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National Transport Commission
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SAFETY ASSURANCE FOR AUTOMATED DRIVING SYSTEMS: CONSULTATION REGULATION IMPACT STATEMENT

Transport Certification Australia (TCA) welcomes the opportunity to contribute to the consultation process for the safety assurance for automated driving systems in Australia, in particular this response to the NTC's *Safety Assurance for Automated Driving Systems Consultation Regulation Impact Statement* (May 2018).

Overall, TCA is very supportive of the NTC's considerations, analysis and recommendations contained within the consultation RIS, believing that they reflect a very balanced perspective that is respectful of the breadth of competing needs and motivations that exist within the industry and community.

TCA's responses to the specific questions posed by the NTC within the consultation RIS are provided in the following pages, but firstly a number of general comments are offered relating to areas adjacent to, but not specifically mentioned by, the consultation RIS.

It is acknowledged that the separation within the national agenda of automated driving systems (ADSs) from co-operative intelligent transport systems (C-ITS) and connected vehicles (CVs) is not of the NTC's doing.

However, TCA strongly recommends that the approaches to regulatory, governance and assessment frameworks for these interrelated aspects of future mobility be combined under a unified approach – *particularly with respect to cybersecurity* – as these technologies will further converge and evolve as connected and automated vehicles (CAVs). The consideration of options, criteria, obligations, methodology and assessments therefore needs to consider connectivity and automation as two sides of the same coin.

TCA largely subscribes to the European Commission's view (previously acknowledged by the NTC) that there are key aspects of connected and automated vehicles that 'should be approached horizontally' – namely, those related to security and connectivity. In principle, TCA believes that adopting a holistic approach would be both beneficial, and greatly align with developments overseas.

It may therefore be in the NTC's interests to take the opportunity to bring some much-needed attention to what will be coexisting and potentially overlapping concerns from regulatory, governance and compliance assessment perspectives; either by clearly articulating the boundaries of what they envision as two separate regulatory frameworks, or by scoping (or by noting, with a view to the future) a more holistic framework.

This is highly applicable when developing options for the regulation of government access to data generated and collected by ADSs – options that must balance road safety, network efficiency and traffic law enforcement outcomes against sufficient data privacy protections for users.

As CAVs will ingest and merge data not only from their ADS sensors, but also from connected infrastructure (signal status, local road rules), other vehicles (vehicle alerts) and other road users (vulnerable road user alerts) to make sophisticated dynamic driving decisions, a *unified approach* to data access is essential.

The National Telematics Framework (NTF) is a contemporary digital business platform describing infrastructure, rules and administrative arrangements that deliver public outcomes sought by governments while managing private interests of individuals and organisations. This established, operational Framework provides the capability described in 4.4.1 of the RIS, i.e. where "data is provided in a standardised, readable and accessible format when relevant." The NTF should therefore be leveraged rather than reinvented.

TCA's responses to the specific questions posed within the consultation RIS follow.

Q1 (p22): To what extent has the consultation RIS fully and accurately described the problem to be addressed? Please provide detailed reasoning for your answer.

The problem statement is considered to be accurate and well described. In particular, TCA concurs that "The presence of these market and regulatory failures, and the expectations of Australian communities and industry to address them, show that government intervention is warranted."

The NTF recognises four competing forces: policy, technical, operational and commercial. Drawing parallels between the NTF and the three key problem risks expressed in the RIS, we find that these describe safety (technical/operational), uptake (operational/commercial), and consistency and certainty (policy/commercial). Thus, TCA finds the considerations for a complete and effective regulatory environment to be well balanced.

Q2 (p22): What other factors should be considered in the problem statement?

The commercial dimension could potentially be made more explicit in the third risk statement, i.e. "ADSEs will face inconsistent, uncertain and/or disproportionately costly regulatory barriers to the supply of ADSs in the Australian market".

Q3 (p23): Has the consultation RIS provided sufficient evidence to support the case for government intervention? What else should be considered and why?

Yes, not only has the NTC's (and others') prior work in Australia determined this to be appropriate domestically, many other leading regions have similarly concluded that some government oversight and regulatory framework is in the best interests of their populace.

To achieve readiness within the target timeframes, government leadership will be critical in establishing clear and unambiguous responsibilities for agencies and industry. Where more than one entity has authority, boundaries and interactions need to be well-defined and transparent, especially without a common approach to the regulatory, governance and assessment frameworks for connectivity (C-ITS) and automation (ADS).

Critically, the NTC has highlighted important non-technical market factors requiring assurance. TCA concurs that "Without specific safety regulation and effective after-market mechanisms (such as insurance and legal liability), there is a risk of market failure to deliver a socially desirable level of safety risk management."

Q4 (p23): To what extent have the community and industry expectations of a regulatory response been accurately covered?

TCA consider these expectations and responses to be well covered.

Q5 (p32): Are the four options clearly described? If not, please elaborate.

Yes, TCA believes the four options are sufficiently well described for the purposes of the RIS comparison and assessment. (Obviously more detail will be required in later considerations.)

Q6 (p37): Are the proposed safety criteria and obligations on ADSEs (detailed in chapter 4 and Appendix C) sufficient, appropriate and proportionate to manage the safety risk?

TCA recommends extending the scope of the On-Road Behavioural Competency safety criteria to explicitly include predictable and safe interaction with non-automated vehicular (e.g. human-driven cars) and non-vehicular (bicycle, pedestrian, etc) road users. This is consistent with the European Commission's strategy that ensures the broadest range of road safety considerations (e.g. mixed traffic, interaction with other road users) are fully considered.

Similarly, the Minimal Risk Condition safety criteria would benefit from being extended to explicitly include scenarios where the ADS may be unable to operate safely due to detection of potential malfunction (internal fault sensing) and misbehaviour (including intrusion detection, data breach or physical tampering), rather than only external driving environment constraints.

TCA's operational experience with telematics and related intelligent technologies attests that explicit management of risks related to malfunction or misbehaviour is a critically-important element in ensuring reliable, safe and predictable operation.

Lastly, as an adjunct to criteria related to the human-machine interface (which facilitates interactions between the ADS and users to allow the vehicle to operate safely), consideration should be given to equivalent criteria related to machine-machine interfaces, such as C-ITS.

Since it is not an unreasonable assumption that an ADS capable of meeting the assessment criteria will likely also be utilising C-ITS technology, there should be criteria added which facilitates interactions between the ADS and connected infrastructure, vehicles and other road users to allow the vehicle to operate safely, i.e. that the ADS interacts safely, and in a standards-compliant manner, with the C-ITS ecosystem.

Q7 (p37): Are there any additional criteria or other obligations that should be included?

TCA recommends that an additional 'other obligation' be added to those in section 4.4 to require the applicant to demonstrate its commitment, readiness and methods for vulnerability reporting and disclosure to an appropriate agency or industry association. Similar vulnerability reporting/disclosure policies have been effective in other sectors and would likely benefit the ADS industry.

Such an approach would ensure that industry (or even public) knowledge of known issues or vulnerabilities are not suppressed due to political, commercial or other pressures – so that safety concerns are primary.

Q8 (p43): Do you agree with the impact categories and assessment criteria? If not, what additional impact categories or assessment criteria should be included?

The categories and criteria appear to be well balanced and fit for purpose.

In particular, TCA's practical experience in managing the NTF confirms that a clear, consistent and national regulatory approach is paramount to fostering an innovative and sustainable open technology market. It has often been said of this industry that "*nothing happens without clear signals from government.*"

TCA therefore strongly concurs that "There is evidence that government regulations affect business confidence, which in turn may affect their willingness to enter or stay in a market", and "Evidence suggests that inconsistent or uncertain regulation – whether across Australian states and territories or between Australia and other countries – may slow or deter entry to the market, which would delay the widespread use of automated vehicles in Australia."

Q9 (p44): Has the consultation RIS captured the relevant individuals or groups who may be significantly affected by each of the options? Who else would you include and why?

Beyond what the RIS presents, TCA believes that flexibility and responsiveness is also expected to have a significant positive impact on the general public (through emergent in-service safety risks and hazards being more well managed), and enforcement and insurance services (through incidents or unsafe behaviours being consistently investigated under primary safety duty powers to identify cause and culpability).

Q10 (p49): Does our analysis accurately assess the road safety benefits for each reform option? Please provide any further information or data that may help to clearly describe or quantify the road safety benefits.

Yes, TCA considers the road safety benefits to be accurately assessed.

Q11 (p49): What additional safety risks do you consider the primary safety duty in option 4 would address compared with option 3?

By their nature, these additional safety risks are largely unknowable at this time and emergent as ADS technology is deployed and develops further. That makes the primary safety duty a significant component beyond a prescriptive set of criteria self-assessed at a single point in time.

Q12 (p50): Does our analysis accurately assess the uptake benefits for each reform option? Please provide any further information or data that may help to clearly describe or quantify the uptake benefits.

Currently Table 8 states that options 3 and 4 would provide the same level of improvement in "community assurance that automated vehicle safety risks have been comprehensively addressed" over option 1.

However, TCA asserts that community assurance of ADS safety would be further improved by option 4, with the knowledge that potentially emergent in-service risks are also managed through the regulatory framework, not just those conceived at a particular point in time.

Q13 (p54): Does our analysis accurately assess the regulatory costs to industry for each reform option? Please provide any further information or data that may help to clearly describe or quantify the regulatory costs.

On p54 of the RIS, the NTC proposes that, "While option 3 would provide a more streamlined administrative process than options 1 and 2, it also introduces new administrative costs relating to maintaining compliance with the Statement of Compliance".

However, TCA asserts that it would also reduce or remove administrative costs relating to applying for an exemption from the ADRs and assessment under multiple, varying state/territory-based processes. Has this element been factored into the analysis?

Q14 (p54): Are there any specific regulatory costs to industry that we have not considered?

Regulatory costs to industry otherwise appear to be well considered.

Q15 (p56): Does our analysis accurately assess the costs to government for each reform option? Please provide any further information or data that may help to clearly describe or quantify the costs to government.

It is acknowledged and agreed that significant uncertainties exist around the potential regulatory costs to government – but adding to this uncertainty is the blurring of two types of factors: those influencing the total cost, and those influencing the degree of cost recovery. These are related but better considered stepwise.

Rather than attempting to assess the impacts of regulatory costs to industry and regulatory costs to government separately, TCA suggests that it seems prudent within the qualitative constraints of the consultation RIS to instead consider the impacts of the collective costs (and make an assessment based on collective costs versus collective benefit), *and then* subsequently propose a range of cost recovery model options that apportion industry and government costs according to the level of market stimulation desired to drive uptake – driven by policy decision, rather than commercial constraint.

The RIS acknowledges that "these costs are likely to be recovered from ADSEs through fees and charges" (pp55-56), however any such cost recovery model requires substantial policy development. TCA's 'Triple-A' model is a current example, apportioning costs for delivery of the NTF to the beneficiaries of its outcomes.

The NTC's assessment also describes uncertainty regarding the regulatory costs to government for option 4, stating "The option could result in an improvement or decline compared with the baseline option". Again, TCA asserts that option 1's duplication of non-standard vehicle assessment processes and registration systems across states and territories would be significantly costlier than a national agency administering an ADS safety assurance system, based on its experience with nationally administering the use of telematics.

TCA's assertion is supported by statements earlier in the RIS, on p22: "The certification exemption system is inefficient and unworkable for small companies. Conditional registration is different in every state and territory, and this is a barrier. The split between state and federal vehicle regulation is a regulatory burden because ADRs and conditional registration create two layers of potentially inconsistent regulation. There needs to be a nationally consistent approach."

Lastly, the RIS states "Option 3 does, however, present somewhat greater certainty around regulatory costs than option 4" – but the justification for this is unclear to TCA. Appendix F suggests this is due to costs of investigating and enforcing breaches of primary safety duty. It should be noted that without a primary safety duty, the costs of post-examination for road safety incidents (in order to establish cause and culpability) still exist. They are instead borne elsewhere, and likely at a much higher total cost if inconsistently managed.

Taking whole-of-government/economy perspective, these costs can either be borne by enforcement agencies, insurers, and individuals taking legal action against an ADSE due to personal injury or loss; or they can be borne (and either directly or indirectly recovered) by a national agency empowered to investigate and enforce breaches of the primary safety duty.

The latter is considered to be more consistent, systematic and far more cost-effective (overall) than the former – while providing much greater assurance to industry and the public that they will be financially protected (rather than potentially financially ruined) should a breach of the primary safety duty occur.

Q16 (p57): Does our analysis accurately assess the flexibility and responsiveness for each reform option? Please provide any further information or data that may help to clearly describe or quantify the flexibility and responsiveness of the options.

Yes, TCA considers the flexibility and responsiveness benefits to be accurately assessed.

The 2020 timeframe is agreed to be highly challenging. TCA would therefore advise that Australia looks closely at, learns from and adapts current regulatory assessment frameworks and governance arrangements (such as the NTF) rather than starting with a blank page. There are aspects we don't need to – *and can't afford the time or cost to* – reinvent.

Q17 (p65): Do you consider the relevant factors and conditions for government in choosing an option to be valid? Are there any factors and conditions you do not agree with?

Yes, the relevant factors presented are considered by TCA to be valid and sufficiently multi-faceted.

Q18 (p65): Do you agree with our view on the relevant factors and conditions for government in choosing an option?

Yes, the most critical factors relate to the timeframe for Australia to achieve readiness (given that uptake will likely be too fast to put a stop-gap in place for initial arrivals, and then hope to plug the gaps later – *we need something sustainable in place from day one*), the relentless evolution this technology will undergo, and the risks that will emerge during that evolution (risks that are, by their very nature, unknowable today).

As articulated by the NTC, only option 4 strikes this balance.

Q19 (p66): Has the consultation RIS used an appropriate analytical method for assessing the benefits and costs of the options? What else should be considered?

Given the recognised inability to use more quantitative methods at this time, the analytical method for assessing the benefits and costs of options seems sufficiently robust.

Q20 (p66): On balance, do you agree that the preferred option best addresses the identified problem? If not, which option do you support?

TCA supports option 4. Our practical experience in administering the NTF clearly informs us that the more flexible, proactive and in-service-centric aspects of the inclusion of a primary safety duty is an essential element of managing risk within a rapidly-evolving technology and industry, whilst jointly encouraging innovation and respecting commercial sustainability.

It is recognised that attributes of option 4 are directly comparable to TCA's administration of providers of Level 3 Assurance applications within the NTF, i.e. those where legislative provisions underpin approval powers (such as the Intelligent Access Program, Intelligent Speed Compliance, On-Board Mass, etc).

For these applications, our oversight for approval (and as necessary, re-approval) varies as a function of the specific requirements and the associated risks, such that:

- low-risk elements are industry assessed without the need for provision of substantiated information
- medium-risk elements require the provision of evidence of industry in-house/test-house testing or assessment, and
- only high-risk elements require first-hand testing, inspection or assessment by the approver.

Such a risk-based approach maturely balances policy (risk appetite), technical, operational and commercial factors within a rapidly-evolving technology and industry – in other words, TCA is demonstrating the practical viability of an approach consistent with the NTC's recommendation of option 4.

Q21 (p66): How does your choice of option better address the problem than the preferred option?

As TCA supports the NTC's recommendation of option 4, this question is not applicable.

Conclusion

TCA would be pleased to discuss any or all of these matters further with the NTC, particularly our operational experience developed through the practical management of the National Telematics Framework over nearly a decade, and how facets of that framework give practical evidence of viability to the concepts and options proposed by the RIS.

TCA thanks the NTC for the opportunity to contribute to the consultation process on the safety assurance for automated driving systems in Australia.

Should you have any queries, please feel free to contact Philip Lloyd, General Manager Implementation, by email at philipl@tca.gov.au or by mobile on 0472 828 989.

Yours sincerely,

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