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Basics for Testing – Stand 10

TEST CONCEPT AND TEST CASE ALLOCATION

PEGASUS

From a logical scenario to a test case.

Parts of a conclusive test concept, how does the test case allocation take place and how does the test procedure works?

➡ **Development Test-Concept:**

Set test object, test level, test platform and allocate test cases for every test level

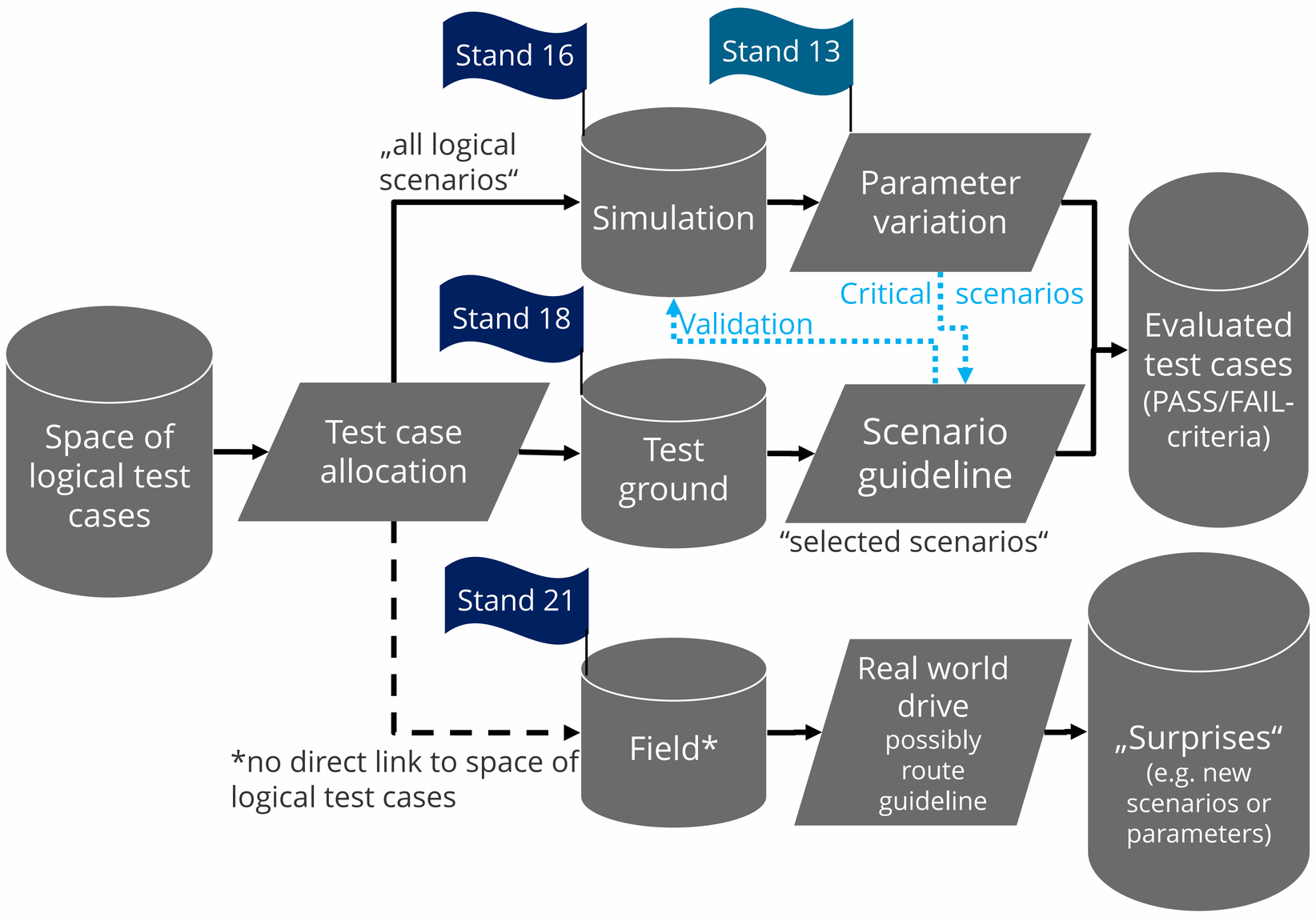
➡ **Test case allocation:**

Based on the generic test concept the allocation comes off for the test level simulation/test ground/field test addicted to the use case

➡ **Deviation of test cases for simulation** by stochastic parameter variation and test automatization respectively, for the test ground based on manual selection or identification of relevant scenarios within the simulation

➡ **Result: Concrete test cases** for different test environments including Pass/Fail criteria

➡ **Test result:**
Based on Pass/Fail criteria evaluated concrete scenarios for simulation, test ground and field test

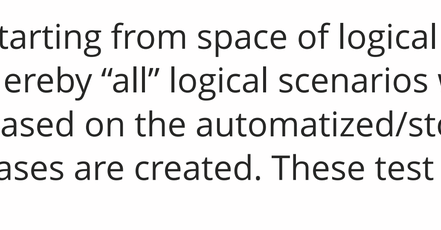


Starting from space of logical test case the test cases and test level get assigned.
Hereby “all” logical scenarios within the space of logical test cases get tested in the simulation.
Based on the automatized/stochastic variation of the logical scenarios parameter, concrete test cases are created. These test cases get evaluated after the Pass-/Fail-Criteria.

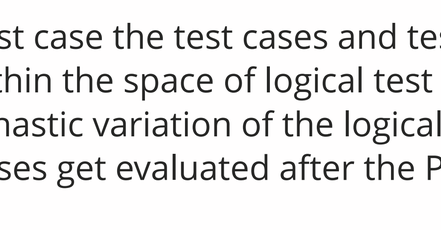
Critical cases (i.e. not fulfilled or close fulfilled Pass-criteria) get evaluated in real cars on a **test ground**. In addition, manually selected concrete test cases can be evaluated on the test ground (i.e. accident scenarios, rating or certification tests).

Within **field tests** it is not possible to test specific test cases of the space of logical test cases. Instead, the behavior of drive features get tested in real traffic. The major target is to find “surprises” (i.e. new scenarios, new parameters). These surprises may be enforced by different guidelines in route (i.e. tunnel) or time (i.e. low sun).

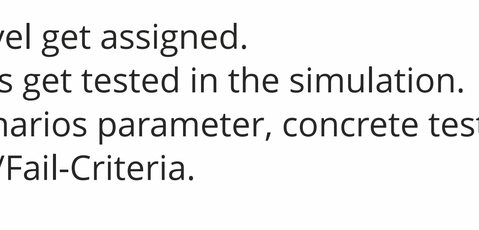
PASS-/FAIL-Criteria



„No Accident“
→ Distance to all traffic participants >0



„Correct distance to ahead driving car“ and possibly „Not changing lane“



Speed limits and other prohibitions

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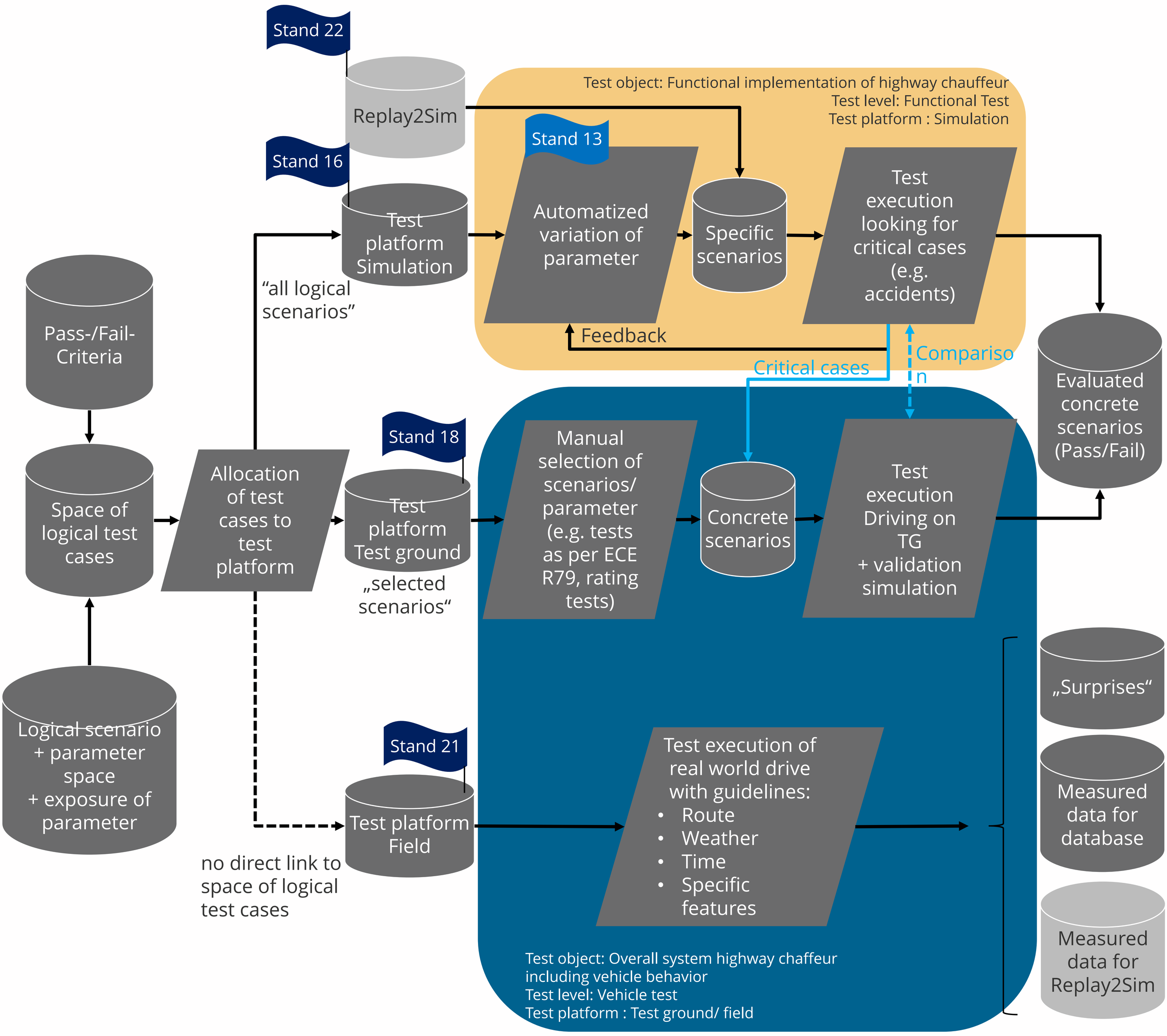
Test concept: Detailed illustration



Starting from space of logical test cases (= logical scenarios + parameter space + Pass/Fail-Criteria + exposure of parameter) test cases get allocated to test validation levels.

Hereby, "all" logical scenarios get tested in the simulation to create a high efficiency. Based on the automatized/stochastic variation of the logical scenarios parameter, concrete test cases are created. These concrete test cases get evaluated after the Pass-/Fail-Criteria.

Interesting or critical cases (i.e. not fulfilled or close fulfilled Pass-criteria) get tested or validated in real cars on a **test ground**. In addition manual selected concrete test cases can be evaluated on the test ground (i.e. test as per ECE R79 or rating tests).

Within **field tests** it is not possible to test specific test cases of the space of logical test cases. Instead, the behavior of drive features get tested in real traffic, whereby guidelines of route, time or weather, challenges for the HAF- function can be created. The major target is to find "surprises" (e.g. new scenarios, new parameters) and create new measured data for further analyzes in Replay2Sim. (see Stand 21)

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