

SET Level Mid-term Event Introduction and Challenges

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29.04.2021

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integrate the future



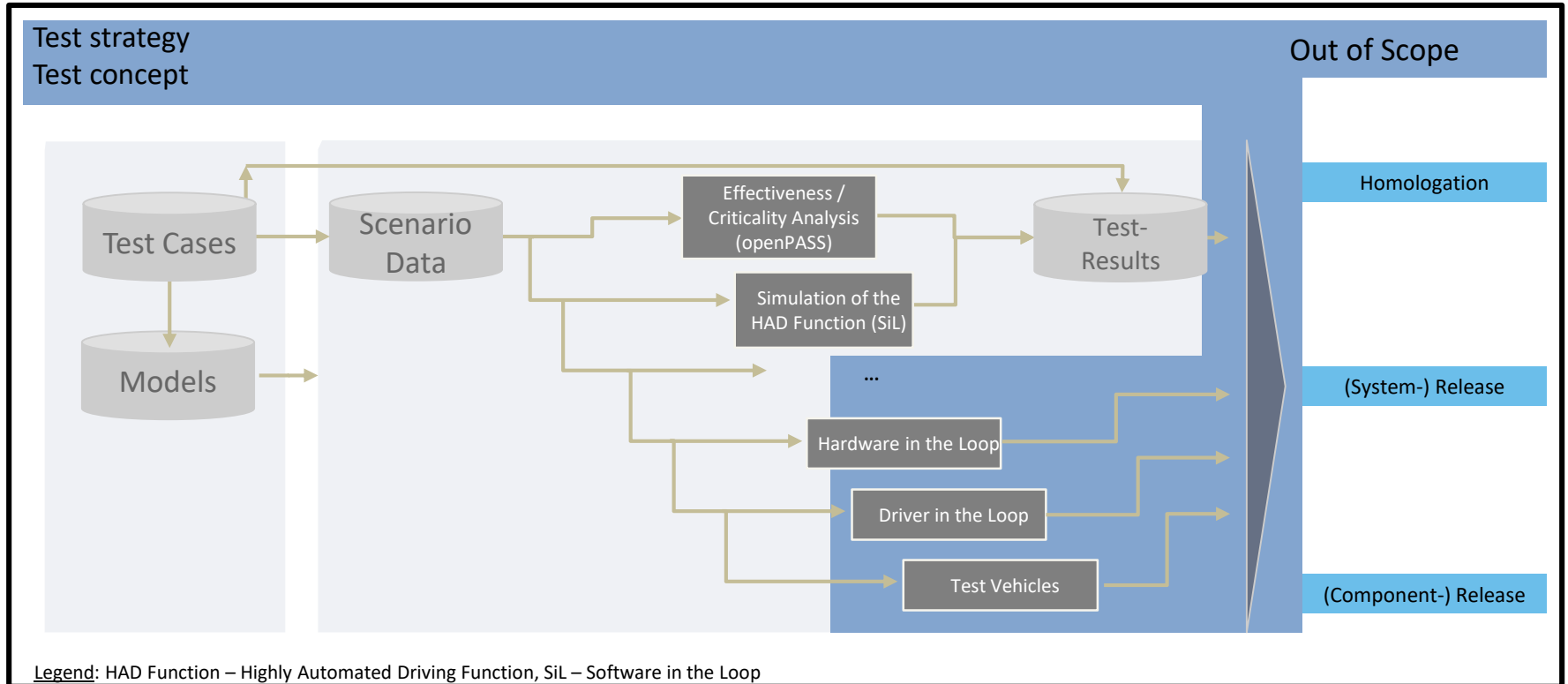
SET Level – Introduction and Challenges



- Basic approach: SET Level and Homologization/Release
- Basic approach: Scenario based test specification
- Towards a SET Level Methodology – Big Picture
- Areas of Investigation
- Processes structured in several layers
- Simulation-based Engineering Tasks
Examples: Simulation Use Cases (SUCs)
- Summary and outlook

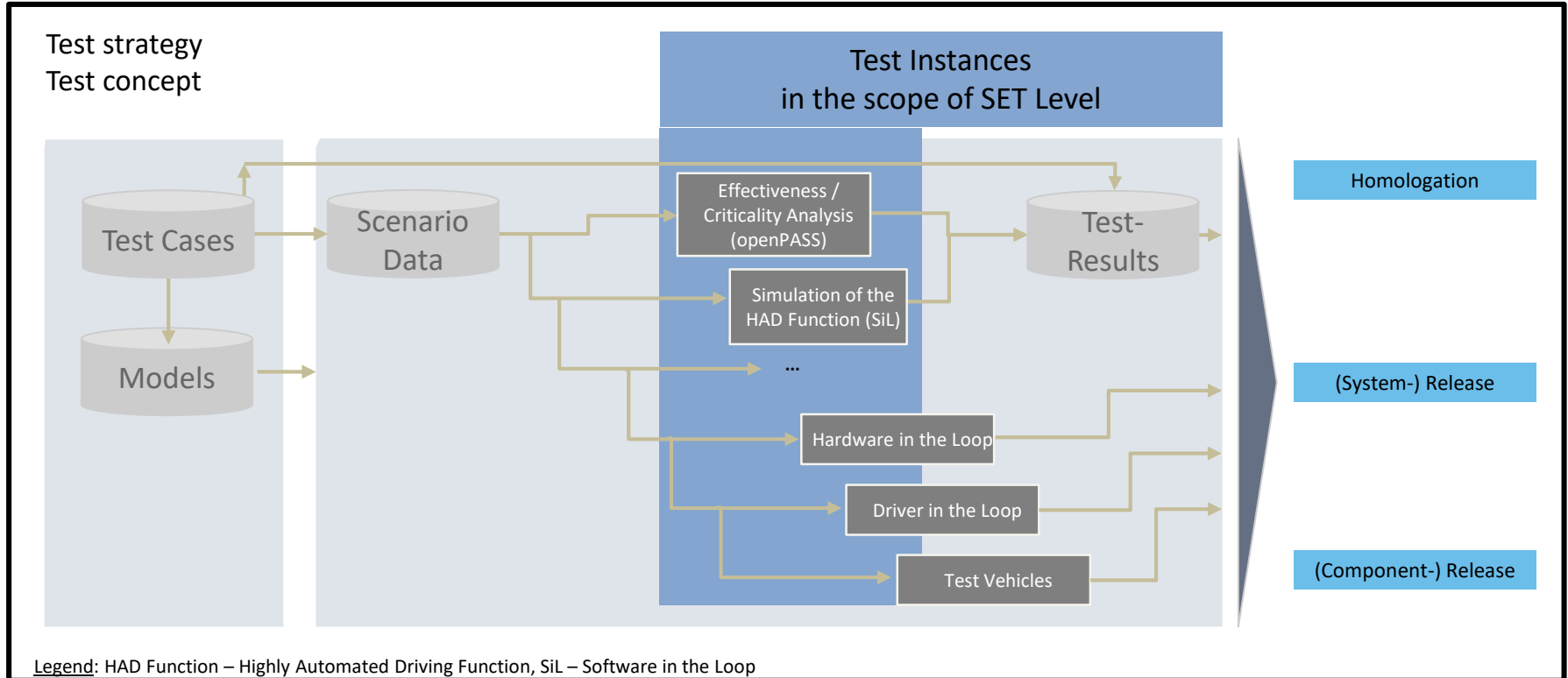
SET Level - Basic approach (1/3)

Need of different results for Tiers, OEMs and Legal authorities



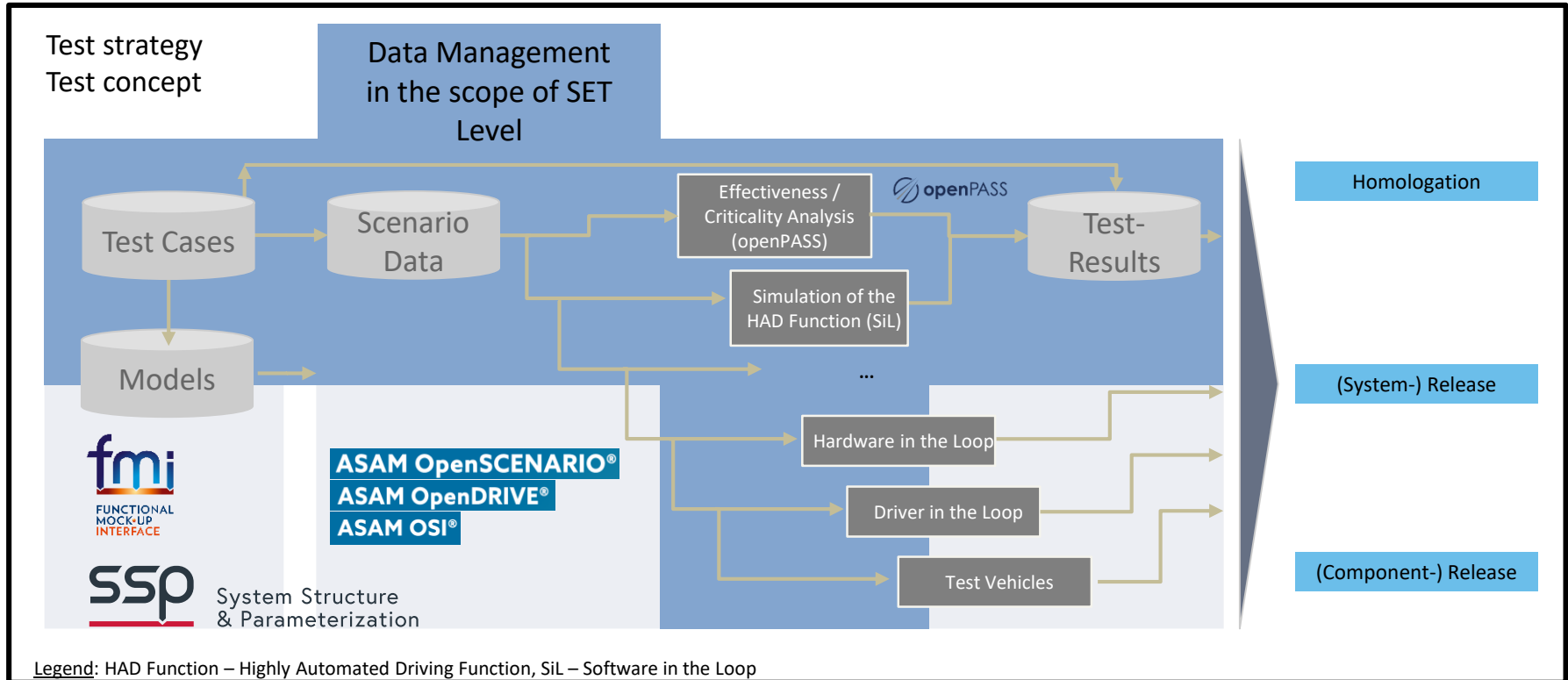
SET Level - Basic approach (2/3)

Use of different test instances

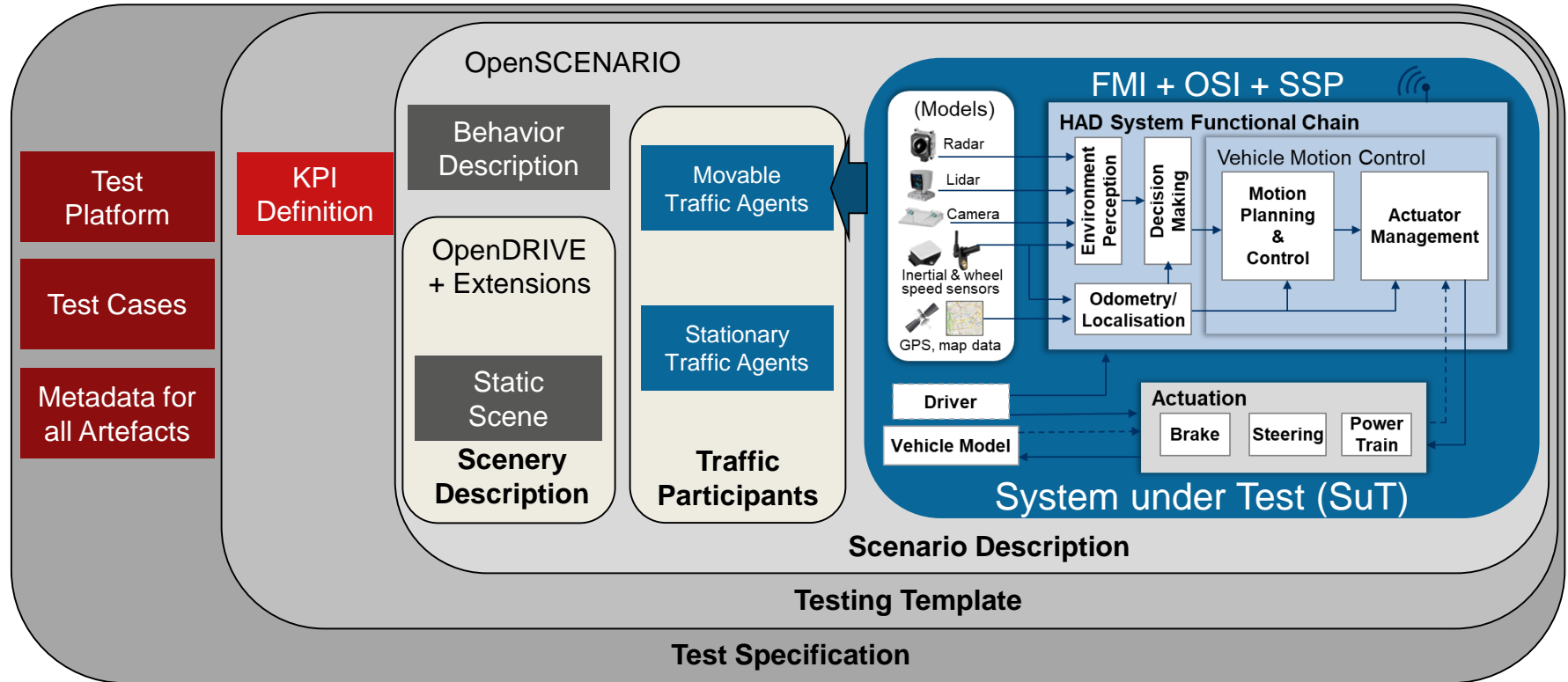


SET Level - Basic approach (3/3)

Use of standards and traceability

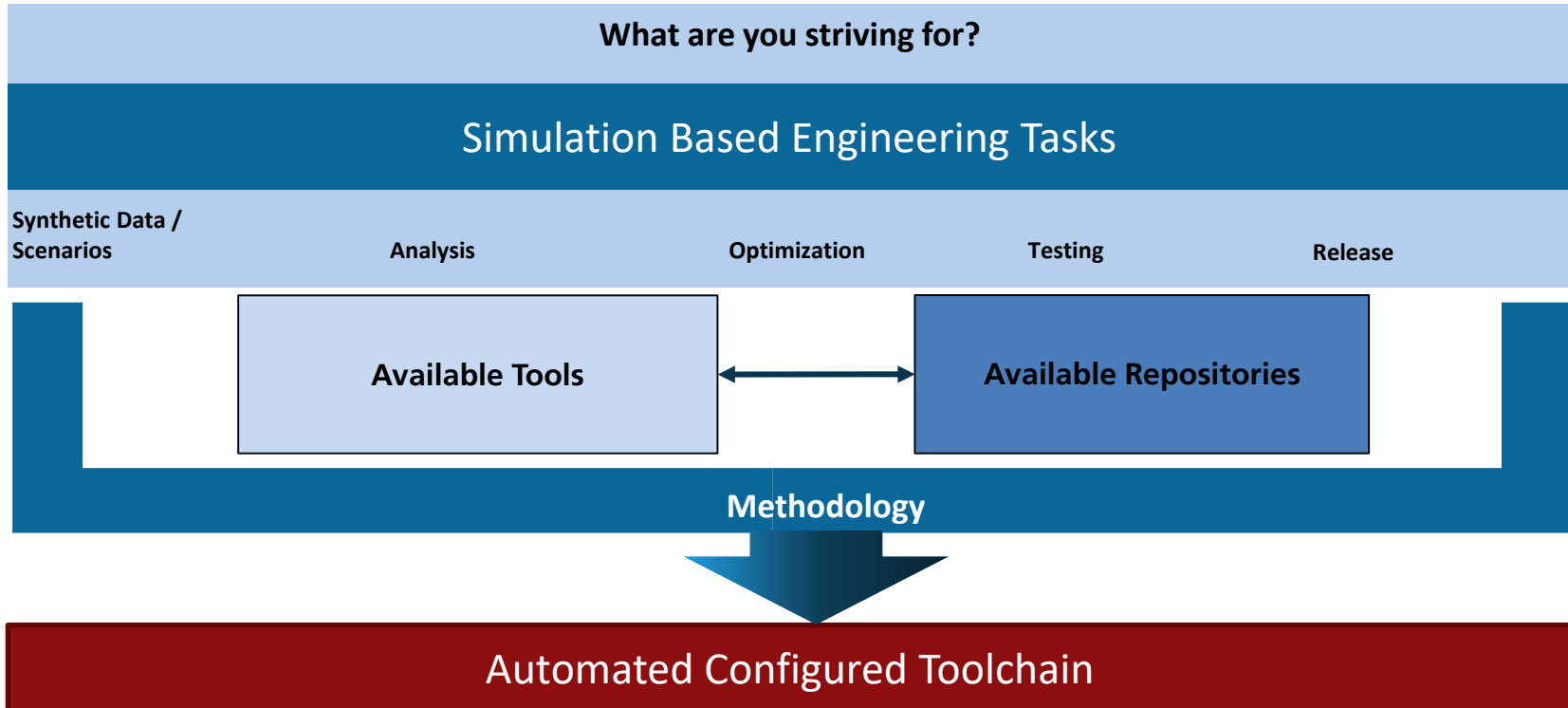


SET Level – Scenario based test specification



Towards a SET Level Methodology - Big Picture

- Open Testing Architecture with generic components for different simulation based engineering tasks → simulation as a service



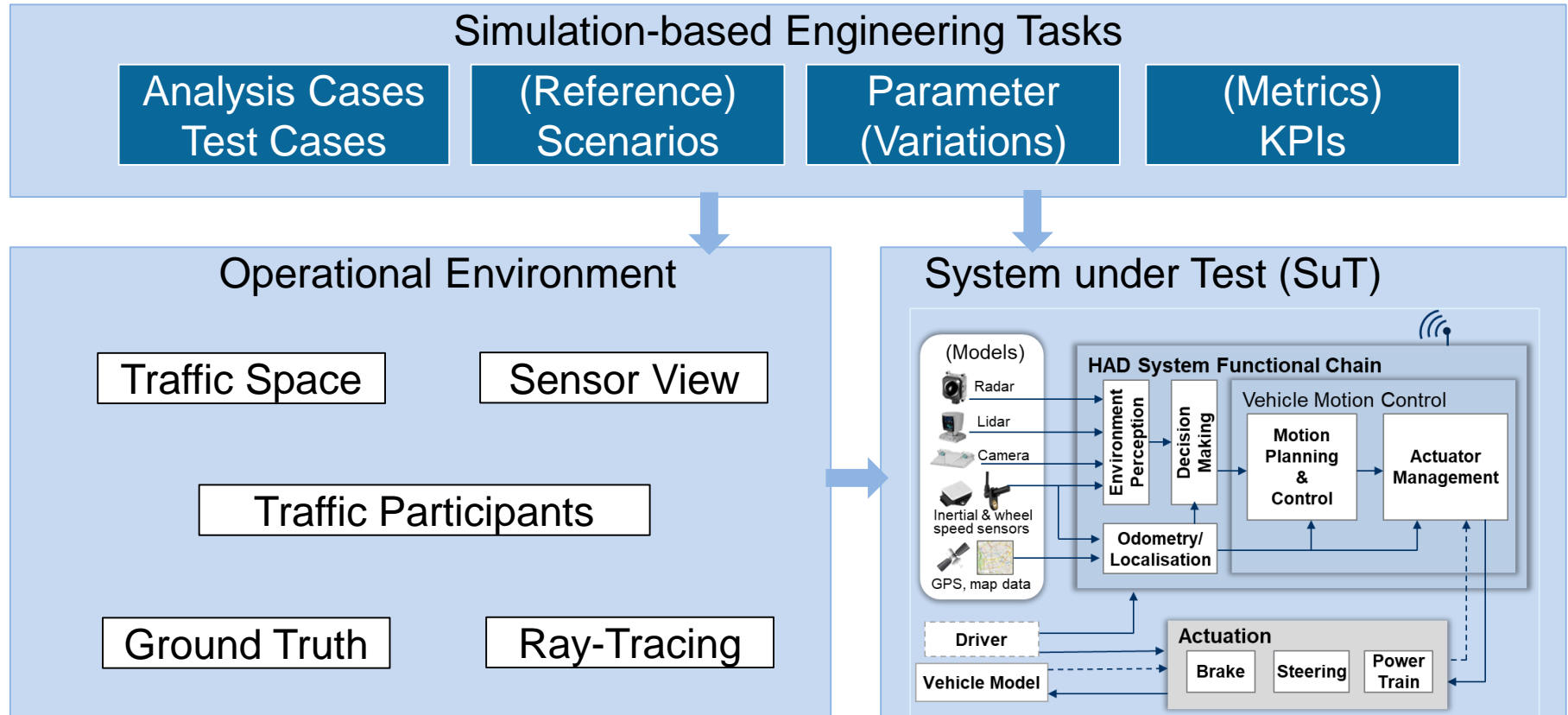
Simulation-based Engineering Task

Operational
Environment

System under Test
(SuT)

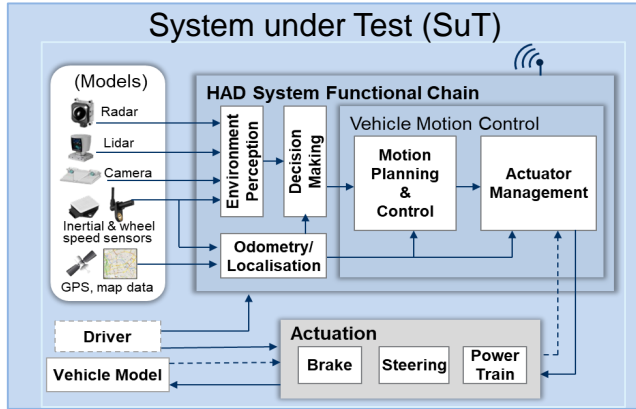
Simulation-Tool-Environment (Toolchain)
-> modular simulation platform architecture

SET Level – Details of the areas of investigation

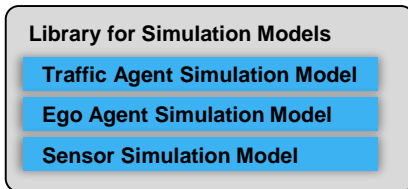
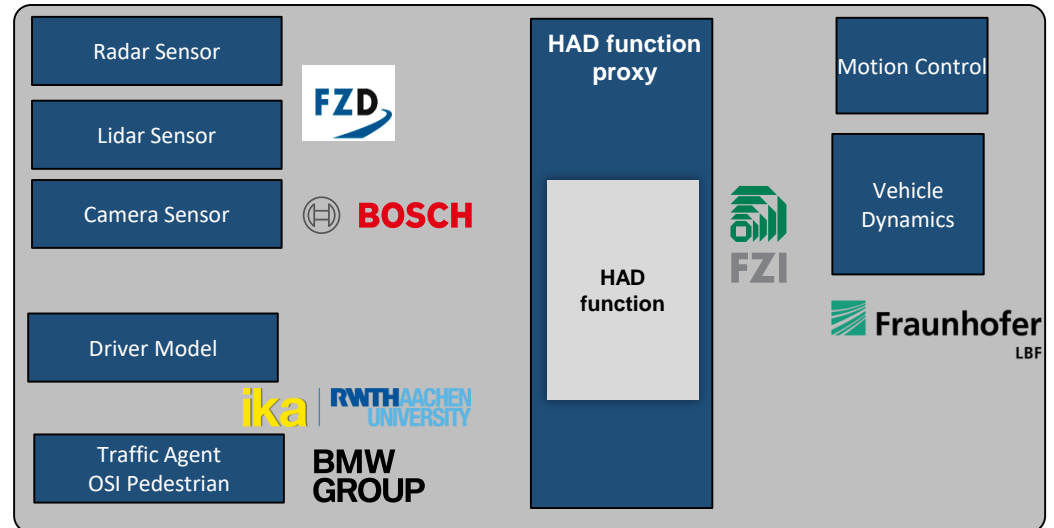


SET Level – unique selling point

Use of Open Source Models for SuT and Traffic Agents

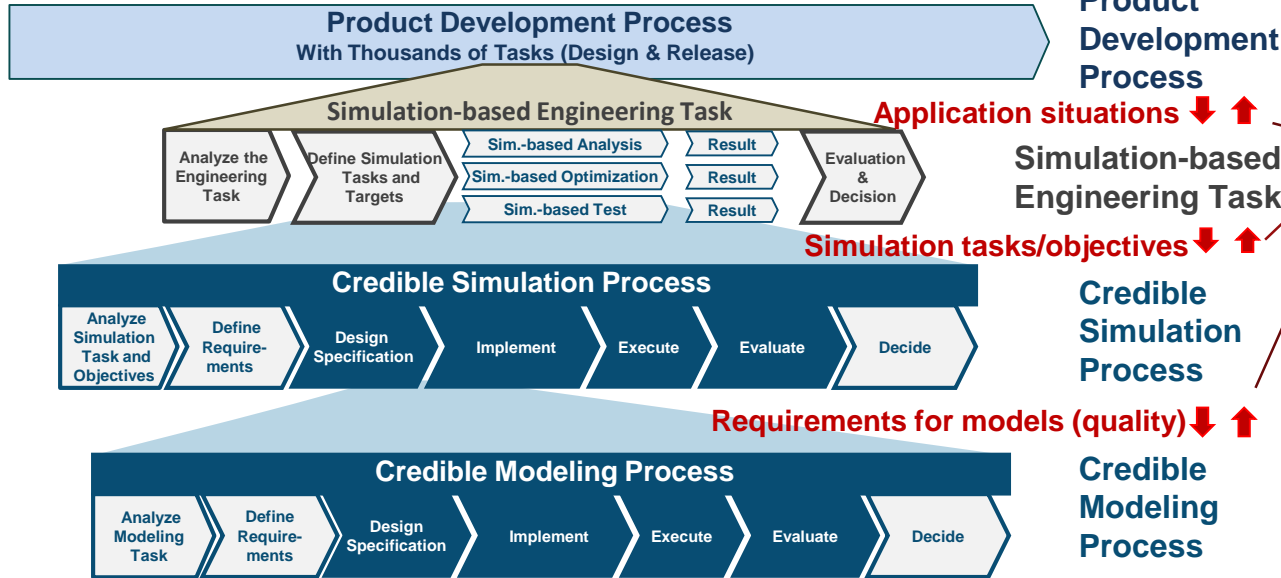


Models used in the SET Level project preferably open source models



Overview Credible Simulation Process (CSP)

Usage of Simulation for Development & Release

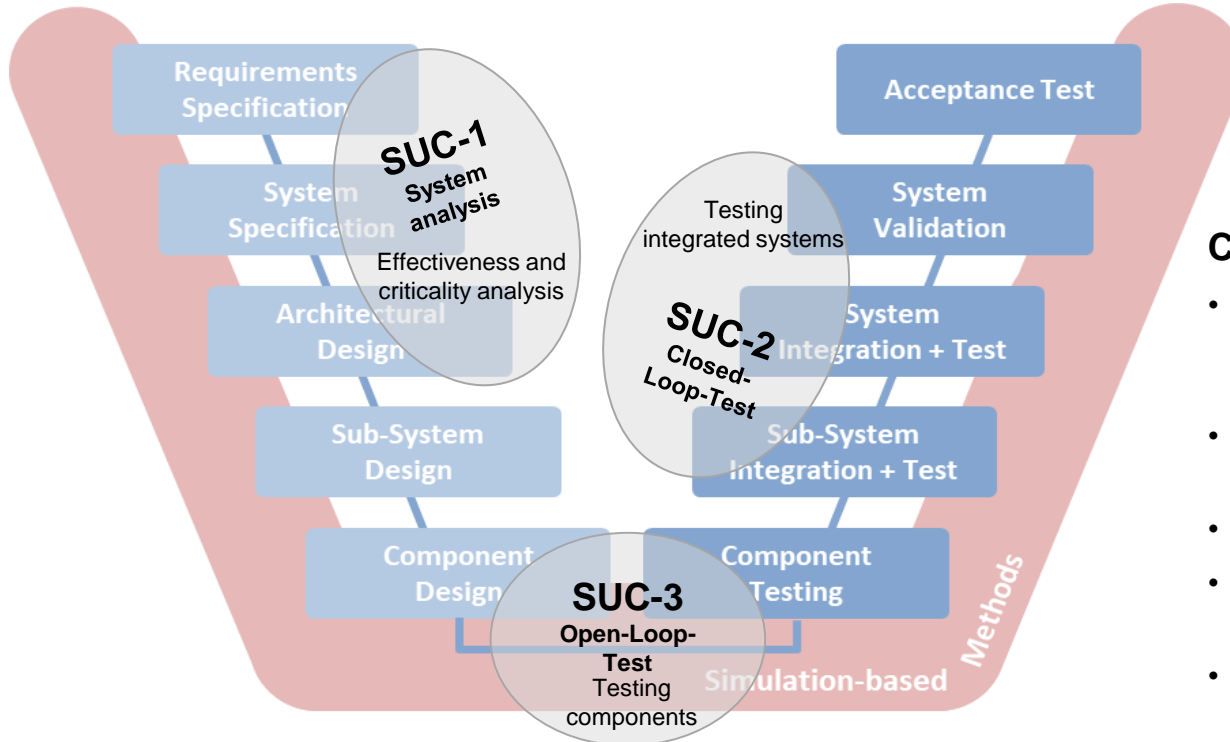


- Process hierarchy with clear information structuring
- Integration into “Big Picture SET Level”
- Sub-processes can be integrated into specific company processes

This information is needed for the proof and documentation of quality for a decision based on a simulation result

SET Level - Simulation-based Engineering Tasks

Examples to demonstrate the approach



Simulation Use Cases (SUCs):

- Analysis example
- Test examples

Common Demonstration goals:

- Demonstration of the applicability and usability of standards (OSI, FMI, SSP, ...)
- Usage of appropriate architectures and interfaces
- Elaboration of KPIs
- Use of the credible simulation process and ensurance of traceability
- Provide project internal feedback and identify need for further work

- Basic approach still applies
- Scenario based analysis and testing is essential for automated driving
- an overall concept has been developed and is used to guide the project
-> subsequent presentation on **methods**
- Derivation of architecture requirements from application situations must be considered in the reference architecture
-> subsequent presentation on **architecture**
- Credible Simulation Process embedded in Simulation Based Engineering Task and model creation process has been described and is suitable as documentation scheme
-> subsequent presentation on **processes**
- **Simulation Uses Cases (SUCs)** in subsequent parallel sessions

- **Various generic results** are presented in subsequent parallel sessions
 - simulate sequences of scenarios, test descriptions and traceability
 - reference scenarios, traffic spaces, sensor models and further requirements
 - usage of open source models and model quality
- Basic standards and Open source approaches serve towards usability of SET Level results in **VVMethoden** (PEGASUS-Family) and in the rest of the world
- **Conclusions** and usage in the international environment