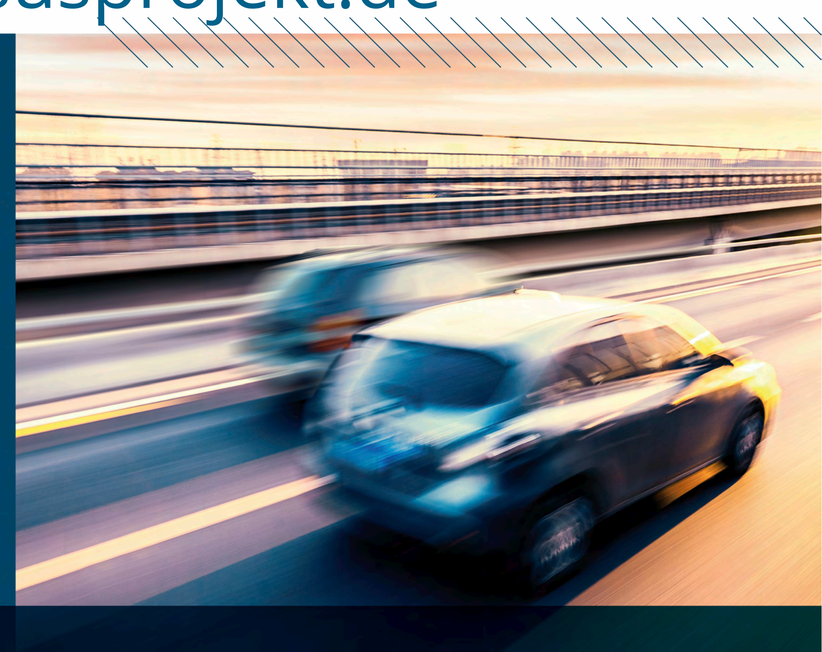
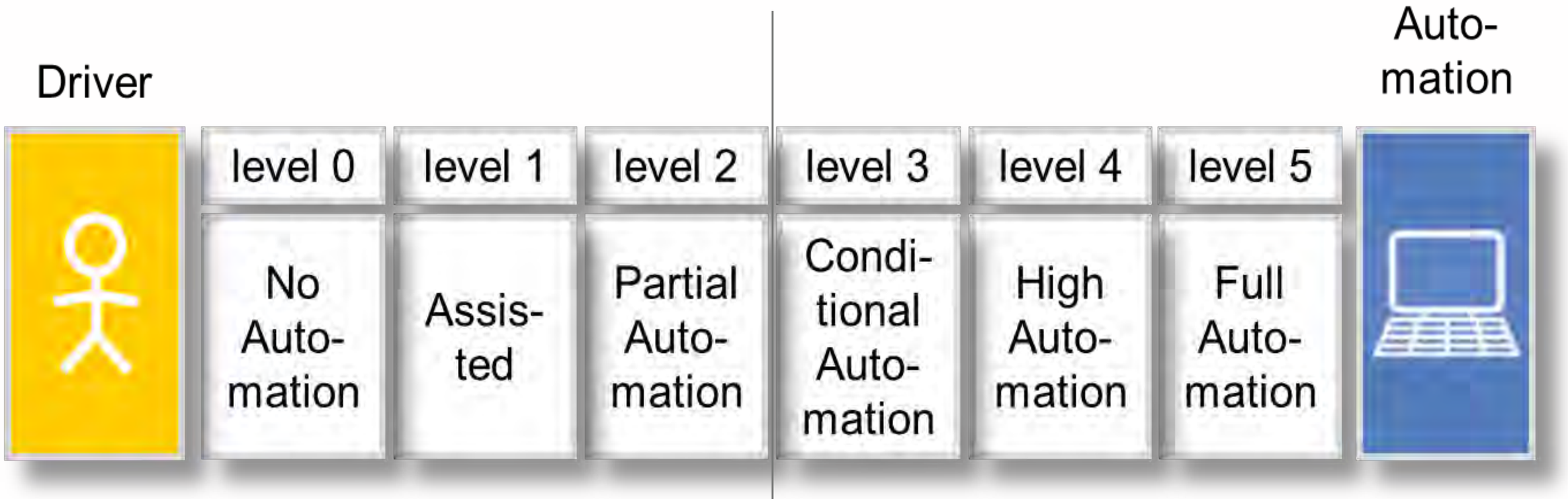


Start – Stand 1

APPROACH & CONSISTENCY

PEGASUS MOTIVATION

Why the promoted PEGASUS joint project for the safeguarding of highly automated functions hence SAE Level3 is needed?



The Driver is responsible
- Critical scenarios are solved by the driver
- The assistance systems support the driver

The automation is responsible
- Critical scenarios are solved by the automation
- The quality of the automation is compared to human driving abilities
- High complexity and various possible scenarios for the validation process
- The validation by established methods is economically infeasible

PEGASUS delivers the standards for the automation of the future
With the PEGASUS joint project, promoted by the Federal Ministry for Economic Affairs and Energy (BMWi), major key gaps in the field of testing for the release of highly-automated driving functions will be concluded by the middle of 2019.

Standards for the safeguarding of highly-automated vehicles
- Definition of a standardized procedure for the testing and experimenting of automated vehicle systems in simulation, on test stands and in real environments.
- Development of a continuous and flexible tool chain to safeguard the automated driving.
- Integration of the tests in the development processes at an early stage.
- Creation of a cross-manufacturer method for the safeguarding of highly automated driving functions.

Figure Source: Bartels, Arne & Eberle, Ulrich & Knapp, Andreas & , AdaptIVe. (2015). Automated Driving Applications and Technologies: System Classification and Glossary.es: System Classification and Glossary.

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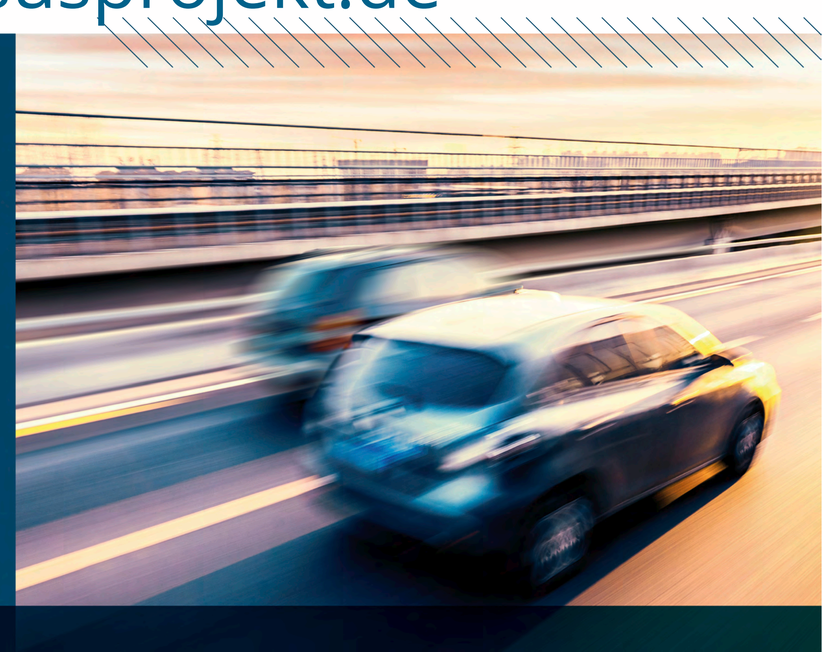


Start – Stand 1

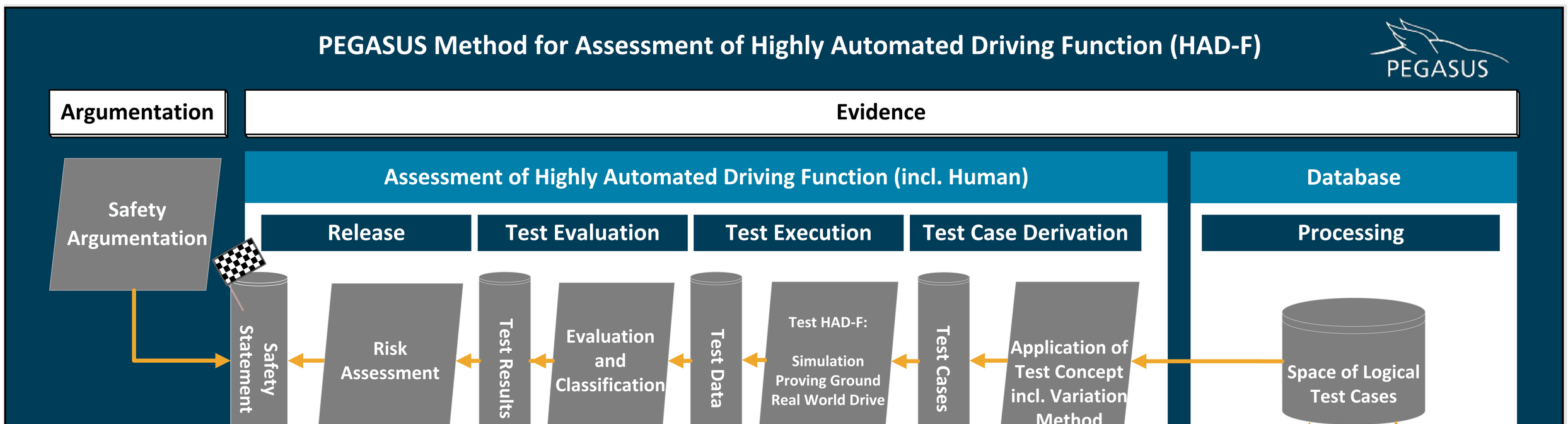
APPROACH & CONSISTENCY

Safeguarding automated driving functions

How is a generally accepted and uniform approach for testing highly automated driving functions achieved?

The aim of PEGASUS is the development of a method for the safeguarding of highly automated driving functions, which is intended as a blueprint for later series development of such systems. Due to the high degree of networking between the various subprojects and their work packages within the PEGASUS project, the following overall method is developed

- On the basis of knowledge (laws, standards, etc.) requirements are defined
- Scenarios are systematically derived from data and knowledge
- In the common database data is processed and prepared for the test instances
- The HAF safety statement is based on the test results and the safety argument



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APPROACH & CONSISTENCY

PEGASUS

- The structure of the exhibition follows the PEGASUS method. Selected topics are presented in detail.
- The following diagram gives an overview of all booths and how these are based on the PEGASUS method.

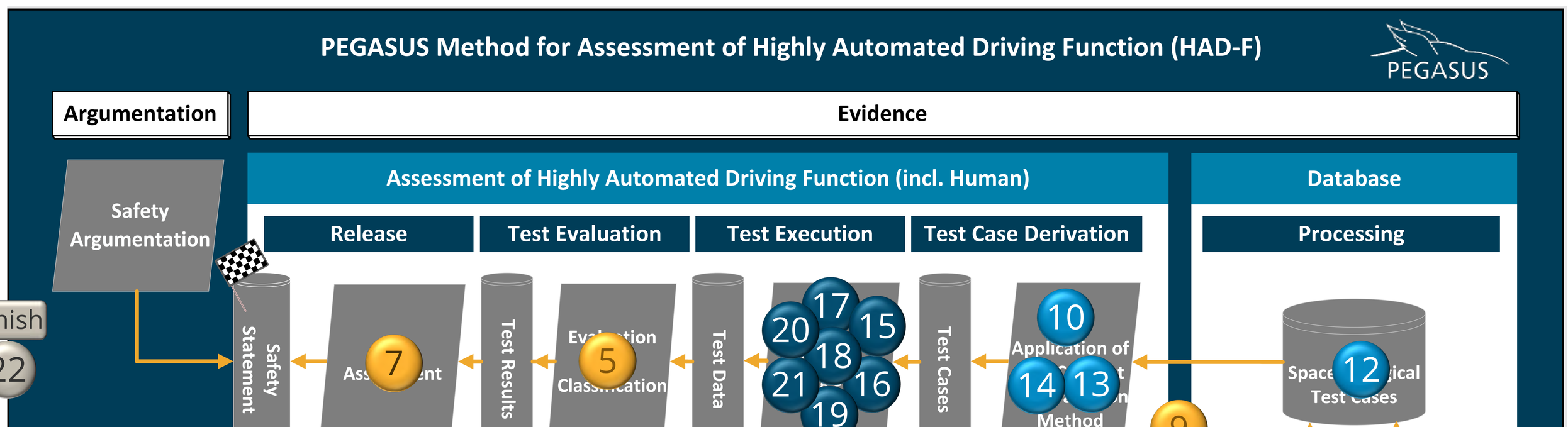
Start	
1	Approach & Consistency

Requirements & Context	
2	V-Model and Process Analysis
3	The Highway-Chauffeur
4	Scenario Description
5	Critical Scenarios for Human Drivers
6	Critical Scenarios for and by the HAD (L3)
7	Social Acceptance for HAD (L3)
8	Challenges of a scenario-based approach
9	Functional Decomposition

Basics for Testing	
10	Test Concept and Test Case Allocation
11	Scenario Formats
12	Test Specification Database
13	Test Case Generation, Test Space Coverage and Test Effort Reduction
14	Interdisciplinary Test Infrastructures / Maps

Testing & Safeguarding	
15	Sensor Simulation Models
16	Software-in-the-Loop
17	Hardware-in-the-Loop
18	Proving Ground - Generic Approach and Control Center
19	Tools for Proving Ground and Field Tests
20	Wizard-of-Oz-Vehicle
21	Field Test Concept

Finish	
22	Outlook to Evaluation of PEGASUS Method



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