



Aligning Research & Innovation for Connected and Automated Driving in Europe

Piloting is the most important but a frequently neglected stage in the preparation of Field Operational Tests



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Author	Sami Koskinen (VTT)
Contributors and references	Satu Innamaa (VTT) This document is a supplement to FESTA Handbook on Field Operational Tests. It was posted on ARCADE's knowledge-base under Methodologies: knowledge-base.connectedautomateddriving.eu



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As field tests often feature advanced prototypes instead of fully market-ready products, the performance and correct functioning of these systems in test situations, as well as planned evaluation methods, must be first verified in preliminary tests. This phase of pre-testing is usually called *piloting* in Field Operational Tests (FOTs). Projects may also use different terminology, e.g. *pre-tests* in a pilot project.

Piloting is to ensure the rationality of planned tests and feasibility of all tools and processes, before the actual large-scale user tests can begin. Test data acquisition should be checked and that it will be possible to perform analyses and calculate key performance indicators from collected data. Test arrangements, including also documentation, should all be critically reviewed during the piloting at the latest. As a good practise, a few colleagues can act as the first test persons to provide constructive feedback from test subjects' perspective.

Issues encountered during piloting should be carefully addressed and further tests performed, until the performance of the prototypes and evaluation tools can both be relied on. Subsequent problems encountered during large-scale user tests will lead to partially failing the data collection and the tests themselves. Therefore, the role of piloting is vital in ensuring that the collected data will fit the purposes of the study.

Past field trial projects frequently emphasize the importance of pre-testing in their final reports: when systems are carefully tested, user tests and evaluation run smoothly. However, projects usually also acknowledge that piloting often took longer than expected in the project plan – or that incomplete piloting made it difficult to run experiments or to analyse data. It is very common for a project plan to allow only a couple of months for piloting and fine-tuning of plans, but most of the times, it takes a long time to get prototypes and data collection to work reliably.

Even if the project needs to gather long-term statistics and experiences, for example throughout a year, and further pre-tests risk delaying the start, piloting should still not be rushed or compromised. In fact, test users might stop using a malfunctioning system only after a couple of attempts. Only a well-functioning system will be accepted for long-time use. Also, if the data logging breaks down in hard use and that goes unnoticed, there won't be data for evaluation. Thus, the consequences of taking shortcuts during piloting may be severe for the study.

In addition to collecting and evaluating research data, a common goal in FOTs is to *promote new technology and products* that will soon reach the market. If the prototypes do not perform well in user tests, testers will unlikely recommend them to their friends or rush into buying the products themselves. In that case, long development work could get partially ruined by careless final preparation.