# SIP-adus Workshop 2020. SAKURA Safety Assurance Breakout Workshop

[Date & Time] November 12<sup>th</sup> (Thu), 2020. 20:00~22:00 (Japan time) [Place] Virtual event
 [Participant number by Affiliation] 41 participants representing 11 countries (Detailed list at the bottom)
 [Organizing team] Sandra Watanabe (Organizer), Jacobo Antona-Makoshi (Moderator), Satoshi Taniguchi (Lead)

## [Executive Summary]

A two-hour online workshop on AD safety assurance was successfully organized by the SAKURA Project as a side event of the SIP-Adus Workshop 2020. The aim of the workshop was to share and discuss key scientific and technical aspects, currently under consideration, within the safety assurance related international regulatory and standardization activities. The workshop included 4 short live presentations (see table below), followed by a one hour discussion, divided into three main topics.



Figure 1. Short presentations at the SIP-Adus SAKURA AD safety assurance workshop

### [Discussion Topic 1] Level 3 on Highways: what to expect in the next 2-3 years

- The Japanese government announced yesterday (Nov 11, 2020) the approval of the first vehicle model with Level 3 automation (Traffic Jam Pilot) on Japanese Highways. This officially marks the start of the race to release car automation technologies on Japanese roads.
- In the US, the regulatory landscape is very different to many other countries since there are no federal
  regulations in place. If the state regulations do not impede it, cars equipped with Level 3 automation
  technologies can be sold with few restrictions. In that case, as opposed to safety regulations, perhaps nonregulated safety assurance approaches may be more relevant in the US.
- In the UK there is a strong impetus for driver education and communication with the public, which might become key to enhance public understanding, social acceptance, and safety. Similar ongoing activities in the US with *PAVE* and in France with *The Mobility Debate* are also held.
- In Germany, several OEMs have announced the release of level 3 automated vehicles on highways for 2021; albeit there are no known specific announcement for Traffic Jam Pilot approval at this time. Nevertheless, the technology is ready and the German policy makers concur, hence it is a matter of weeks/months before official announcements may be expected, notwithstanding there are also government declarations which push to lead AV deployment in urban environments in the near future.
- In the EU, OEMs might be waiting to see what will happen. AVs are also seen as a possible contributing factor to re-activate the economy, whilst conservative and skeptical perspectives remain present.
- UN ALKS regulation is the first ever international regulation for L3 automation technology. However, this is only the beginning. The debate for higher speeds and lane change technologies is already taking place and can be expected to accelerate.

## [Discussion Topic 2] Level 4+ in urban environments: Common global focus?

- In the US, the Covid pandemic has strengthened the focus on commercial fleets and goods delivery without human contact, in contrast with privately owned cars and Mobility as a Service. Some of the principles that may drive Safety Assurance may be common, but for goods delivery, low and constant speeds may simplify things.
- To release level 4 in urban environments in a safe and effective manner, well defined ODDs and coordination with local governments is essential.
  - Waymo has shown that strictly following traffic rules is not sufficient to ensure safety. However, much remains to be done until Level 4 automation vehicles can perform in imminent crash avoidance at similar levels to humans, in particular when handling unsafe maneuvers by surrounding vehicles.
- In the past, safety regulations was done as a one size fits all. There might be a problem with how we approach the autonomous driving, and what types of use cases could benefit from these. We should take the same elements but reduce the amount of use cases to analyze the level.

### [Discussion Topic 3] On the use of simulation for regulatory purposes

• Prof. Peng questioned the applicability of simulation techniques in their current status for the specific purpose

of regulatory certification. Sensor simulation has not proven yet that it can replace real sensors. Software varies across companies, and companies will not be willing to release their simulation models to governments. This triggered and interesting discussion with a number of opposing and supporting opinions.

- It is important to distinguish the level targeted (vehicle, system, component). Certifications could be done by governments with less detailed vehicles or system levels, and leave more freedom to the verification of specific detailed sensor models.
- Well standardized seamless interfaces are the key to enable the application of simulations for regulatory purposes.
- Rather than simulation replacing physical regulatory testing, it can also be applied to reduce test space and combinations.
- OEMs (e.g. Renault) and German government funded research projects (e.g. V&VM, SetLevel4to5) rely on a combination of simulations and physical tests to give confidence and accuracy to the technical aspects.
- As an example, the human body model (GHBMC) developed under NHTSA programs for more than 15 years for crash safety research purposes was brought into the discussion. This is a very useful research tool widely applied for a number of research and safety evaluation purposes, but it has not been incorporated yet as a viable tool for regulators. That's a significant challenge and the research needs to continue including the validation side.