Dr Gillian Miles
Chief Executive Officer
National Transport Commission
Level 3/600 Bourke St
Melbourne VIC 3000

Dear Dr Miles

The Australasian New Car Assessment Program (ANCAP SAFETY) welcomes the opportunity to provide a submission to the National Transport Commission on the discussion paper: *Government access to vehicle-generated data*.

As Australasia's leading independent vehicle safety advocate, ANCAP has been successful in driving improvements in vehicle safety in Australia for more than 25 years. More than 240 current vehicle models hold an ANCAP safety rating with 95 per cent of all new light vehicles sold in 2019 covered by an ANCAP safety rating. This high level of market penetration, combined with high levels of consumer awareness, positions ANCAP to hold a unique ability to accelerate the provision and market uptake of new vehicle safety features and technologies.

ANCAP agrees with the NTC that road safety is the priority for exchanging vehicle-generated data between industry and government. As such, industry and government should collaborate on identifying opportunities for exchanging road safety data and adopt a principle of non-commercial sharing or exchange of data. ANCAP supports the Opportunity Statement and Problem Statements proposed by the NTC.

To address problems 1 and 2 (i.e. vehicle-generated data is not currently available to transport agencies and there is a lack of data access framework), ANCAP supports Option 2: Establish a data exchange partnership between industry and government that will identify opportunities for exchanging vehicle-generated data as well as develop standards and consider proof of concept. ANCAP, as a member-based organisation without either a regulatory or commercial interest in this area is willing to participate in the development of a data exchange partnership.

To increase the uptake of connected vehicle technology (i.e. problem 3), ANCAP is willing to work with the government and vehicle brands to encourage the introduction of connected vehicle technology. However, ANCAP cautions that relying on the introduction of eCall (or other automated emergency crash notification) may not be the best way to encourage the introduction of connected vehicles as Australia does not currently have the infrastructure in place to utilise eCall.

ANCAP, and our European counterpart, Euro NCAP, both recognise the safety potential of V2V and V2X technologies. However, the benefit can only be realised when there are enough vehicles in-service that can communicate with each other and the infrastructure. Australia has already taken some significant steps with allocation of the 5.9 GHz band and mandating of the ETSI standard EN 302 571 for V2X communications. In addition to encouraging the introduction vehicles fitted with the appropriate technology, road infrastructure owners (e.g. Governments) need to consider investing in the necessary infrastructure to deliver the road safety benefits of V2X technology.

Attached is a short document providing additional information on ANCAP and our current and planned activities in relation to testing and promotion of connected and automated vehicle technologies including.

Yours sincerely

James Hurnall
Interim Chief Executive

2 July 2020

NTC DISCUSSION PAPER: GOVERNMENT ACCESS TO VEHICLE GENERATED DATA

ANCAP BACKGROUND INFORMATION

JUNE 2020

THE ROLE OF ANCAP

The Australasian New Car Assessment Program (ANCAP Safety) is Australasia's independent vehicle safety authority.

ANCAP works within the *Safe Systems* approach to road safety. The *Safe Systems* approach recognises that people do make mistakes and that there are physical limits to the amount of force our bodies can take. Our activities fall predominantly within the *Safe Vehicles* pillar, while also acknowledging our role within the Safe Roads pillar.

ANCAP complements regulation, with its key focus to eliminate road trauma through independent assessment, market influence and consumer advocacy – empowering consumers with information to make safer vehicle choices and encouraging vehicle brands to improve their vehicle designs.

ANCAP Vision
Safer vehicles for all

ANCAP Mission
Work with members and partners to eliminate road trauma through independent assessment, market influence and consumer advocacy.

ANCAP safety ratings are published for a range of new passenger, sports utility (SUV) and light commercial vehicles (LCV) entering the Australian and New Zealand markets, using a rating system of 0 to 5 stars.

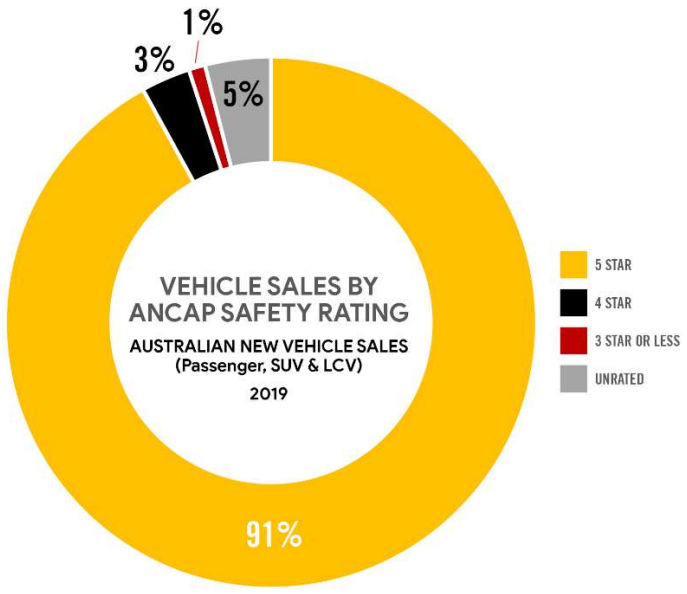

Figure 1 – New vehicle sales by ANCAP safety rating (2019)

ANCAP star ratings indicate the level of safety a vehicle provides for occupants and pedestrians in the event of a crash, as well as its ability — through technology — to avoid or minimise the effects of a crash. These independent safety ratings are used to compare the relative safety between vehicles of similar size in the same market category, and have become a critical factor in vehicle selection for private consumers and business fleet buyers and operators.

ANCAP's safety rating criteria influence vehicle design and specification, and ANCAP has a key role in educating the community, and vehicle fleet managers about new and emerging vehicle technologies; promoting the benefits of new safety technologies; and building confidence and demand.

ANCAP safety ratings are based on a series of internationally recognised, independent crash tests and safety assessments – involving a range of destructive physical crash tests, an assessment of on-board safety features and equipment, and performance testing of automated collision avoidance technologies. ANCAP continuously updates its safety rating criteria to influence and promote new and emerging vehicle safety features as well as to target new aspects of vehicle safety.

ANCAP works in partnership with 24 member organisations including the Australian Government, Australian and New Zealand automobile clubs, State and Territory governments, the New Zealand Government, the Victorian Transport Accident Commission, Insurance Australia Group and the FIA Foundation.

STRATEGIC CHALLENGES FOR AUTOMATED VEHICLES

As part of ANCAP's Strategic Plan 2018-2023, ANCAP has identified the following key strategic challenges associated with introduction of automated vehicles and automated vehicle technology:

Automated driving is not well understood:
Public interest in automated vehicles and technology is high, although public understanding of the capabilities of the new automated technologies is low and often misunderstood.

Connected & automated vehicle technologies & infrastructure working together:
Connected and automated vehicle technology are dependent on road and digital infrastructure supporting the effective function of the technology. For example, many vehicles require "roads that the vehicle can read" such as road markings and signage.

To address these challenges, one of ANCAP's key strategic objectives over the next five years is to be the leading testing and consumer advocacy authority on connected and automated vehicle technology.

ANCAP will meet this objective through providing research, assessment, public advocacy and community education aiming to promote the faster uptake of new automated vehicle safety technology.

Autonomous Emergency Braking (AEB) – light vehicles

Increasing the uptake of new vehicle safety technology, such as autonomous emergency braking (AEB) will play a significant role in reducing crashes and resultant injuries in cities and urban areas.

Many international studies show there is a substantial reduction in crashes in light vehicles fitted with AEB systems:

- 55% reduction in police-reported crashes[1]
- 38% reduction in real world rear end crashes[2]
- 54-57% risk reduction of real-world rear-end crashes in metro areas (35-41% risk reduction in all areas)[3]
- An estimated 46% reduction in rear-end striking crashes[4]

A study conducted by Monash University for the Australian Government's regulatory process to consider mandating AEB concluded the benefits to Australia of AEB [5]:

- Across all light vehicle crashes: 9.69% reduction for fatalities and serious injuries and 8.80% for minor injuries.
- In low speed zones (up to and including 60 km/hr): 12.36% of all light vehicle crash fatalities and serious injuries, and 13.41% of all light vehicle minor injuries.

ANCAP has been testing and evaluating AEB systems for light vehicles in a broad range of daytime and night-time scenarios since 2018. The current and planned scenarios include:

- Car to car rear with target car braking
- Car to car (approaching head-on) with test car turning across target car path (i.e. a typical right hand turn across approaching traffic on a two-lane road
- Car to adult pedestrian crossing vehicle path
- Car to child pedestrian crossing vehicle path

[1] Insurance Institute for Highway Safety (IIHS) & Highway Loss Data Institute (HLDI), USA, 2018
[2] ANCAP, Euro NCAP, DoIRD research by B. Fildes, 2015
[3] ICROBI study by M. Rizzi, A. Kullgren, C. Tingvall, 2014
[4] UMTRI and GM, A. Leslie, R. Kiefer, M. Meitzner, C. Flannagan, 2019
[5] Newstead S., Budd L., Stephens A., The Potential Benefits of Autonomous Emergency Braking Systems in Australia, Monash University Accident Research Centre Report No, 339, January 2020

- Car to adult pedestrian walking towards the car (i.e. to replicate pedestrian walking along the side of the road where there is no separated footpath)
- Car to adult pedestrian where the car is turning at an intersection and a pedestrian is crossing the road
- Reversing car to pedestrian
- Car to bicyclists (both child and adult cyclists)

It is not possible for a passenger car, SUV or LCV to achieve a 5 star ANCAP safety rating without an effective AEB or lane support system.

Figure 2 - AEB Scenarios: Car to car rear, Car to adult cyclist and Car to pedestrian

Future ANCAP testing of Safety Assist technologies

ANCAP was established in the early 1990s, and since then has evolved in line with advances in vehicle safety technology. With the introduction of advanced collision avoidance technology which improves vehicle safety through its ability to avoid or minimise the effects of a crash, ANCAP's forward plan incorporates the testing and assessment of a range of emerging safety technologies.

From 2020, ANCAP (and European counterpart organisation, Euro NCAP) introduced new tests and assessments including:

- Primary (active) safety (crash avoidance):
  - Driver monitoring – to address driver distraction and impairment though alcohol and fatigue.
  - Autonomous Emergency Steering – in-lane steering support.
  - AEB – New AEB crash scenarios (as noted above).

- Secondary (passive) safety:
  - Whiplash testing – will be reviewed to rationalise and simplify testing and assessment.
  - Pedestrian protection – new test tools to yield more realistic test results.

- Tertiary safety:
  - Rescue information – the availability of standardised rescue sheets to assist emergency services.
  - Multi-collision braking – the vehicle applies brakes after a collision, to minimise the risk of a second collision.

Before 2025, ANCAP (and European counterpart organisation, Euro NCAP) plan to continue to expand our tests and assessments in the following areas:

- AEB - Further developments in AEB to include crash scenarios for head-on and reversing accidents.
- V2X Communications – vehicles exchanging information with each other, the infrastructure and other road users.
- Child presence detection - which can detect a child left alone in a car and alert the driver and/or emergency services or take action such as opening windows or activating air conditioning.

Figure 3 provides a timeline for the implementation of these tests and assessment protocols.

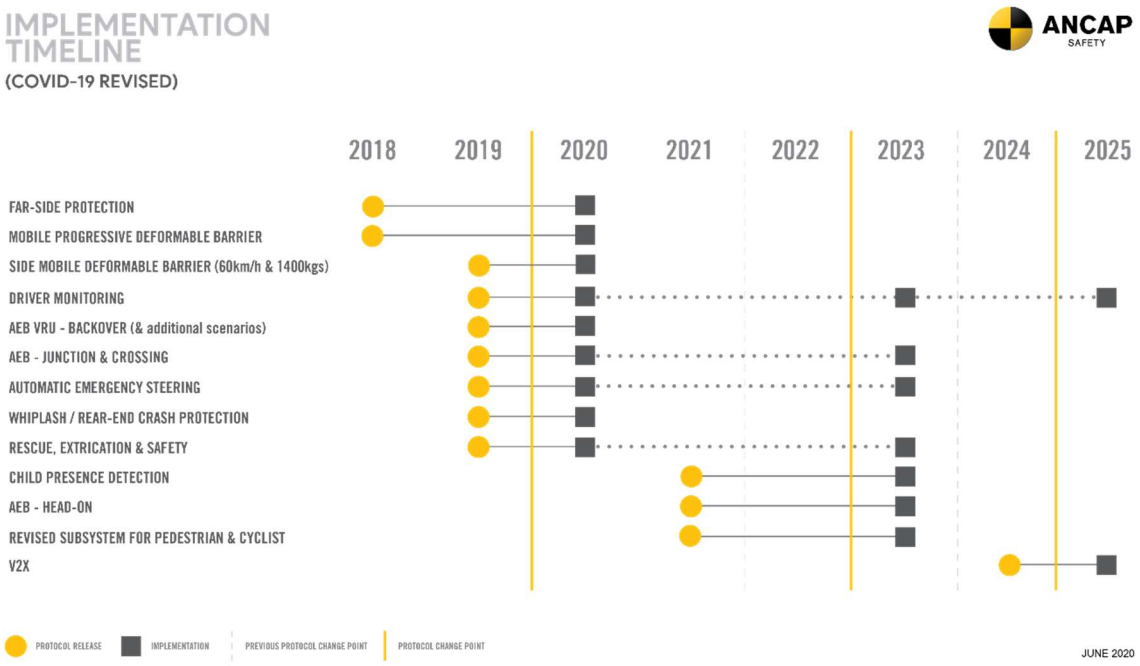

Figure 3 - Implementation timeline for ANCAP testing to 2024

Connected and Automated Vehicles (CAV)

Vehicle technology continues to evolve, and industry is at the beginning of a significant technology change with the introduction of connected and automated vehicles (CAV).

There are automated vehicle technologies already available in vehicles being delivered to the market that assist with some of the driving tasks (both ADAS and SAE Level 1 systems). These include AEB, Lane Support Systems (LSS), Adaptive Cruise Control (ACC) and Lane Keep Assist (LKA). It is expected that vehicles with even more automated systems will be delivered to the market out to the 2030s and beyond.

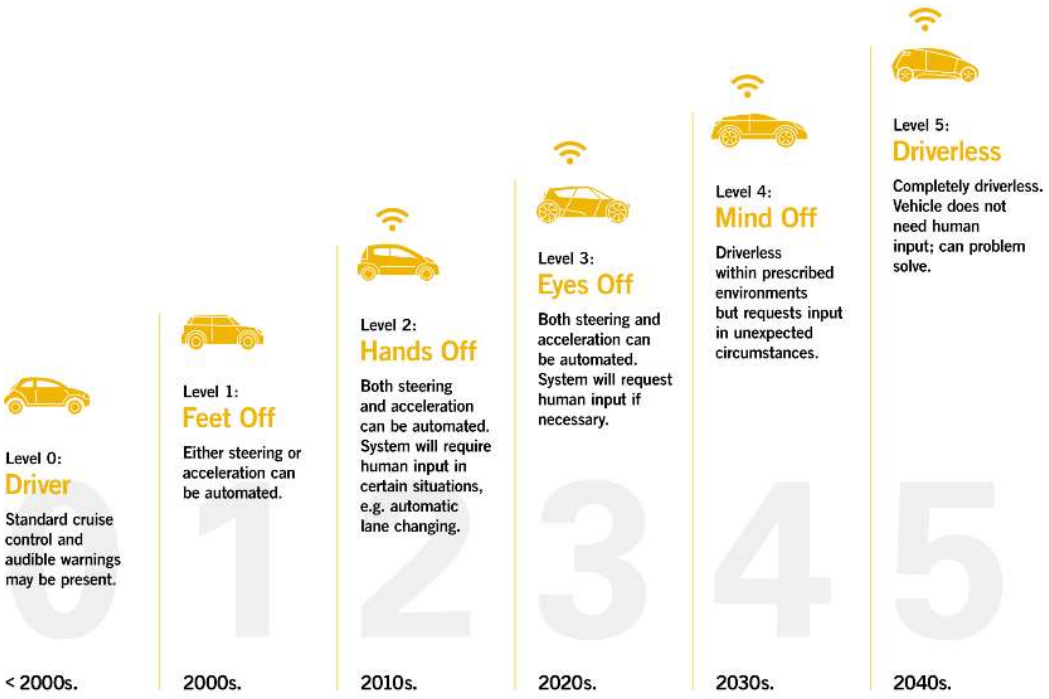

Figure 4 - Timeline for introduction of connected and automated vehicles

Along with increasing levels of automation, vehicles are becoming more connected. There will be many highly automated driving systems (SAE levels 3, 4 or 5) that will require vehicle communications, vehicle to vehicle (V2V), vehicle to infrastructure (V2I) and/or vehicle to other (V2X) communications to deliver the full safety, environmental or community benefit.

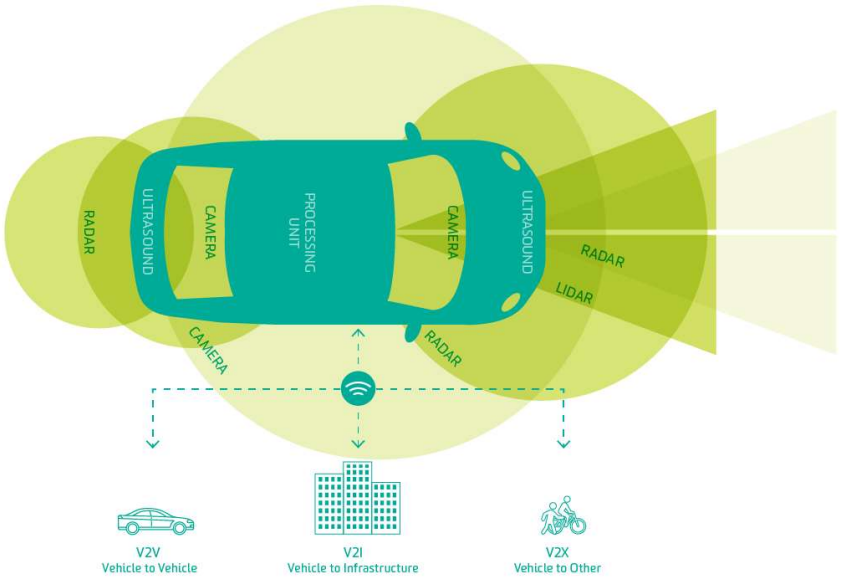

Figure 5 - The Connected Vehicle

New and Future CAV Technology

Vehicle manufacturers and suppliers are continually developing and introducing new CAV technology. Highlighted through the awarding of a Technology Award as part of a high-profile Car of the Year Awards program in the United Kingdom (January 2020), were vehicles that "are not only innovative by today's standards but will also establish new platforms for the future."[6] The safety technologies considered by the award were:

- Subaru 'Driver Focus' Driving Monitoring System
- BMW Drive Recorder
- Land Rover Ultra-Wideband radio technology for keyless entry
- Mazda Driver Monitoring (Mazda 3 and CX-30)
- Mercedes-Benz Route-based Speed Adaption
- Volkswagen Car2X communication (VW Golf)

See **Attachment A** for an explanation of each technology.

In the future, a car will have many different CAV technologies and a vehicle may utilise many different technologies (different SAE Level systems) across a single journey.

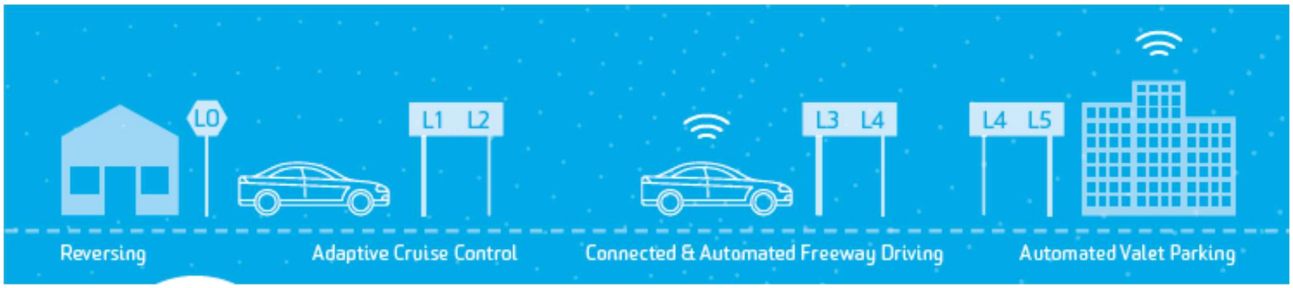

Figure 6 - A CAV may operate across many levels during a single journey[7]

[6] Thatcham Research What Car? Awards 2020, www.thatcham.org/what-we-do/what-car-awards-2020 [accessed 20 January 2020].
[7] ARRB, A Roadmap to Automated Vehicles, www.arrb.com.au/autonomous-vehicles-cav [accessed 16 September 2019].

The European Union 112-based eCall

The European Union (EU) have introduced eCall with requiring the mandatory fitting of 112-based eCall in-vehicle system on all new passenger cars, SUVs and LCVs from 31 March 2018. The EU eCall system is limited to record only the position and direction of the vehicle just before a crash and transmitting this data to emergency call centres if there is a serious crash. The eCall is activated automatically as soon as in-vehicle sensors and/or processors (e.g. airbag triggering sensor) detect a serious crash.[8]

While the EU eCall is a step in the direction of the "connected" vehicle, the limitations to assist with improving road safety as identified in the discussion paper include:

- eCall is a single one-way transmission of a limited dataset from the vehicle to infrastructure (V2I) using the cellular network to a set number, i.e. the emergency 112 number.
- eCall cannot receive data.
- eCall does not transmit data between vehicles, or to/from other road users (e.g. pedestrians, cyclists)

From 2020 Euro NCAP introduced a requirement for eCall within their protocols. ANCAP decided to delay the introduction of eCall within our 2020 Rescue and Extrication protocols as Australia currently does not have the infrastructure in place to utilise eCall.

AUSTRALIA'S LEADING TESTING AND CONSUMER ADVOCATE ON CAV

As Australasia's leading independent vehicle safety advocate, ANCAP plays a significant role in influencing the design and specification of new vehicle models offered in Australia through its non-regulatory approach to safety testing. This is achieved through direct consultation with the automotive industry and ongoing consumer engagement activities.

ANCAP recognises that it has a national leadership role and in recent years has broadened its assessment to include effectiveness testing of automated vehicle technologies including autonomous emergency braking (AEB) and lane support systems (LSS).

Currently ANCAP's activities in relation to Advanced Driver Assistance Systems (ADAS) and Connected and Automated Vehicle (CAV) technology are focused on enhancing safety of new light vehicles through the encouragement of new vehicle ADAS safety technologies such as autonomous emergency braking (AEB) and lane support systems (LSS). This is achieved by independent testing and assessment of these ADAS technologies to build confidence among consumers, regulators and industry.

ANCAP, and our European counterpart, Euro NCAP, recognise the safety potential of V2X technologies. However, the benefit can only be realised when there are enough vehicles in-service that can communicate with each other and the infrastructure. Australia has already taken some significant steps with allocation of the 5.9 GHz band and mandating of the ETSI standard EN 302 571 for V2X communications. In addition to encouraging the introduction vehicles fitted with the appropriate technology, road infrastructure owners (e.g. Governments) need to consider investing in the necessary infrastructure to deliver the road safety benefits of V2X technology.

ANCAP's assessment will continue to expand to include other CAV technology. From 2020 ANCAP has expanded to test and/or assess driver monitoring systems (DMS) and automated emergency steering (AES). ANCAP plans to expand its testing and assessment to new and emerging ADAS and CAV technologies including V2X technologies. To encourage the availability of V2X technology in the vehicle, ANCAP (in alignment with Euro NCAP) will consider new incentives to be introduced into the rating scheme. The range of V2X topics under consideration include V2X functions, real-time maps, over the air updates, cybersecurity and privacy and data ownership.

SUMMARY

As Australasia's leading independent vehicle safety advocate, ANCAP has been successful in driving improvements in vehicle safety in Australia for more than 25 years. More than 240 current vehicle models hold an ANCAP safety rating with 95 per cent of all new light vehicles sold in 2019 covered by an ANCAP safety rating. This high level of market penetration, combined with high levels of consumer awareness, positions ANCAP to hold a unique ability to accelerate the provision and market uptake of new vehicle safety features and technologies.

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[8] European Commission, Mobilty and Transport, Intelligent transport systems, The interoperable EU-wide eCall https://ec.europa.eu/transport/themes/its/road/action_plan/ecall_en, [accessed 1 July 2020].

ATTACHMENTS

ATTACHMENT A: What Car? Technology Award 2020

ATTACHMENT A

What Car? Technology Award 2020[9]

SUBARU FORESTER DRIVERFOCUS

Subaru's 'DriverFocus' Driver Monitoring System (DMS) has been named as the winner of the 2020 What Car? Car of the Year Technology Award, ensuring driver vigilance remains centre stage at a time when automated technology is changing the relationship between motorists and their vehicles. Subaru's DriverFocus system features a dashboard-mounted camera and infrared sensor which uses facial recognition software to monitor eye movements while driving. The system detects if the driver tries to use their mobile device, if their gaze is wandering, or if they are falling asleep. It sounds a warning alert which gets louder the longer the situation endures.

BMW DRIVE RECORDER

Runner up for the Thatcham Research-sponsored What Car? Technology Award is the BMW Drive Recorder. It uses integrated cameras to record video footage from different points around the vehicle, before saving them for USB export or later viewing on the control display. In the event of a collision, footage of the 20 seconds leading up to impact – and the 20 seconds after it – is saved automatically, providing video evidence of the incident.

LAND ROVER'S ULTRA-WIDEBAND RADIO TECHNOLOGY FOR KEYLESS ENTRY

Land Rover's ultra-wideband radio technology is employed on its keyless entry system.
The technology, currently featured on its Discovery model, employs ultra-wideband (UWB) technology to counter the threat of relay attacks. Keyless-car thieves can use digital devices to relay signals from car to key fob, tricking the vehicle into thinking it is in close proximity. UWB tech uses a wide range of frequencies to transmit the codes needed to unlock the doors and start engine, giving thieves little chance to lock onto the signal and fool the vehicle.

MAZDA DRIVER MONITORING ON MAZDA 3 AND CX-30

Part of the wider I-ACTIVSENSE array of safety technology, uses infrared camera and LED technology to monitor the driver's eye width, blink rate, and facial expressions to determine levels of drowsiness and fatigue. Also monitors the driver's line of sight and eye movements to assess whether they are paying attention to the road. Driver Monitoring sounds a warning alert if the situation becomes dangerous and will activate automated features such as braking to address the problem.

MERCEDES-BENZ ROUTE-BASED SPEED ADAPTATION ON VARIOUS MODELS

Uses map data to anticipate bends, roundabouts and junctions by slowing the vehicle to appropriate speeds. Once navigated, the vehicle accelerates back up to speeds pre-set by the driver. Integration with Active Distance Assist maintains a safe distance from vehicles in front.

VOLKSWAGEN CAR2X COMMUNICATION ON GOLF 8

Exchanges road data with all Car2X-equipped vehicles within 800 metres, irrespective of make and model. Combines with information from road infrastructure, such as traffic lights, to warn drivers of upcoming hazards and give current traffic updates.

VOLKSWAGEN EMERGENCY ASSIST ON VOLKSWAGEN ARTEON

Integrates Adaptive Cruise Control, Side Assist, Lane Assist and Park Assist functions to bring the car safely to a standstill in the event of driver blackout. Before taking action, Emergency Assist attempts to rouse the driver with brake jolts, steering jerks and by sounding an alarm.

[9] Thatcham Research What Car? Awards 2020, www.thatcham.org/what-we-do/what-car-awards-2020 [accessed 30 June 2020].