

MEDIA RELEASE

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Revolution in mobility technology creates great opportunities for cutting emissions – but there are challenges too

The combination of connectivity, automation plus shared vehicle ownership and use has the potential to make car travel greener and cheaper, cutting energy use and helping accelerate the introduction of low carbon vehicles. However, these energy and carbon benefits are by no means guaranteed and will require strategic policy interventions to maximise them according to new work by the Institute for Transport Studies (ITS) at the University of Leeds, commissioned by the Low Carbon Vehicle Partnership (LowCVP) and the Institution of Mechanical Engineers (IMechE).

According to the study, better coordination and connectivity between vehicles and infrastructure is likely to improve energy efficiency, as well as potentially make road transport safer and quicker.

The study ([download link](#)) - Automated vehicles; Automatically low carbon? - is being presented at today's Low Carbon Vehicle Partnership Conference at the Olympic Park in London. Over 170 delegates at the Conference 'A Low Carbon Transport Future: The UK capability to lead the way' will hear responses from key stakeholders to the implications of the technology shift; how connected and autonomous vehicles hold out the prospect of a revolution in the ways we will move around in future.

The research suggests that:

- The net impact of the technical developments will ultimately depend on how their introduction spurs further innovation in vehicle and transport system design combined with mobility service provision.
- The majority of system-wide energy efficiency benefits are likely to result from high levels of connectivity and coordination between vehicles and infrastructure, not through automation per se.
- At full automation (ie 'driverless' vehicles), the impacts are highly dependent on the degree to which the current paradigm of individual private car ownership transitions to new models of shared access and use.
- Automation and connectivity together can result in some vehicle-level energy efficiency benefits.
- Full automation could help accelerate the transition to low carbon vehicles by reducing the practical difficulties often anticipated with these vehicles such as refuelling/recharging.
- Most of the large-scale benefits of fully automated vehicles can only materialise when they are widespread and affordable which is likely to take several decades.

The research suggests that in order to realise the potential to make car travel greener and cheaper much more work needs to be done to encourage shared car ownership. Government policy can provide a supportive environment for new mobility services to develop by delivering open data protocols, supporting technology incubation and providing local authorities with resources to enhance skills and offer incentives to local mobility service companies.

There are potential challenges, though, in that energy demand and traffic may increase, say the researchers, as car travel becomes more popular due to the fact that autonomous cars leave the occupant free to use travel time for other activities. Amongst other policy responses could be a need for demand management to mitigate against unsustainable increases in the use of cars. Potential policies might include road user charging, low emission zoning and regulating empty running.

The researchers say that achieving the desired combination of outcomes related to carbon, energy, air quality, safety and accessibility will need careful, synergistic and timely policy design with coordination between the automotive and telecommunication industries, transport system operators and mobility service providers.

They say that regulations or innovative policies may be required to encourage manufacturers to provide efficiency optimising features like automated eco-driving, eco-routing, platooning or energy saving algorithms in the vehicles.

Low carbon, alternative fuel pumps and charging stations need to be planned and designed for automated, unattended dispensing or charging in order to alleviate the inconveniences of refuelling these vehicles and encourage their uptake, according to the researchers.

Commenting on the research, the LowCVP Managing Director Andy Eastlake said: "It's clear that there are significant potential benefits from the coming mobility revolution through connectivity and automation. However, in order to grasp the full environmental benefits of these technologies we need a strategic, coordinated policy response that will have to involve a wide range of stakeholders working in partnership."

Philippa Oldham, Head of Transport and Manufacturing at the Institution of Mechanical Engineers said: "Autonomous and connected vehicles have the potential to revolutionise our road transport. Whilst they could make our roads safer we are yet to fully understand the impact on congestion and, ultimately, the energy consumption associated with the vehicles. The UK needs to have a better understanding of future scenarios, gaining insight into how the end users may adopt this technology. In addition to gaining public consensus Government and industry need to work together to establish a co-ordinated transport policy to make the most of these technological developments."

Dr Zia Wadud, from the University of Leeds Institute of Transport Studies said: "Automation can offer large benefits to the society, not only in carbon terms but also in improving safety and social inclusion. However, a lot of these benefits will depend on how we use the technology. Let's not be blinded by the excitement associated with driverless cars, saying the technology alone will solve all the problems. We know that there could be some risks - like there are for most new technologies. We need to be careful and be proactive about resolving these risks early on to fully reap the benefits of automation and intelligent connectivity."

NOTES TO EDITORS

The report from the Institute for Transport Studies, Leeds can be [DOWNLOADED HERE](#).

PICTURES FROM TODAY'S LOWCVP CONFERENCE ARE [AVAILABLE HERE](#). (Note that these will be uploaded throughout the day, as events take place.)

A separate division spanning the Department for Transport and the Department for Business, Innovation and Skills (BIS) – the Centre for Connected and Automated Vehicles (CCAV) - has been created to oversee development in this area. The Government has announced a £200m fund to develop CAV technology. Currently, pilot tests are ongoing in Bristol, Coventry, Greenwich and Milton Keynes through this fund.

The University of Oxford has also developed and demonstrated its own highly automated car. Part-funded by Shell, the Oxford Robotics vehicle can currently be seen at the Make the Future London exhibition, with which the LowCVP Conference is associated.

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About the LowCVP

The LowCVP is a public-private, not-for-profit partnership that exists to accelerate a sustainable shift to lower carbon vehicles and fuels and create opportunities for UK businesses. The LowCVP has been - and continues to be - mainly funded by the Department for Transport but with increasing contributions via membership fees and sponsorship/project income. Approaching 200 organisations are members, from diverse backgrounds including automotive and fuel supply chains, vehicle users, academics and environment/not-for-profit bodies.

For more information visit: www.lowcvp.org.uk

About the Institution of Mechanical Engineers

The Institution of Mechanical Engineers was established in 1847 and has some of the world's greatest engineers in its history books. It is one of the fastest growing professional engineering institutions. Headquartered in London, we have operations around the world and over 113,000 members in more than 140 countries working at the heart of the most important and dynamic industries such as the automotive, rail, aerospace, medical, power and construction industries.

About University of Leeds Institute of Transport Studies

The University of Leeds Institute of Transport Studies' primary purpose is to advance the understanding of transport activity, operations and use, and to develop skills and best practice among transport professionals and decision-makers. It was formally established in 1972 and has since grown to be a world leader in transport research and teaching. It is the UK's largest single academic group providing transport courses and training. In a typical year there are around 500 students taking undergraduate modules, 80 students on Masters programmes, 50 registered PhD students, and dozens of delegates participating in short courses. Through this, the Institute makes a significant contribution to resolving the skills shortage faced by the transport sector, and to improving both the quantity and quality of transport professionals internationally.