Project Overview

RACV has completed a major market research study to explore the sentiment of members with respect to Vehicle Automation in order to help develop its policy position and broader societal implications of this new technology.

RACV has undertaken a major market research study into the attitude of members towards Autonomous Vehicles in the areas of:

1. Levels of understanding of Automated Vehicle technology
2. Attitudes and concerns relating to Autonomous Vehicles in the future
3. Identifying and comparing concerns and attitudes of regional and metropolitan road users.
4. Identify ways RACV might engage Victorian road users regarding Vehicle Automation topics.
5. Identify any potential issues, questions and implications for the development of policy in this area.

The study used both qualitative and quantitative market research. The qualitative research used moderated 90-minute focus groups of six to eight RACV members. Three focus groups were based in Melbourne and one in Bendigo. Participants were questioned about Autonomous Vehicles (AVs) and their introduction onto Victorian roads. The quantitative research used a self-complete 35 question survey based on the qualitative research. This was emailed to RACV members and 1040 responses were received.
Relationship to Driving

For the Love of Driving – How Driving Feels

The data from our survey of RACV members (Figure 4.1) shows that almost three quarters of them (74%) agree with the statement that “most of the time I love driving my car”. Only 15% of members disagree with this statement.

Interestingly, and perhaps not surprisingly, it is people who travel mostly within metropolitan and built up areas that have the lowest affection for driving their car at 65% agree, compared to those who travel in regional and country areas at 80% agree and those who travel between both at 86% agree.

What we see consistently throughout the survey results is that this greater love for driving displayed by people in regional and country areas seems to correlate with a lesser degree of interest in the Autonomous Vehicle technology.

![Figure 4.1 “Most Of The Time I Love Driving”](image1)

![Figure 4.2 “Most Of The Time I Love Driving”](image2)
Relationship to Driving

The Freedom and Control of Driving

People also respond positively to the sense of freedom and control they get from driving. This is widely considered the very best thing about the driving experience.

85% of respondents either ‘agreed’ or ‘strongly agreed’ that driving gives them a feeling of freedom and control. This result was consistent for metropolitan and country drivers, men and women and drivers across the various age groups.

![Figure 4.3 “Driving Gives Me Freedom And Control”](image-url)
The Downside of Driving a Car

Driving Can Be Stressful and a Chore

Although the majority of people do enjoy driving their car and the freedom and control that this gives them it is sometimes seen as stressful. Overall 38% of respondents agreed or strongly agreed that driving is often stressful and a chore. This was especially the case for people who drive within metropolitan areas where 43% agreed that driving was stressful - a much higher figure than for those who drive in country areas (29%) and those who drive in both metropolitan and country areas (34%). More female respondents also reported that driving was stressful at 45% compared to 35% for men.

Attitudes to Behaviour of Other Drivers

When trying to identify the source of this stress you don’t have to look very far. Eighty three percent (Top Two Box) of respondents to the survey nominated the behaviour of other drivers as a reason why driving is difficult and stressful. This was a consistent result across age, gender and whether or not people were country or city drivers or both. Despite this result and the frequent stresses of driving, the overall reaction is still quite positive about driving. When asked if they thought driving was “necessary but I don’t enjoy it” only 14% of respondents agreed.
Understanding of Autonomous Vehicles

Perceived Understanding of AVs

Across the board our respondents claim to feel as though they “have a good knowledge of Autonomous Vehicles” with 76% of people replying either ‘agree’ or ‘strongly agree’ to this statement.

The level of reported knowledge in country areas was slightly lower than for city drivers with 70% claiming to have a good knowledge.

However, the most striking difference in claimed knowledge regarding Autonomous Vehicles was reported between males and females. 82% of males reported a good level of knowledge compared to 59% of women.

Based on the qualitative research it is fair to say that this ‘knowledge’ probably relates more to the concept of Autonomous Vehicles rather than how they operate.
Overall Positive Impact on Society

Our audience was quite strongly divided about whether or not Autonomous Vehicles will be a good thing. When asked if they “feel positive about the prospect of Autonomous Vehicles on our roads” only 42% of respondents either ‘agreed’ or ‘strongly agreed’. An interesting result is that only 12% of people were undecided, which means that 46% of people don’t really feel positive about Autonomous Vehicles and their arrival at all. A quarter of all people strongly disagree with the idea that Autonomous Vehicles will be positive.

There are strong differences evident in the results based on gender, age and location. First, men are much more likely than women to feel positive about AVs with 44% agreeing they are positive compared to only 34% of women. Half of city drivers believe AVs will be positive compared to only 33% of country drivers. Only 34% of people over 65 years of age think AVs will be positive compared to 54% of those aged 35-49 and 43% of those aged 50-64. It was also interesting to note that people who love driving are significantly less positive about AVs than those who don’t.
Anxiety About Introduction of AVs

Reflecting this mixed reaction to Autonomous Vehicles is a relatively high level of anxiety about their introduction and what it would mean – both at an individual and at a broader societal level.

Overall 52% of respondents either agreed or strongly agreed with the statement that “the transition from normal cars to Autonomous Vehicles makes me anxious”. 16% of respondents were undecided about this question and less than a third of respondents either disagreed or strongly disagreed at 32%. Again, we see a familiar pattern of contrasting opinions about AVs.

In terms of anxiety country drivers are more inclined to express this view with 60% agreeing or strongly agreeing that they feel anxious about the change compared to only 50% of city drivers. There were no major differences for men and women or by age or attitudes to driving with perhaps one exception – 18% of men strongly disagreed with the idea that they felt anxiety about the transition – which suggests a potential core of support for the change if it arrives and the presence of possible early adopters.
Timing of Initial AV Adoption

The majority of people believe that even the first AVs are a long way off appearing on our roads. 66% of people still believe that the technology is more than 5 years away and 24% believe it is more than 10 years off. Those who were most optimistic about the imminent arrival of AVs were those aged 35-49 with 39% of this age cohort thinking the technology is less than 5 years away from appearing on our roads.

Timing of Widespread AV Adoption

When it comes to perceived timing for when AVs will be widespread on our roads most people are far less optimistic and sceptical about a more complete rollout of the new technology. Only 12% of people agree or strongly agree that Autonomous Vehicles will be widespread on our roads within the next ten years. Women tend to be significantly more optimistic with 16% believing the technology will be widespread in ten years. Over 40% of people think the technology is more than 20 years off widespread adoption.
Timing for Arrival of Autonomous Vehicles

Perceived AV Ownership

Given the long-perceived wait for Autonomous Vehicles it is probably not surprising that the majority of people do not believe they will have an AV of their own in their lifetime. Only 35% of all respondents agreed or strongly agreed with the statement that “one day I will have an Autonomous Vehicle of my own”. While a number of people were undecided it is interesting that 33% of people strongly disagreed with the idea they would own an AV.

The largest differences between audience groups in the sample was based around age, perhaps not surprisingly. Fifty per cent of people between 35-49 agreed they will have their own AV car. This compares to only 36% of those aged 50-64 and 24% of those over 65 years of age.

Figure 5.8 “I Will One Day Have An AV Of My Own”

35%

Percentage of RAeV Members who either ‘agree’ or ‘strongly agree’.
Overall Perceptions of Social Good

The jury is out in terms of the opinion of RACV members on the overall social impact of Autonomous Vehicles. Overall 45% of our respondents either agreed or strongly agreed that “Autonomous Vehicles will be a good thing for our society”.

However, the result was also quite polarising with 36% reporting that they either disagree (13%) or strongly disagree (23%). There were also strong differences here based on gender, location, attitudes to driving and age. City drivers were the most positive on social impact with 54% (Top Two Box) compared to country drivers at 39% (Top Two Box). Men were more positive than women with a score of 48% (Top Two Box) compared to 36% (Top Two Box). Also younger members were much more positive about the social impact, 60% of people aged 35-49 think the technology will be good for society compared to 44% of those aged 50-64 and only 38% of those aged 65 years or over.

Figure 6.1 “Overall AV’s Will Be Positive For Society”

45%

Percentage of RACV Members who either ‘agree’ or ‘strongly agree’.

Figure 6.2 “Overall AVs Will Be Positive For Society”

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Benefits for Those with Mobility Issues

It was widely accepted that Autonomous Vehicles will be beneficial for people with mobility issues. 75% of the respondents indicated they either agreed or strongly agreed with this idea. Only 5% of the respondents strongly disagreed. City drivers were especially likely to endorse the view that people with mobility issues would benefit (81% Top Two Box).

Affordability of Autonomous Vehicles

One of the key issues with Autonomous Vehicles is their perceived affordability. Only 27% of respondents agreed (Top Two Box) with the statement that Autonomous Vehicles will be “affordable to people who own a car today”. 39% of people either disagreed or strongly disagreed with the statement. This result is very consistent with focus group findings that AVs will be expensive. People tend to look at the new technology as complex and therefore commanding a strong price premium. There was also agreement that much of the drive towards AVs is being driven by corporations such as Telsa who are not doing it for reasons of altruism alone.
Impact on Environment

One of the interesting things to emerge from the qualitative research is that respondents tend to anticipate the Autonomous Vehicles will be electric powered and not petrol. So, there is a tendency to assume that they will therefore be better for the environment. However, the survey results indicate that only 37% of people agree or strongly agree that “AVs will be positive and good for the environment”. A large number are undecided about the question at 36% and 27% believe the impact is likely to be negative.

Impact on Traffic Flow

There is a general perception that AVs could have a positive impact on traffic flow. 42% of people agreed or strongly agreed that the technology “will improve overall traffic flow and reduce travel times”. This was especially the case for city drivers (50% Top Two Box) compared to country drivers (36% Top Two Box) However, as with many results the reaction is polarised as 32% of people disagreed with the idea.
Impact on Traffic Congestion

During the focus groups one of the considerations that came up was the possibility that AVs might create congestion on our roads as they would make it possible for more people to move around more easily and that at certain peak times (e.g. Saturday and Friday night) there might be more cars on the road. However, only 25% of people agreed or strongly agreed with the statement that “Autonomous Vehicles will cause more congestion on our roads”. There were no significant differences on this question by age, gender and location.

Impact on Society Overall
Impact on Society Overall

Replacement of Driving by Autonomous Vehicles

This is possibly the biggest issue in the entire survey when it comes to understanding reactions to Autonomous Vehicle by Victorians. People who like driving are concerned about the possibility that they will no longer be able to own and drive their own car any more. They are worried that their driving experience, often one that is loved and enjoyed, will be taken away. Of the entire survey sample 49% of people agreed or strongly agreed that “autonomous vehicles would eventually replace driver operated vehicles”. People who don’t like driving were, not surprisingly, most likely to endorse this view with 59% in agreement with the statement (Top Two Box).
Job Losses in Victoria Due to AVs

There is some concern amongst our respondents that the introduction of Autonomous Vehicles will eventually cause unemployment in the economy. Overall 38% of respondents either agreed or strongly agreed with the statement that they are “concerned Autonomous Vehicles might lead to job losses in Victoria”. This result did not differ significantly by age, location or gender with results being consistent across the board. There were also a number of people who were undecided about this question (32% undecided), while 30% of people disagreed about the possibility of job losses.
Impact of AVs to Free Up Travel Time

One of the potential benefits of the new technology is that potential to free up travel time for people because they will no longer have to drive and can therefore use this time for other activities such as work, reading, conversation, etc. However, our results showed a mixed response to the possibility of this type of benefit. Only 36% of all respondents agreed or strongly agreed that travel time would be freed up. There were differences here based on location. City drivers are much more likely to agree this is a likely benefit (43% Top Two Box) compared to country drivers (29% Top Two Box).
Driving &
Travel Experience

Taking an Autonomous Vehicle Will Be More Enjoyable

Responses to this question show the attachment of many respondents to the driving experience and their own cars. Only 28% of people agreed that “taking a journey in an AV will be more enjoyable than driving a car”. Older drivers were much more likely to be sceptical about the enjoyment value of Autonomous Vehicles with 23% believing the experience would be more enjoyable. In contrast drivers aged 35-49 were more likely to agree with the statement at 37% (Top Two Box).
Technology Failure in AVs leading to Accidents.

Clearly people are concerned about the potential of failure in Autonomous Vehicles especially during the initial introductory phases of the new technology. Seventy per cent of respondents agreed or strongly agreed with the statement that they are “concerned about the technology failure in Autonomous Vehicles causing accidents”. Women (79% Top Two Box Score) and people aged over 65 years (74% Top Two Box Score) were the most concerned.
Driving & Travel Experience

Requirement for New & Modified Road Rules

There is an expectation from people that the current road rules do not do enough to accommodate the introduction of Autonomous Vehicles. In total 80% of people agree or strongly agree with the statement that "Autonomous Vehicles will require new and modified road rules for driving in Victoria". This result is broadly consistent across audience groups. They key issues people are concerned about are issues to do with liability in accidents and who is responsible – owner, manufacturer, insurance company or other party.

Overall Safety Expectations with Autonomous Vehicles.

As with many questions in the survey there are somewhat polarised responses to perceptions about safety. 45% of people agree with the statement that the new technology will “make the roads safer because there will be fewer accidents.” City drivers were significantly more likely to believe safety would improve (53% Top Two Box) compared to country drivers (39% Top Two Box). Men were significantly more likely to agree the roads would be safer (49% Top Two Box) compared to women (35% Top Two Box). Younger drivers aged 35-49 were more likely than older drivers to believe the roads would be safer. Those who love driving are less inclined to believe the roads would be safer.
Potential for Confusion on The Roads with AVs

One of the potential concerns regarding the introduction of Autonomous Vehicles is that they will cause confusion on the roads. 52% of our sample agree or strongly agree with the statement that “Autonomous Vehicles will cause confusion on the roads for other drivers”. Older consumers beyond 65 years of age are the most concerned at this possibility (57% Agreed Top Two Box).

Expectations Regarding BAC and ‘Driving’ AVs

There is clearly a social expectation that the introduction of AVs is no reason to be lax about drink driving regulation. 61% of our sample agreed or strongly agreed that “people travelling in Autonomous Vehicles should have clear BAC limits. People driving in country areas and those driving in both city and country were especially strong on this point (Top Two Box scores of 67% and 68% for both). Older drivers over 65 years of age were most concerned about this with 71% agreeing (Top Two Box).
AVs Can Be Trusted to Make Split-Second Decisions

For most people the technology behind this new technology resembles a black box. They just don’t know how the cars operative and make decisions. This translates to a general doubt about whether the cars will make the right split-second decisions. Only 38% of people agree that the cars “can be trusted” in these circumstances when lives are affected. Roughly the same number disagree and 21% of people strongly disagree. Men are much more likely than women to trust the technology as are younger drivers compared to older drivers.

As a Society We Are Ready for The Introduction of AVs

It is interesting to note that for the most part our audience did not believe we are ready for the introduction of this new technology. Only 19% of people agreed with this idea (Top Two Box) while 65% of people disagreed (Bottom Two Box). Results were broadly consistent across age, gender, location and driving attachment. In focus groups people talked primarily about the perceived lack of readiness of the technology but even more importantly of the lack of a proper legal and regulatory framework that would be required in a world where these new cars were widespread on our roads.
Driving & Travel Experience

AVs Will Make Significant Reductions on The Road Toll

Again, there is a somewhat polarised reaction to the question of safety when it comes to AVs. 51% of respondents to our survey reported that they either agreed or strongly agreed with the statement that “Autonomous Vehicles will eventually make significant reductions in the road toll.” There were dramatic differences based on driving location to this answer. City drivers agreed at 60% (Top Two Box) with this statement compared to country drivers at 44% agree (Top Two Box). Drivers 35-49 years agreed at 63% (Top Two Box) compared to drivers 50-64 years at 50% Agree (Top Two Box) and those over 65 years at 44% agree.

AVs Will Drive More Predictably Than Human Drivers

A related question regarding safety is whether or not AV vehicles will drive more predictably than human drivers. There was quite strong support for this idea overall as 59% of our audience agreed or strongly agreed with this proposition. Here again there were differences based on driving location, gender and age. City drivers were more likely to agree (66% Top Two Box) than country drivers (50% Top Two Box). Again, older drivers were less likely to have faith in Autonomous Vehicles to drive in a predictable way.
AVs Will Be Better and Safer Drivers Than People

A final question regarding safety was whether the AVs will be safer than human drivers. Overall, we see mixed results but a general consensus the AVs will be safer. 50% of our audience agree or strongly agree that AV cars will be safer drivers. Again we see the same familiar pattern that city drivers, men, younger people and those who don’t love driving have stronger perceptions of the benefits of Autonomous Vehicles when it comes to driving safety. Only 28% of all respondents disagreed with the proposition that AV cars would be safer and only 13% strongly disagreed.
Adoption of Autonomous Vehicles

AVs Will Be Less Stressful Than Driving A Car

There seem to be mixed views on whether ‘driving’ an AV will be more or less stressful than driving a normal car today. Overall 42% of people agreed it would be less stressful (Top Two Box). However, there were a fair number who disagreed with this view – 34% overall (Bottom Two Box). 24% of the audience were undecided on this question. City drivers, men and younger drivers were more inclined to agree that an AV would be less stressful to operate than a car. Those less attached to driving were also more inclined to agree it would be less stressful (52% Top Two Box)

Desire to Retain the Option of Car Driving

There was an exceptionally strong desire amongst our audience to be able to drive when they want to. 84% of the audience either agreed or strongly agreed with the statement “I would always want to have the option of taking control and driving the car myself”. This was a consistent result across gender, location and age. The only difference was that those who love driving agreed more readily (88% Top Two Box) compared to those who don’t (73% Top Two Box). Communicating the ability to retain the option to drive is the most critical communication point for widespread acceptance of Autonomous Vehicles.
Adoption of Autonomous Vehicles

Attitude to Personal Adoption of Autonomous Vehicles

The overall interest in adopting Autonomous Vehicles was actually quite strong. 45% of people agreed with the statement that “given they are safe, I would be happy using an Autonomous Vehicles all the time”. This represents a significant base of support to build on in the future. Of the overall sample it is once again city drivers, men, younger people and those less attached and in love with driving who are the most open to the idea of adopting usage for Autonomous Vehicles. However it should be noted that 37% of people disagreed with this statement and 22% strongly disagreed.

Figure 8.3 “I Would Be Happy Using AVs All The Time”
Adoption of Autonomous Vehicles

Level of Adoption of Autonomous Vehicles

Overall there was quite an even spread of responses in terms of acceptance of Autonomous Vehicles at a personal level. 18% of people want no automation. 23% of people want only Level 1 automation. At the other end of the spectrum we had 21% of people who might be considered early adopters and want to embrace the technology at Level 5 and another 8% who want Level 4 automation. That also leaves 29% of people who are sitting on the fence – interested but adopting a more wait and see approach.

Looking at how the results break out there is much stronger acceptance of high levels of automation for city drivers at 26% agree. This compares to only 17% for country drives and to 16% for drivers who travel on both city and country roads. This is consistent with overall greater acceptance for city drivers.
Adoption of Autonomous Vehicles

This may not seem like a positive result, but we need to remember that these people have mostly never experienced the technology, don't know its track record of success so far and know very little about how it works.

What does seem evident from the focus group research is that people tend to gravitate to either end of the adoption curve because the middle group has perceived dangers and concerns.

Specifically, people are worried about a half-way house scenario where the AV controls some functions and the driver controls others depending on road conditions or circumstances.

This raises the possibility of unclear accountabilities in critical situations which is something that many people fear. Again, adoption is stronger for city drivers, men, younger drivers and those who don't like driving as much.
Adoption of Autonomous Vehicles

Willingness to Give Up Driving Completely

The ongoing attachment to driving is very evident in responses to this question. Only 28% of people agreed with the statement that they “would be happy to give up driving completely”. Again, it is city drivers (34% agree), younger drivers aged 35-49 (36% agree) and those who don’t love driving (47% agree) who are most interested in moving beyond driving and embracing the AV concept completely.

Willingness to Rely 100% On Ride Share Service

Perhaps surprisingly although the majority of people disagreed with this idea it was not without its adherents. 23% of people agreed with the statement that “I would be happy to rely 100% on a ride share autonomous vehicle service”. Despite this it should be noted that 65% of people either disagreed or strongly disagreed with this proposition. Once again it was city drivers and men who are most interested in following up with this proposition with 28% and 25% in agreement with the idea.
Acceptance of Fully Autonomous Trucks on Our Roads

Interest in accepting fully Autonomous Trucks on Victorian roads was surprisingly high at 40% either prepared to agree or strongly agree. Once again it is city drivers, men and younger people who are more prepared to accept this development. This is an interesting finding. Perhaps there is a view that trucks are not especially safe as they are today in terms of their behaviour on the road.

Acceptance of Fully Autonomous Trams on Our Roads

Acceptance of fully autonomous trams on our roads was slightly higher again, perhaps because trams operate on tracks and so there is possibly less that can go wrong. 49% of people were prepared to accept the idea of fully Autonomous Trams on our roads.
Acceptance of Fully Autonomous Buses on Our Roads

The preparedness of people to accept Autonomous Buses on the road was quite similar to trams and trucks. Overall 41% of people either agreed or strongly agreed with the idea that such vehicles could operate on our roads. Again, it needs to be pointed out that there was also significant lack of acceptance from some people. 49% of people strongly disagree with the idea, which is a not insignificant number.

Interest in Learning More About Autonomous Vehicles

The potential of the new technology is reinforced by the idea that 64% of people either agree or strongly agree with the statement that “I would like to know more about Autonomous Vehicles”. This suggest people are interested and want to be informed about what is potentially coming. Also relevant is that only 12% of people disagree with the proposition that it would be good to learn more about Autonomous Vehicles.
Adoption of Autonomous Vehicles

Level of Comfort Based on Greater Understanding of AVs

For the most part many people do endorse the idea that if they know more they would be more accepting of the technology. 45% of people agreed with the statement that “I would feel more comfortable about Autonomous Vehicles if I knew more.” This was actually a view that was fairly evenly expressed across driving location, gender, age and level of driving attachment. There were however, still 23% of people who did not believe that further education would change their perspective – a minority perhaps but not an insignificant number.

![Figure 8.14 “I Would Be More Comfortable If I Knew More”](image-url)