Planning for Autonomous Vehicles? Questions of purpose, place and pace

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What are the implications of Autonomous Vehicles (AVs) for urban mobility and planning? This question aligns nicely with the industrial and growth led narrative that AVs are inevitable and planning must adapt to them (Hopkins and Schwanen, 2018). If we are to avoid the failings of the process of adapting to the automobile, which we are still in the process of putting right, then I suggest we need to turn that question on its head. What is the future of mobility and planning trying to achieve? Only once we set that out can we ask whether, where and how we want to try and accommodate AVs into the system. I structure my thoughts here around the themes of purpose, place and pace to help address that question before returning to the role of planning and governance to steer future developments.

Rather than beginning with AVs, we need to understand what purposes AVs might fulfil. In developed countries there are continued pressures on our road and rail networks as urbanisation, an aging population and migration concentrate growth in particular areas. However, underneath this there is evidence from Western Europe and North America that what people are doing is changing, with individuals making fewer trips and travelling less far than previous cohorts with the exception of retirees (Marsden et al., 2018). Changing economic circumstances, changing lifestage moments, new technologies and housing costs all play a role in these changes. In addition however, the activities we take part are also changing. What work is, how we shop and where and how much we access healthcare is all in flux. This change has been on-going for at least twenty years and there is no reason to suspect it has stopped. Indeed, as we look ahead twenty years it seems more likely to me that changes in what we do, where and how often will be far more significant than those brought about by automation. So, when we make assumptions about the role of AVs we need to avoid falling into the trap of imagining how they will solve the travel conundrums of today (or yesterday as is sometimes the case) and think about the futures with which they will be interacting.

There are then important questions of place. Different geographies and different policy approaches have combined to produce radically different transport systems where the automobile has a very different role. This can be seen by comparing dense cities such as Hong Kong and Tokyo with low density cities such as Brisbane and Boston. Even within fairly similar geographies, the policy pathways chosen and the degree of proactive planning matters hugely to the role of the car today (Buehler et al., 2017). Cities such as Copenhagen, Amsterdam, Vienna, London, Portland have much higher sustainable transport mode shares because of a combination of effective transport policy and integration between land-use and transport. In thinking about the role of AVs then it is necessary to recognise that they are not being dropped on to a blank canvas and so we should both expect and indeed require a different approach in different places.

This is equally true across a city region as it is within the core city area. The economics of private transport companies inevitably focuses developments around the densest areas with greatest flows. It may be that the business models of shared autonomous vehicle companies mean that such vehicles are more concentrated in central areas. However, further from the city there are often fewer options and potentially longer waiting times for any form of shared mobility. Here, individual ownership may continue to dominate and so one might be faced with planning for a very mixed model of AV technologies and use. The peri-urban and semi-rural transport and land-use problem has never really been solved whilst the urban one has, to a large degree, at least in some places.

And so to questions of the pace of change. Whilst it is part of the role of planners (as well as technology advocates) to imagine desirable futures which could be created, the pathway will determine which end states are reachable. In the case of AVs, the pathway is one of increasingly connected and increasingly autonomous vehicles. The end state for the technology is an entirely hands off system where the traveller is never asked to intervene in the technology. Prior to this is the creation of particular areas where the driver is "hands-off" (e.g. on a major highway) but may have to take back control of the vehicle in some circumstances. Whilst there are bold early deployment goals set by governments and technology companies, the transition pathway away from the current ownership of individual assets seems unclear. It seems likely that fully autonomous AVs could operate in niche areas (e.g. airports, car parks, exhibition centres) but it feels some way away from shared and fully autonomous vehicles dominating our urban streets.

What then of the other technologies and system changes to which planning will need to adapt in the interim? There is, for example, a commitment to complete decarbonisation of the car fleet and therefore a need for a massive transition in urban electric vehicle charging infrastructure. Add to this the continued growth in services such as Uber and Lyft and the rise of dockless bike systems. From a freight perspective, increases in on-line shopping and the continued growth of a fragmented servicing model for businesses means growing pressure on space for deliveries. The model of the green city where AVs have removed parking and freed up space for everyone to move around in is a false allure. There are still some critical issues to be dealt with about how we manage the competition for space in our cities and how we allocate that space between different uses and users. In that sense, the planning task remains unchanged and AVs are just one of many systems that might contribute to the problem or offer some form of resolution.

What then for planning and governance? Is it possible for governments to exert influence on urban futures and AVs given the current shift to a smaller state and the apparent emphasis on the necessity of new technology as a source of economic growth (Legacy et al., 2018)? I am both hopeful and fearful. Hopeful because AVs need planning and planners to make them work. Our cities are hugely complex arenas with many competing user classes with different demands on space across

the day and year. The allocation of roadspace and kerbside access are two critical elements in mediating the conflicts which will exist. AVs will only achieve anything like their imagined potential if they are given the space to do so. Planners have therefore, in their toolbox, some of the most precious resources to shape how AVs arrive and join the mobility mix when they are ready to do so. Fearful, because there are very real risks that a laissez faire approach will be adopted deliberately or by default (where the skills and resources to do otherwise have been stripped away). There are already shortcomings in how such space is allocated and how different user groups are represented (or not) in those decisions (Summerton, 2011). There are risks that the necessities in making the technology function will marginalise other less organised or less profitable interests. That would not be a first in transportation. It is essential to hold this in mind from the very early stages of trialling as it can be difficult to unpick these privileges once acquired (Docherty et al., 2017)

In summary, it seems to me that there are very real risks of getting drawn into planning for the technology that some commercial interests want to see and not planning for the kinds of societal outcomes planners are tasked with trying to support. The Venn Diagram of societal and technological interests might indeed have some overlap but we would do much better to start from a position of clarity about what we are planning for and then treating AVs as just one of many technologies or societal shifts which could contribute. It is then for different places in different contexts to decide whether, how and where AVs best support that.

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