



How ready are we for new transport options?

The research described in the report explores how ready the New Zealand public is to adopt four key new transport options:

1. autonomous vehicles – which range from systems that provide assistance in particular situations (for example, the Intelligent Parking Assistant System which helps drivers to park their cars, and cruise and lane control systems) to total automation (self-driving)
2. connected vehicle technology – which enables vehicles to ‘talk’ (or connect) to each other and the road network around them, providing information, for example, about cars suddenly braking in front of them or traffic congestion
3. carsharing – which involves several people having access to a shared vehicle, and can be offered via a fleet or by a user supplying his or her vehicle to another user.
4. Ride-sharing (or carpooling) schemes – which involve sharing a journey with a passenger or passengers, and have recently become more formalised and widespread, and in some areas are associated with priority parking and access to shared transit lanes. Technological advances have also increased the number of ridesharing and carpooling schemes available and allow rideshare opportunities to be identified in real-time. App-based ride-hailing schemes are a subset of this technology.

Attitudes to transport options 1 and 2 are discussed together in this research as connected autonomous vehicles (CAVs).

The researchers, from the Transport Research Group at the University of Waikato, analysed data from surveys from New Zealand and overseas, conducted group interviews and reviewed the existing adoption and technology diffusion models.

The New Zealand public's awareness, knowledge and use of each of the new transport options was compared, revealing that participants were most aware of connected autonomous vehicles, and least aware of carsharing. In terms of the amount that participants actually knew about the options, knowledge was greatest for app-based ride hailing (a subset of ride-sharing), closely followed by connected autonomous vehicles, with fewer participants reporting that they knew anything about carsharing. With respect to whether they had actually used the transport options, app-based ride hailing was used by the largest proportion of participants, followed by other ridesharing/ carpooling.

Comparisons with the international data also suggested that the New Zealand public is generally more aware and ready to use connected autonomous vehicles than some overseas jurisdictions. However, a sizeable number of participants reported that they would never use any of the new transport options, even if they knew about them. This was largely due to widespread safety concerns, alongside issues of availability, cost and convenience. Interestingly, some participants stated that they would not make use of CAVs because they enjoyed the act of driving.

ATTITUDES TO CONNECTED AUTONOMOUS VEHICLES (CAVS)

For connected autonomous vehicles, up to 95% of New Zealand participants had heard of self-driving cars. This was much higher than the awareness rates reported from overseas, for example a 2014 international survey found 57% awareness in Japan and 87% in China. Yet despite this increased knowledge, fewer local participants had actual experience of the various advanced driver assistance systems; for example, only 10% of New Zealand participants had experience of intelligent parking assistance technologies, compared to 46% in Germany.

Participants saw the main benefits of connected autonomous vehicles as being reduced crashes, better fuel economy and less congestion. Interestingly, the New Zealand sample rated reduced emissions as the least likely benefit, which is somewhat different to the overseas data.

The most common reason given by participants for why they would like to use a connected autonomous vehicle was so that they could do other things while travelling. The most concerning issue for participants was system hacking or technology failure. Respondents stated they would feel particularly uncomfortable about putting their children in a self-driving car or using a self-driving car that did not have a steering wheel. They would, however, be more inclined to use one if they were over the drink-drive limit or were tired, or when driving on a motorway. Overall, though, New Zealand respondents were not prepared to pay very much in addition to the vehicle price in order to access automated vehicle technologies.

ATTITUDES TO APP-BASED RIDE HAILING, RIDE-SHARING AND CARSHARING

When it came to app-based ride hailing, ridesharing and carsharing, over three-quarters of New Zealand respondents had heard about these services, with a significant number also having used them: 28% to 35% of respondents had used app-based ride hailing, 18% to 25% had used ridesharing or carpooling, and 21% had used carsharing. Many respondents did not have these transport options available to them: App-based ride hailing was available to 40% to 50% of the respondents, ridesharing to 23% to 33% and carsharing to between 4% and 25%. The highest use for all the options was the 25 to 44 year age group. Despite these promising levels, when asked whether they intended to use each of the transport sharing options in the next 12 months, over half of respondents did not.

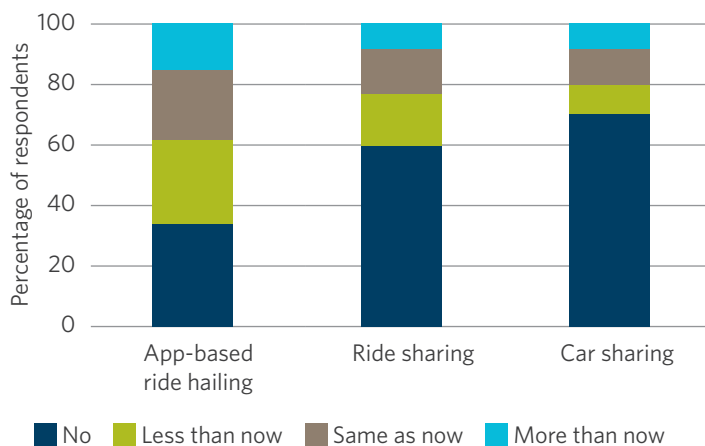


FIGURE 1 Anticipated use of each of the transport sharing options in the next 12 months.

One of the greatest barriers to use respondents cited to was car ownership (removing the incentive), followed by lack of availability, safety, cost, not wanting to share with strangers and inconvenience.

The group interviews supported the findings from the surveys, leading the researchers to conclude that for transport sharing options to be a feasible alternative to private car use, services needed to be comfortable, convenient, cost-effective, flexible, and meet the needs of the traveller. Wider advertising via multiple channels was also needed, as well as improved accessibility by developing alternate booking platforms.

Many of these new transport sharing options were also not suitable for those with a disability, as the vehicles are not suitable for those with mobility impairments, and the app-based booking systems cannot be used by those with a visual impairment. Overall, the researchers considered that more consideration needs to be given to how the transport system as a whole can work more effectively for those with disabilities.

IMPROVING PUBLIC UPTAKE

The researchers recommend that to prepare the New Zealand public for greater use of connected autonomous vehicles, steps are needed to improve awareness of advanced driver assistance systems and their safety benefits, alongside more education about the security of connected autonomous vehicles to allay public fears.

Even though the New Zealand public appears to be more ready for connected autonomous vehicles than other countries, widespread adoption is some time away, and cannot be relied upon to solve current transport safety issues.

To increase use of transport sharing services, additional advertising is needed, as well as providing other non-app based booking services. This would also offer the opportunity to address some of the safety concerns (via a frequently asked questions section, for example). Provision of a system that allowed users to compare costs of the same journey using different transport options, would also help them to make an informed choice about how to travel.

Rather than advocating that these new transport sharing schemes completely replace the private car (which is unrealistic in the current climate), the initial focus should be on ensuring these alternatives are well integrated with the existing transport network, and encouraging people to explore the best transport option for each type of trip they are taking.



RR 663 – *The New Zealand public's readiness for connected - and autonomous-vehicles (including driverless)*, Waka Kotahi NZ Transport Agency research report
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