Position of NL on current documents that are submitted.

We appreciate the progress demonstrated by all subgroups. The documents have gained substantial quality in a relatively short period. We see the documents as a good basis for the next phase (more detailed descriptions).

1. Monitoring and Improve as a separate pillar

Monitoring and Improve should be a separate pillar, because it is critical to highlight the importance of safety assurance and continuous improvement thanks to the operational feedback. Monitoring should not only be seen as a reactive tool for the confirmation of the safety performance and/or event investigation, but also as a proactive tool for the early identification of unsafe traffic conditions and for information sharing.

Monitoring and improve is mentioned under the audit. However, the implementation of this principle includes the use-phase of vehicles, as also clarified in <http://www.unece.org/fileadmin/DAM/trans/doc/2020/wp29/WP29-180-18e.pdf>.

Many contracting parties use (parts of) the safe system approach in their national policy to increase traffic safety. Improving the traffic system by means of accident analysis is one of the cornerstones of this policy.

In this perspective, the monitoring must be seen as critical element for (early) identifying systemic safety deficiencies, for learning from experience and from information sharing.

Including the monitoring as part of the audit does not provide adequate awareness on this element as well as on its broader application. A more transparent position of monitoring would support the broader use of this pillar.

For WP29: The audit should provide the confidence that the OEM can and will prove in hindsight the correct assumptions of the development. Furthermore, it can solve the residual uncertainty of the other test-methods.

For WP1: It gives national institutions the possibility to build-up accident and near accident data for an improved system safety in traffic.

1. Relation with FRAV and operating conditions

The document FRAV-03-05 is a continues developed document of the FRAV-group describing functional requirements. An essential part of this document deals with the operating conditions and the behavior of the AV in the boundaries of these conditions. These should be specified by the manufacturer. FRAV sees these specifications as an input for VMAD to validate the desired behavior. VMAD should try to find effective test methods to assess this behavior and use functional decomposition to have a better focus on the performance of the specification that is tested. For example, when testing the perception of a camera and its logic, it can be done with a HIL-setup and a verification in a silent mode/shadow mode test in the real-world. The decision logic on path planning and other dynamic driving task elements can then be simulated in a model in the loop simulation in line with the Japanese proposals from SG1a and these again can be verified in test-track and real-world testing. These tests should all be seen as decomposed function that need to be integrated for final tests on the test-track and road. Traffic is only one element in these tests, the setting of the other elements are equally important. Therefore, we would propose to change “traffic scenario’s” into “scenario’s” in order to prevent misunderstanding about the scope of scenario’s, or extend scenario’s to traffic scenario’s, scenario’s for boundary conditions, Human Machine transition scenario’s etc. The validation purpose of the scenario that is used need to be clarified, along with the limitations and the expected coverage (what part is validated with the scenario and what not?).

1. Human Machine Interaction

The human machine interaction needs explicit attention. It is good that it is mentioned in the matrix of the master document. The adaptation of human centered design methods, the necessity of driver simulations and tests of the interaction should be part of the validation. We should consider a variety of driver-categories (experience, alertness, technical imagination) and pay additional attention to “standardized” HMI and education for the human drivers that will use the AV’s.