



# How well do New Zealanders understand advanced driver-assistance systems?

Vehicle automation technologies are on the rise. But how well do New Zealanders use this technology, and how can that be improved?

Automated emergency braking, blind spot monitoring, adaptive cruise control, lane keep assist, lane departure warning and electronic stability control are increasingly common technologies in our vehicles. These advanced driver-assistance systems (ADAS) partially automate driving by warning drivers of danger or controlling the vehicle.

The researchers in this study aimed to learn more about:

- New Zealanders' level of awareness and knowledge about what ADAS technologies do and their safe and correct use
- what training is given to buyers
- whether ADAS technologies influence the public's vehicle purchasing decisions
- how often people with ADAS technologies use them and why they turn them off.

## SAE International automation levels

|                             | SAE Level 0           | SAE Level 1                                 | SAE Level 2                                  | SAE Level 3            | SAE Level 4           | SAE Level 5                      |
|-----------------------------|-----------------------|---------------------------------------------|----------------------------------------------|------------------------|-----------------------|----------------------------------|
| <b>Automation</b>           | No automation         | Driver assistance                           | Partial automation                           | Conditional automation | High automation       | Full automation                  |
| <b>Example technologies</b> | Blind spot monitoring | Adaptive cruise control or lane keep assist | Adaptive cruise control and lane keep assist | Traffic jam chauffeur  | Local driverless taxi | Driverless taxi in any condition |

**Note:** The light blue shading represents the focus of this study.

Source: Adapted from SAE International (2021)

Their study included:

- an international literature review
- surveys and interviews with New Zealand drivers and users of ADAS.

### International literature review

The literature review found that, overall, people understand vehicle automation levels poorly – many people think ‘automated vehicle’ means a self-driving car. However, public awareness is growing, especially among men and those with higher education and household incomes.

The review also found that drivers are more likely to use ADAS technologies if they trust them. ADAS need to be reliable, useful, easy to understand and function as expected.

The literature review also showed that:

- driver acceptance and trust varies across different technologies and by vehicle manufacturer
- compared to females, males are more likely to trust ADAS
- drivers already using the technology trust it the most
- as understanding of ADAS increases, drivers more often see ADAS as driving support
- people buy vehicles with ADAS for safety, convenience and stress reduction and to have the latest technology
- trial and error is often used when learning to use ADAS technologies.

Drivers were mixed in understanding their responsibilities and the capabilities and limitations of the technologies.

### Perceptions, familiarity and acceptance

About two-thirds of survey participants described themselves as not very or not at all familiar with the automated vehicle concept.

Unprompted, many survey participants did not immediately think about levels of automation in vehicles. When asked what they thought an ‘automated vehicle’ was, their responses included:

- a self-driving car (28%)
- a vehicle with automatic or automated functions (14%)
- a driverless vehicle (12%).

This shows the need for better communications clarifying the distinction between driver aids and automated vehicles.

Many New Zealanders understand that automated vehicles have advantages, particularly in driving performance and road safety. However, 98% of respondents also had concerns. These included:

- higher levels of automation
- system security and data privacy issues
- automation having a negative impact on driver performance.

New Zealand is gradually transitioning to greater levels of vehicle automation, so government needs to communicate to the public how it is actively managing and mitigating potential risks.

Overall, there’s a high degree of generalised understanding of ADAS, but awareness, knowledge and use vary considerably by technology. This means public awareness needs to be raised for some technologies more than others.

- Vehicle sellers and leasers often have limited information for customers, which also needs improving. Many drivers learn by trial and error.
- Drivers are most likely to use technology that routinely adds value to driving, and to turn off those that they don’t understand or that don’t perform as expected.

## Communicating about ADAS

New Zealanders need accurate, accessible information about ADAS – their benefits, value, what they do, how to use them and driver responsibilities. Government should target communications to the general driving population using existing road safety channels. It should also:

- provide online, printed, and spoken information at the point of sale, lease or hire
- elevate the importance of ADAS features on specification sheets, sales websites, and commonly used websites (such as Rightcar, Trade Me and Auto Trader)
- require vehicle sellers to provide an English version of the vehicle’s advanced feature instructions
- clarify the ADAS technology types, what they do, and their common names.

Knowledge, skills and attitudes are all important for competent driving, and users often learn by doing. Information on ADAS technologies could be included in the driver training and licensing processes. Designing ongoing driver support should consider the relationship between the vehicle user, the seller, and the land transport regulator.

The literature suggests a gap in regulation and minimum standard setting to ensure safe and educated use of ADAS. At a minimum, an education pathway is needed. The first step may be engaging with stakeholders about how to proceed. If education doesn’t ensure the safe and correct use of ADAS, regulations may be needed.

## Recommendations for further research

The researchers suggest several areas for further research:

- examining the influences of ADAS technologies on road safety
- a more in-depth understanding of ADAS user segments
- understanding New Zealanders’ experiences with advanced Society of Automotive Engineers (SAE) Level 2 functionality
- further human factor considerations.



RR 685 – *Consumer awareness, understanding, and use of advanced driver-assistance systems currently available in vehicles on New Zealand roads*, Waka Kotahi NZ Transport Agency research report. Available at [www.nzta.govt.nz/resources/research/reports/685](http://www.nzta.govt.nz/resources/research/reports/685)