DRIVE C2X

Accelerate cooperative mobility

Deliverable D25.1

DRIVE C2X test environment (abstract)

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SEVENTH FRAMEWORK PROGRAMME

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Executive summary

In this deliverable we present the DRIVE C2X testing environment with methodologies and tools developed to support the DRIVE C2X FOT. Conducting a cooperative systems' FOT on the level of DRIVE C2X requires tooling support on multiple levels. Here, we concentrate on the supporting tools to plan, prepare, and execute FOT. The use of these tools and instruments result in structured and reliable FOT log data, which is recorded automatically from ITS Stations and DRIVE C2X test sites.

The basic scope of the tools is to operationalize FOT executions. The tools developed in WP25 support users to design, prepare, manage, monitor and control running FOTs in real-time resulting in automatically recorded, structured log data, which is the basis to FOT evaluation.

Operationalization tools help evaluators to define reference scenarios. These scenarios form pan-European guidelines ensure comparability in conducted testing. DRIVE C2X Test-sites can use the tools to map these reference scenarios to their individual locations and capabilities.

The work performed in WP25 is based on achievements from the PRE-DRIVE C2X project, and additional requirements collected during the DRIVE C2X project. The developed tools are designed for FOT planners, managers, designers, data managers, and evaluators. The tools are in-line with the work and requirements of the overall DRIVE C2X project. On a technical level, in particular the tools are integrated with the design and implementation of the ITS system, the ITS Stations, and FOT data post-processing tools. The developments concentrate on supporting the execution of controlled tests[1]. In many aspects, such kind of test cause similar requirements to supporting tools of naturalistic tests. Thus, even though tools were designed majorly based on requirements to manage controlled tests, the developed tools could also be applied to other experimental setups like naturalistic tests.

Test Control and Monitoring tools enable test operators to conduct these individual test cases. They can monitor test progress in real-time and check data of each participating vehicle. In cases of deviation from the test case, they can interact with test drivers to apply corrections.

A central instrument to evaluate FOTs is the data logging. For optimal evaluation, specific data needs to be recorded or collected for in-detail evaluation – basically, the test scope defines the log data needs. Thereby, data of interest change according to the test scope and test site specific availabilities. The logging system developed in WP25 provides according functionalities. The logging system automatically reports on log transferal process for each scenario to highlight problems quickly, saving valuable time in FOT execution. Using a unified logging system with pre-defined logging profiles also guarantees that all data collected during the FOT progress follows the same scheme throughout all test sites. Thus, evaluators can directly work on data, without first having to align different structures.

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[1] Controlled tests in DRIVE C2X name test runs, where test drivers were prepared in detail to drive and behave in a very specific way, such that a very specific and (previously) defined aspect of the system could be tested.