

OPINION Driving UK mobility's Covid-19 recovery with help of CAVs

As the coronavirus pandemic continues to upend transport patterns worldwide, its lasting legacy presents a number of critical challenges for UK mobility, writes **Chris Reeves**



ABOUT THE AUTHOR

Chris Reeves is head of connected and autonomous vehicle technologies at Horiba Mira, a global provider of pioneering engineering, research and test services to the automotive, defence, aerospace and rail sectors. It works in close collaboration with vehicle manufacturers and suppliers around the world, providing comprehensive support ranging from individual product tests to turnkey multi-vehicle design, development and build programmes.

connected and automated mobility (CAM) solutions. However, we face multiple challenges in deploying CAM at scale. But, with challenges, come opportunities, and with the correct strategy and the right level of collaboration, this could be the advent of a bright new future for UK mobility.

PUBLIC TRANSPORT CONCERNS AND UNPRECEDENTED LOGISTICS DEMAND

Before we can even begin to examine a potential route for recovery, we must first assess the impact so far.

Since lockdown, there has been a clear preference for the use of private vehicles over public transport such as, buses, trains and planes.

The need for social distancing and concerns over hygiene on trains and buses has resulted in a number of alarming statistics that indicate the public transport sector is in for a rough ride.

According to research conducted by McKinsey, overall ridership is down between 70% and 90% globally, while 40% of consumers said that, once the worst of the pandemic was over, they would fly less than before. Similarly, 32% said they would travel less by train and the same number said they would travel more by car [1].

In contrast to the public transport downturn, our logistics network is stretched to capacity, with online shopping surging by 129% across the UK and Europe [2]. Many consumers say that they intend to continue buying online more frequently even when the pandemic is over, especially in grocery



retail, where 40% of people say they will shop online more than they did before Covid-19, according to a survey by Waitrose [3]. The exponential demand experienced by the logistics sector during the pandemic is clearly set to continue.

NEW AUTOMOTIVE TECHNOLOGIES ARE ESSENTIAL TO RECOVERY

Connectivity – and in particular the adoption of CAVs – has a huge role to play in the future logistics network if we are to meet post-Covid-19 demand for the fast, effective and, where possible, contact-free movement of goods throughout supply chains and to the doors of consumers.

For example, active data exchange, accurate real-time vehicle tracking and driver analysis, plus end-to-end visibility, will all drive cost and time efficiencies for the sector.

The deployment of autonomous last-mile or regional delivery robots will help normalise contactless, Covid-secure deliveries.

Ultimately, in combination with ultra-low emission vehicles (ULEVs) this is about delivering economic, societal and environmental benefits through connectivity and automation – from improved air quality

and public safety, to job creation and societal inclusion.

As for private vehicles, it is expected that governments will use this 'mobility reset' scenario to further encourage and accelerate the switch to EVs, while at the same time exploring the use of micromobility solutions in an attempt to restart struggling economies in a way which prevents close-contact public transportation.

Such initiatives are already in place in many countries including Germany, which has increased its 'environment bonus' for EVs to a maximum of €9,000 (£8,900) paid towards the purchase of a new car. Italy, meanwhile, is offering residents €500 (£450) for buying a bike, which has resulted in many retailers selling out [1].

CAVs are critical to support improvements in air quality. The drop in CO₂ emissions during lockdown took many by surprise, with a 36% reduction in surface transportation emissions compared with the previous year, and a drop of 60% for aviation [4].

These statistics have added fuel to the low emissions agenda, and governments will most likely be met with strong opposition if they allow those reductions to return swiftly

to pre-pandemic levels. New automotive technologies hold the key, including EVs and CAVs which can deliver improved air quality through the use of electrification and co-operative transport systems to improve the overall efficiency of the transport network.

GOVERNMENTS, INDUSTRY AND ACADEMIA CAN PUT THE UK ON THE ROAD TO RECOVERY WITH CAV

However, if new automotive technologies are to play a crucial role in the recovery and future evolution of UK mobility, we must understand these disruptive technologies more effectively.

We must invest in testing and verification, for example, to ensure the robust performance, safety, and security of such technologies. This can facilitate the rollout of new and innovative testing techniques such as scenario-based testing, virtual testing and simulation, with the use of digital twins.

Remember, highly automated vehicles capable of completing an entire end-to-end journey will require billions of miles of validation before deployment on the roads and the most effective way to achieve this will be through the combination of virtual

and physical testing, rather than mileage accumulation that is unlikely to encounter the edge cases.

The good news is that the UK is already leading the world in this field, thanks to continued investment in global-leading facilities like Horiba Mira's CAV Testbed, the world's first engineering ecosystem for the design, development, testing and verification of self-driving vehicles.

Supported by the Centre for Connected and Autonomous Vehicles, Zenzic and Coventry University, the testbed includes several state-of-the-art validation facilities. These include world-leading physical environments and advanced virtual testing applied using simulation techniques, enabling CAVs to be developed in areas such as high-speed handling, automated parking, urban driving and testing on public roads.

This investment in new facilities is a key way in which the UK will drive forward the global CAV development agenda by reducing the uncertainty, complexity and time spent on proving technologies are safe, secure and functionally correct on every level.

The key to success, long-term, will be collaboration.

In fact, I believe that the only way we will deliver the full potential of CAVs in the wider context of UK mobility is through collaboration and co-operation.

Only then can we better understand exactly how automation and connectivity of vehicles can deliver the benefits needed in the post-Covid world. This requires a fully co-ordinated approach between government (including the regulatory bodies), industry and academia, with continued co-investment to test and roll out such technologies within the UK and on a global scale.

40%

of consumers said they would fly less than before

SOURCES

- [1] tinyurl.com/y64jb57k
- [2] tinyurl.com/yycdjec
- [3] tinyurl.com/y3xozpoc
- [4] tinyurl.com/y4of6uqv

Collaboration on CAM puts the UK among global leaders

The contribution of CAM creators like Carsofthefuture.co.uk is the foundation of the UK Connected and Automated Mobility Roadmap to 2030: CAM Creators Update.

The UK is currently among the global leaders in the development of self-driving vehicles and services thanks to the continued collaboration across sectors towards a common goal of being able to benefit from CAM on our streets by the end of the next decade.

Daniel Ruiz, CEO of Zenzic