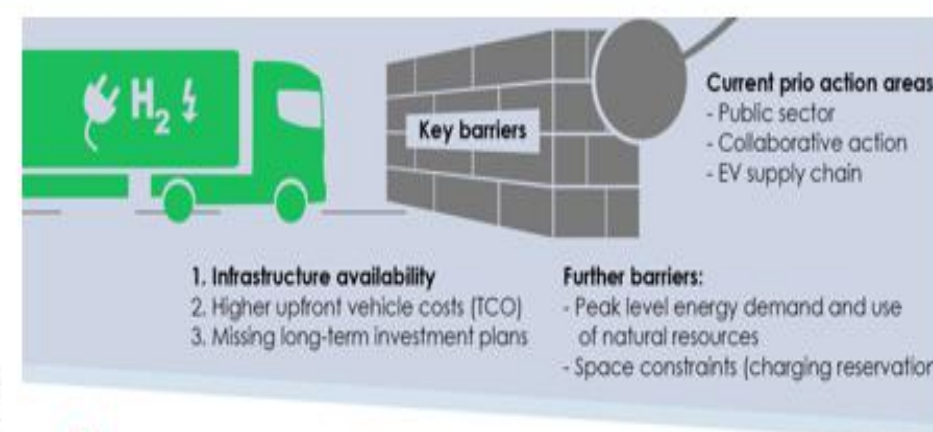
**Workshop**  
(Dec 7<sup>th</sup>- 9<sup>th</sup> 2021)

- **Objective** – Understand challenges and system changes for overcoming diesel mindset
- **Qualitative and quantitative Data collection** - Online surveys and workshop discussions
- **46 participants** across Europe, US, UK, Canada and Asia
- **Stakeholders** represented – Policy, Infrastructure, Technology, Logistics, OEM and Academia

Four out of five believe 2050 will have multiple energy vectors in use for road freight decarbonisation.



But all participants agree that current policies and investments by governments in their organization region are not aligned for a radical change to reach net-zero for road freight until 2050.

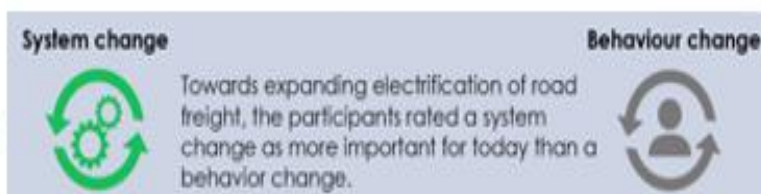


More charging stations and in parallel cheaper and more capable batteries



Battery swapping during first holding period

**Key Takeaways**



Challenges/barriers	PESTEL Category
Varying but large Infrastructure investment needed for all electrification technologies	Environmental
Current policies amount to only incremental change but not radical	Political
Required degree of system and/or behaviour change	Social
Current metrics for road freight limiting us to current mindset/behaviour/system	Environmental
Grids have not been tested for their required level of interconnectivity, resilience and flexibility	Technological
While a fully autonomous truck can bring energy efficiencies, there is lack of clarity on powertrain technology the investment should be aligned to	Economic
Existing decarbonisation pathways are limited to an existing system, they don't take a system-of-systems approach	Environmental

PESTEL - Political, Economic, Sociological, Technological, Legal and Environmental

- **Need to facilitate (via policy, infra, technology, societal measures) system change than system improvement**
- **Investing in and operationalising the required infrastructure will involve multiple stakeholders**
- **Need for socio-technical approach to manage transition to net-zero**
- **Defining new metric for road freight performance can help with the system change**

Scan QR code for seeing Webinar overview Infographic

