Safety and end-user acceptance aspects of road automation in the transition period

Proposals for research and innovation activities should address one or several of the following domains:

—Analyse user requirements, expectations and concerns (e.g. interaction with the system, trust, liability, privacy concerns, security, minimum safety and performance standards, etc.) related to the use of automated driving systems.

—Design safe human-machine interface and driver monitoring strategies to maximise the intuitiveness and situation awareness; enable safe and appropriate driver take over strategies; monitor drivers' behaviour, predict drivers' actions, and increase drivers' acceptance.

—Safety of automated driving in mixed traffic situations. Develop fail-safe/fault tolerant systems and solutions for highly reliable and safe operations of automated vehicles in any kind of complex and mixed traffic situations in the transition period, also including safe interactions with all different road users and difficult weather conditions.

Gender issues are particularly relevant and disaggregated data collection and analysis is strongly recommended.

In line with the Union's strategy for international cooperation in research and innovation[[COM(2012)497]], international cooperation is encouraged. In particular, proposals should foresee twinning with entities participating in projects funded by US DOT[[United States Department of Transportation.]] to exchange knowledge and experience and exploit synergies.

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 to 6 million each would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Automated vehicles will be accepted by customers and society only when they will be deemed easy-to-use and fully reliable and safe regarding the planned manoeuvres and their execution. A key challenge is to ensure safe vehicles handling with reduced driver attention. Especially for level 3 automated driving systems an effective interaction between the driver and the automated vehicle plays an important role. To act in harmony with driver expectations, these systems should be engineered following a user-centric approach. User acceptance is particularly important for the design of, driver interfaces that will facilitate the transitions between human and automated driving. Moreover, the automated driving systems should be resilient to both system and driver failures and guarantee sufficient reliability and robustness in each and every situation in real world traffic. The introduction of automated vehicles into the existing traffic poses specific issues regarding safety, in particular during the transition period where there will be interactions with other vehicles (of any degree of automation or none) and other traffic participants such as pedestrians or cyclists.

Actions are expected to develop safe automated driving systems which are fully in line with user expectations, easy-to-use and allow an effective interaction between the driver and the automated vehicle. These automated driving systems will be resilient to both system and driver failures and guarantee sufficient reliability and robustness in mixed traffic situations. Actions will provide significant contributions in the following areas:

—Reducing the number of accidents caused by human errors, such as inattention and distraction. Research will therefore help to achieve the European policy objective of halving road deaths by 2020, and, in the longer term, the Transport White Paper ""Vision Zero"" objective by preventing road accidents caused by human errors.

—Maintaining the leadership position in developing user-centric, safe and reliable vehicle automation systems by the European vehicle manufacturers and their suppliers.

—Proper validation procedures for automated driving systems to assess and test functional safety and performance.

—Integrating user requirements, expectations and concerns related to the use of automated driving systems.

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