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Attn: Office of Future Transport Technology

Principles for National Approach to Cooperative Intelligent Transport Systems

Referring to the request for views from the DITRDCA dated 03rd Jan 2023, herewith our response to the questions that were conveyed as part of this industry engagement:

1. Are principles for a national approach to C-ITS in Australia necessary? And if so, are the draft principles, as articulated, sufficient to inform investment by industry in C-ITS?

Kapsch response:

Kapsch understands these principles to be necessary for C-ITS for road safety and collision prevention in future automated driving environments. Road operators are vital to the functioning and framing of these principles. Given the system is not proprietary and must not be, these principles are necessary for the following reasons:

- A. Interoperability: All vehicles On Board Units (OBU) & Road Side Units/Stations (RSU) that are part of the system have to be able to communicate with and understand each other.
- B. Backward compatibility: Vehicles and RSU of the first generation deployment have to be understood by future vehicles and RSU deployments. Vehicles OBUs and RSUs have long life cycles that C-ITS must adapt/align to.
- C. A single security authentication system: if all C-ITS units OBUs and RSUs can talk to each other, they also need to know that they can trust each other. The EU has similar policies that are implemented under the auspices of the Joint Research Centre in Ispra Italy (Refer https://transport.ec.europa.eu/system/files/2018-05/c-its_certificate_policy-v1.1.pdf & https://transport.ec.europa.eu/system/files/2018-06/c-its_security_policy_release_1.pdf).
- D. Sufficient radio spectrum to be made available.
- E. Co-existence and proper functioning of C-ITS and Tolling (Road User Charging) systems to be ensured.

Kapsch advises that these principles need to account for and consider how to best work with or integrate road users, vehicles and organizations aligned with non-European standards (e.g., C-V2X) in future. As stated in the draft principles, potential to use C-V2X for other use cases that

add benefit to users and society should also be considered, while accounting for the adverse effects of a “mixed-technology approach” delivering the same services.

2. Over the next 5 years, to what extent does your organisation anticipate moving into a C-ITS role or increasing its involvement in C-ITS?

Kapsch response:

Kapsch has been and continues to actively contribute to and invest in the C-ITS domain (more than 15 years now). We see ourselves as a provider of comprehensive end-to-end solutions, powerful platforms and critical services in C-ITS. Being a European based company, with decades of experience building, deploying and supporting solutions in C-ITS, Kapsch envisions itself as a leader in this space, providing industry direction, consultancy and services now and in the future.

Through projects and trials with state governments, Kapsch is keen to increase involvement in C-ITS across Australia. We believe we are in the best position to leverage our proven technology, skills and resources to work with government and industry to ensure the right outcomes are achieved in alignment with agreed upon goals.

3. How might C-ITS impact other vehicle connectivity systems in Australia, including vehicle/original equipment manufacturer (OEM) connectivity, vehicle/cloud connectivity, heavy vehicle telematics systems, mapping systems, etc?

Kapsch response:

C-ITS complements cloud based connectivity for future automation. Cloud systems today are used to processing large amounts of data (e.g., map updates). C-ITS on the other hand, enables collision prevention, requiring split-second transactions (low latency) & small amounts of data. C-ITS enables road operators to interface with vehicles directly without any intermediate system, thereby improving real-time information capabilities and data availability, security with focus on authenticity and overall control for quality of service.

- 4. The draft Principles include a focus on cooperation across industry, government, the research sector, and the community: what structures would be necessary to support the development of an Australian C-ITS system?**

Kapsch response:

A set of rules is necessary to enable interoperability, backward compatibility and security. The security component requires a security PKI (Public Key Infrastructure), also known as Security Credential Management System (SCMS). If these principles are to work across state borders, federal legislation is key. Australia could benefit from following Europe's ITS Directive for framing these laws. Also the C-ITS station facility is proven also very valuable for start small scalable systems which can operate standalone but being able to be interfaced to live Traffic Management Systems or to Traffic Light Controllers during their future life cycle.

A common standard to work would be critical & compulsory. A national body that is in charge of ensuring that the interoperability standards is implemented throughout the states from an infrastructure, legal & technology point of view. Ensuring that the discussion is not limited to vehicle technology only, but also incorporates the multimodal ecosystems, which would involve both a controlled testing environment and an on-road live testing environment. This would ensure that the standards are both inclusive of all modes from a technical, operational and safe practicable point of view for which a certification standard/protocol need to be strongly considered.

- 5. After the Principles, what next steps do you think would be most productive?**

Kapsch response:

Establishment of security infrastructure, principles and technology by applying one PKI/SCMS or multiple trusted such systems that cover C-ITS serving the entire Australian continent. This aligns with the implementation in Europe giving it a lead over C-ITS ecosystems in USA or South Korea by proving to be a key enabler. Based on experience, Kapsch recommends the use of a harmonisation open platform similar to C-ROADS to define the core interoperability rules and set of standards and maintain those artifacts and process including the functional/services roadmap all for authorities, road operators, municipalities and OEMS.