

Connected and Autonomous Vehicles. Executive Summary

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Executive Summary

Over the last decade there has been substantial progress towards the development of Connected and Autonomous Vehicles (CAVs). As the technology that provides CAVs with the ability to undertake more advanced driving tasks has reached real-world testing stage, attention is now turning towards how CAVs should be regulated and what their impacts might be on the environments they operate in. Much of the attention to date has been on test-bed locations, where planning around CAVs is more advanced. We argue it is now time to expand the dialogue to include consideration for towns and cities beyond those early adopters to understand how they will fare, and how CAVs might interact with other important policy agendas facing them.

It remains highly uncertain as to what level of automation will be ultimately achieved and the degree of uptake we will see, and how this will interact with the wider transport system. There are some who welcome CAVs and see them as the natural next step in the development of a future transport system. There are others who are wary of CAVs and the promises they offer around safety and efficiencies. They critique that the technology remains fallible and will pose a risk to other road users for many years.

At the beginning of 2020 we launched a project to study these issues. Our Policy Expo, funded by the Regional Studies Association, was global in scope and therefore sought to draw on evidence from a range of people and places. We have sought to view developments around CAVs through the lens of local policymakers and the towns and cities they represent. Our interest is in what the impacts on these places might be, and how they might respond. Our work has as a result been structured around the following questions, which are addressed in this book:

1. How will the urban and built environment practically accommodate CAVs?
2. What problems might arise, and will there be ‘winners and losers’ – if so, who and in what ways?
3. How will different policy agendas – across geographic scales or policy domains – align or conflict as the urban environment begins to accommodate CAVs?
4. Will policies promoting or accommodating CAVs help or hinder other urban agendas including but not limited to active travel, zero carbon, health and wellbeing, social and economic inclusion, and liveability?
5. What do best-practice policy solutions look like, and how can local and regional policy makers plan proactively?
6. What will national policymakers and infrastructure providers need to do? And what must be resolved locally?

Our Policy Expo gathered information through several channels, including a global Call for Evidence, expert interviews, case-studies, and an extensive literature review.

It is evident that countries of the Global North are leading the way in terms of preparedness for the introduction of more highly automated vehicles, although a number of Global South countries are ranked amongst these early adopting nations. At the city and regional level there is much less certainty around preparedness to a transition towards CAVs. Increasingly, testing of more highly automated vehicles is taking place across a range of cities and regions. However, the studies undertaken looking beyond these early adopters suggests that preparedness and the ability to respond effectively to the arrival of CAVs is limited.

There are several broader challenges that compound to create complex landscapes within which local policymakers must attempt to mitigate the impacts of CAVs. This includes the extended time horizons over which CAVs might be introduced and the uncertainty over the roles they might fulfil within the transport system. If CAVs only serve to reinforce trends of private ownership then benefits gained through more efficient driving, argued as a benefit of CAVs, might be lost due to increases in the number of vehicles and the distances they cover.

In addition to these challenges, policymakers are grappling with objectives to enhance the liveability of their cities but the arrival of CAVs might serve to help or hinder these objectives. Certainly, if the asserted benefits of CAVs – such as increasing pedestrian safety or increasing accessibility for those with mobility challenges – are realised then liveability might be enhanced. However, for each potential positive benefit identified there is a counter argument and a concern that it will put vulnerable road users at more risk or exacerbate inequalities amongst the population.

Whilst there remains considerable uncertainty over the extent and pace at which CAVs might emerge in cities, there are actions that can be taken now to help mitigate against the negative consequences. Indeed, the uncertainty about CAV futures makes thinking about the potential responses now even more important. In many cases as the regulatory environment is being developed at a national level, more tools are needed for local policymakers to better plan for a range of scenarios and, in each, to help mitigate negative impacts. For those later-adopting cities, learning through best practice needs to be enhanced. At present there is informal sharing of information, but this lacks consistency and an ability to respond to an ever-evolving sector.

CAVs have the potential to be highly impactful on the built environment. Whether this is a rethinking of land-use strategies or leading to calls for an enhancement of the digital infrastructure of cities, there are significant cost and resource needs that might emerge. The extent to which city planners engage with this will be influenced by a variety of factors but ultimately it presents a further challenge to contend with. Finally, there is a lack of public debate about the role we want CAVs to have in future transport systems. It is therefore essential that the public is drawn in closer to this topic and provided with the tools to help shape it.

Recommendations

- **National governments can provide leadership in establishing the regulatory frameworks for CAVs, but they also need to better equip and empower cities and regions to respond to CAVs more proactively.** Governments should provide tools, powers, and resources to allow policymakers to respond strategically to ensure CAVs align with, rather than disrupt, their existing policy agendas. As examples, governments should enable local planners to better coordinate policies across existing municipal boundaries, provide more powers over parking regulations and charges, and ensure that active travel policies and funding are part of any package of support provided to help cities accommodate CAVs.
- **It is vital that the sharing of best practice and knowledge transfer activities are further enhanced to provide clear and accessible guidance for policymakers less equipped to contend with the arrival of CAVs.** Standardised, simple guidance should be developed by competent national bodies and should be flexible to allow for the

evolving nature of this field. **Disparate professional bodies will need to work together** – for example, organisations which oversee and support professionals working in transport planning, highways engineering, city planning, housing and urban development, public health and economic development should work together to agree shared guidance on preparing for CAVs.

- **Countries of the Global South should be brought closer into the dialogue around the development of CAVs.** For many of these countries, the challenges faced in approaching CAVs can be much greater, and they should have a voice in how this field is shaped.
- **The public must be brought more closely into debates around CAVs and what role they should play in future transport system.** Opportunities should be created to use simulations and trials which demonstrate the realities of CAV deployment and the positives and negatives they might bring.
- **Dedicated support should be provided to cities around the digitising of services and collection and management of data to support CAVs.** Privacy and cyber security concerns are a priority but local policymakers may not be well equipped to navigate these.
- It is evident that if CAVs follow and reinforce trends in private ownership of vehicles this could be highly problematic for the transport system and lead to increases in vehicle miles and congestion. **The public needs to be encouraged and incentivised to shift towards shared models of ownership as part of broader efforts to achieve zero carbon ambitions.**