

DIGEST – (DE acronym for "Digitaler Zwilling des Verkehrssystem Straße")

The introduction of Cooperative Connected Automated Mobility (CCAM) ensures a significant increase of safety, efficiency and effectiveness in road traffic. However, a safe and efficient CCAM implementation induces new challenges for road operators and automakers.

DIGEST develops concepts and specifications of a digital twin of roads for a European implementation that is framed and specified within a prototypic implementation in the Austrian, German and Swiss region. An essential step for that realisation is the usage of digital copies of the traffic system road in shape of a digital twin (DT). By means of simulation models and variations of relevant parameters, effects of traffic measures will become visible and rateable in regulating algorithms in automated driving vehicles, traffic regulation and in traffic management. Furthermore, they can actively support improved realisation and with regard to content, basic information for regulation can be shown. A crucial influencing factor for creation and operation (incl. costs) of a digital twin is a suitable determination of its level of detail. All relevant content with respect to the announced applications must be included.

In particular, all relevant influencing factors, effects and mutual reactions have to be represented sufficiently for being supplied by digital twins. Especially concerning mutual reactions, a lot of counteractive, conflicting dependences can emerge. In DIGEST, a concept of a digital twin will be developed, that merges all relevant information from road operators, ODD (Operational Design Domains, e.g. road marking), ISAD-level and HD-maps. This concept will be demonstrated by prototypes.

DIGEST will be reflecting ISAD and static ODD as well as real time changes in dynamic ODD and allows an agile traffic management system that can - harmonised with ODD and ISAD parameters - regulate traffic. ("ODD Aware TrafficManagement").

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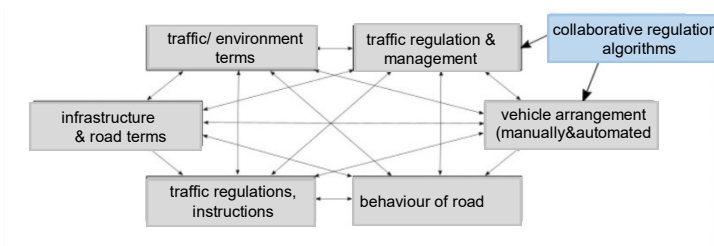
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Picture 1: Influencing factors of automated vehicles and traffic automation [WienZWA]