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Michigan-Australia Exchange (MAX) in Mobility

Stages of Innovation in Mobility Systems

Communique of the August 30, 2019 University of Melbourne summit *Transformational Technology for Cities and Regions*

Prepared by

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Through several workshops and reciprocal visits, the MAX partners have identified a unique footprint for collaboration, based on partner strengths, a quest for global best practice and examination of current knowledge gaps.

The August 2019 Melbourne summit focused on the grand challenge of new-generation on-demand, multimodal transport services enabled by connected and automated technology. Such mobility systems, envisaged for people and freight, combine several hot topics in transport, including connected and automated vehicles (CAV), data gathering and sharing, mobility as a service (MaaS), shared mobility, and multimodality. System fundamentals require the higher levels of vehicle automation and connectivity operating as part of an overall transport system that has the citizen at its centre. *We term this bundle of enabling technologies CAV 2.0.* The growth of CAV 2.0 mobility services is expected to occur via a number of avenues, including professionally-managed CAV fleets that provide rides and deliveries on demand; and first and last mile solutions interfacing with mass transit. *CAV 2.0 is not seen to represent a new era of privately-owned automobiles.*

The tremendous CAV developmental effort is evidenced by generational disruptions in the worldwide automotive industry. It is essential for manufacturers to assure safe operation at the higher levels of automation, leading to large testing programs. For much of this effort, public roads are being used and governments are playing an assistive, rather than a prescriptive, role. This collaborative approach to the rollout of the CAV 2.0 ecosystem is made possible by a commonly-held belief in pre-emptively safe roadway operations. Safety at an otherwise-unattainable level is an indisputable driving force behind CAV 2.0.

MAX will therefore continue to focus primarily on higher levels of CAV deployed in mobility services. Nevertheless, we include the lower levels of vehicle automation - currently being marketed in an incremental manner by the automotive industry – because they offer immediate, but more modest, safety improvements.

In recognition of the primacy of the manufacturer of the Automated Driving System (ADS) in CAV 2.0 safety evaluation – and the multi-faceted global effort underway – MAX will avoid duplication and will direct attention to critical adjacent issues. These include the collection and sharing of data, the availability of public domain data, workforce capacity, and workforce development, especially for cybersecurity. We will also work to raise awareness of the impact of AV 2.0 on traffic efficiency – currently receiving much less attention world-wide than safety evaluation.

CAV 2.0 is in its early stages of development, and multiple strands of its development lack transparency to important parts of the CAV 2.0 ecosystem. While the ADS industry is taking on major responsibilities, the public and academic sectors lack clarity with respect to impactful roles they should play.

The road to CAV 2.0 is long, with many issues and decision points. Given the longevity and complexity of the effort, there is tremendous value in illuminating stages of progress with stories from all sectors. MAX has an excellent opportunity to shine a bright light on CAV 2.0 progress in diverse environments. We have identified the following aspects of “CAV 2.0 probing” as appropriate to MAX’s interests and abilities.

1. More insight into world-wide progress with CAV 2.0 safety assurance

What are the expectations? What are the roles? What are the available indicators? What will make sense to public agencies?

2. More structured thinking on the impact of CAV 2.0 on traffic and transport efficiency

How is this issue being approached in different jurisdictions? What will our future network need to look like?

3. Better articulation of data systems for public agencies

What will be the early indicators of CAV 2.0 in action?

4. Impactful roles for public agencies

How will public agencies create the appropriate enabling environment (given the likely benefits the technology will deliver) while also ensuring that society’s expectations are met around safety, cybersecurity, data privacy, etc? How are public agencies engaging with ADS manufacturers? What are they seeking? What do they have to offer?

5. Collecting CAV 2.0 stories of user experience

What are their early uses of CAV 2.0? What are the users saying?

6. Emerging needs for public sector workforce capacity

As the public sector role clarifies, what new workforce needs arise?

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