

Trialling Automated Vehicles: Who, What and Where? Survey Results from Across Australia and New Zealand

Selena A. Ledger^a, Mitchell L. Cunningham^{ab}, Michael A. Regan^c, Anna Chevalier^a

^a Australian Road Research Board, ^b School of Psychology, University of Sydney, ^c Research Centre for Integrated Transport Innovation, The University of New South Wales

Abstract

To facilitate societal uptake of automated vehicles (AVs), it is important government, industry, and researchers become cognizant of group differences in public acceptance of AVs. The Australian and New Zealand Driverless Vehicle Initiative (ADVI) international survey investigated public awareness, understanding and likely acceptance of AVs, and received responses from 5102 Australians and 1049 New Zealanders. Survey results revealed males, younger respondents, Australian Capital Territory (ACT) and inner metropolitan residents are most likely to express interest in participating in trials involving AVs as a partially automated vehicle driver, or public-transport/ride-share passenger. These findings may inform stakeholders in government, industry and academia planning trials involving AVs.

Introduction

Automated vehicles, defined as “...[vehicles] in which at least some aspects of a safety critical control function (e.g., steering, throttle, or braking) occur without direct driver input”, are predicted to bring about myriad societal, road safety and environmental benefits (Anderson et al., 2014; Fagnant & Kockelman, 2015). Consequently, AVs are currently being trialled internationally (Bloomberg Institute, 2019), and in Australia and New Zealand (NZ) (e.g., Flinders University, 2018; RAC, 2018). Information about public acceptance of AVs may help inform the future locations of AV trials, and provide a profile of individuals who may be interested in participating in these trials, as either a partially automated vehicle driver or public-transport/ride-share passenger. Nation-wide surveys have typically been employed to gauge likely public acceptance of AVs. However, except for a few recent studies (e.g., Eastlink, 2017, 2018; Pettigrew, Talati, & Norman, 2018; Schoettle & Sivak, 2014; RAC, 2016, 2018), there is a paucity of research examining likely AV acceptance in Australia, and none to the best of our knowledge focusing on NZ.

We will present select findings from the latest ADVI survey, one of the largest AV acceptance surveys internationally, involving a representative sample of respondents from Australia and NZ (Regan, et al., 2017).

Method

The 90-item survey was developed by the ADVI Survey Working Group (which included two of the co-authors), with members from academia, government and industry. It was distributed to over 6152 respondents across Australia and NZ through the online survey platform, Qualtrics.

Survey responses were analysed to address the following research questions:

1. *Who* in Australia and NZ are most interested in participating in trials of AV technology (i.e., are they more likely to be male or female, and younger or older)?

2. In *What* type of trial are respondents most interested in participating: (i) as a driver of a partially automated vehicle, or (ii) as a passenger of AV public-transport or ride-sharing services?
3. *Where*, geographically, in Australia and NZ are residents most interested in participating in trials of AV technology?

Results

Of all respondents, 59.4% (n=3640/6133) were interested in participating in an AV trial as a driver, and 58.2% (n=3568/6133) as a passenger. Respondents most likely to express interest in participating in driver or passenger trials involving AVs were:

- Males rather than females for both driver (males: 68.1%, n=1947/2857, females: 51.7%, n=1688/3263, $X^2(1)=170.23$, $p<0.001$) and passenger (males: 65.7%, n=1876/2857, females: 51.6%, n=1684/3263, $X^2(1)=123.65$, $p<0.001$) trials
- Younger rather than older (driver: Spearman's rho correlation=-0.069, $p<0.01$; passenger: rho=-0.086, $p<0.01$)
- Residents of the ACT (driver: 67.9%, n=74/109; passenger: 70.6%, n=77/109) and inner metropolitan areas (driver: 65.9%, n=1158/1758; passenger: 66.7%, n=1173/1758) compared to other areas.

Educational attainment and self-reported early adoption of new technologies were also significantly related to interest in participating in both driver and passenger trials. Residents of the ACT and inner metropolitan areas were more likely to report higher levels of educational attainment and early adoption of new technologies compared to other areas. In part, these factors may explain our finding those in the ACT and inner metropolitan areas were most likely to express interest in participating in trials of AV technologies.

Conclusion

These findings are derived from the most recent iteration of the ADVI survey assessing public opinion and acceptance of AVs in Australia and NZ. Given the rapidly growing interest in the development of AV trialling protocols across both Australia and NZ, these findings are helpful in informing government, industry and academic stakeholders involved in establishing and facilitating these trials.

References

- Anderson, J. M., Nidhi, K., Stanley, K. D., Sorensen, P., Samaras, C., & Oluwatola, O. A. (2014). Autonomous vehicle technology: A guide for policymakers. Rand Corporation. Santa Monica, California.
- Bloomberg Philanthropies (2019) Is your city getting ready for AVs? This is a guide to who's doing what, where, and how. New York, USA. Retrieved from <https://avsincities.bloomberg.org/>
- Eastlink (2017). Eastlink announces results of first annual Victorian self-driving vehicle survey. Melbourne, Australia. Retrieved from: <https://www.eastlink.com.au/images/news/171009-EastLink-Announces-Results-of-First-Annual-Victorian-Self-Driving-Vehicle-Survey.pdf>
- Eastlink (2018). Results of 2018 Annual Victorian Self-Driving Car Survey. Melbourne, Australia. Retrieved from: <https://www.eastlink.com.au/images/news/181120-Results-of-2018-Annual-Victorian-Self-Driving-Vehicle-Survey.pdf>

- Fagnant, D. J., & Kockelman, K. (2015). Preparing a nation for autonomous vehicles: opportunities, barriers and policy recommendations. *Transportation Research Part A: Policy and Practice*, 77, 167-181.
- Flinders University (2018) FLEX takes to the streets. Adelaide, Australia. Retrieved from <https://news.flinders.edu.au/blog/2018/06/19/autonomous-shuttle/>
- Pettigrew, S., Talati, Z., & Norman, R. (2018). The health benefits of autonomous vehicles: public awareness and receptivity in Australia. *Australian and New Zealand journal of public health*, 42(5), 480-483.
- Schoettle, B., & Sivak, M. (2014). A survey of public opinion about autonomous and self-driving vehicles in the US, the UK, and Australia. Michigan, USA. Retrieved from: <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/108384/103024.pdf>
- Regan M.A., Cunningham, M.L., Dixit, V., Horberry, T., Bender, A., Keeratunga, K. et al. (June, 2017) *Preliminary Findings from the first Australian National Survey of Public Opinion about Automated and Driverless Vehicles*. Adelaide, SA; The Australian Driverless Vehicle Initiative. ISBN: 978-1-876592-85-1
- Royal Automobile Club (RAC) (2016). Autonomous vehicle survey 2016. Perth, Australia. Retrieved from: <https://rac.com.au/-/media/files/rac-website/about-rac/community-programs/publications/reports/2016/autonomous-vehicles-survey.pdf>
- Royal Automobile Club (RAC) (2018) Australia's first on-demand, automated vehicle — the RAC Intellicar — arrives in Perth. Perth, Australia. Retrieved from <https://rac.com.au/about-rac/media/media-releases/september-2018/australias-first-on-demand-automated-vehicle-the-rac-intellicar-arrives-in-perth>