

FROM THE OPERATIONAL DOMAIN OVER ODDS TO FUNCTIONAL USE CASES AND SCENARIOS

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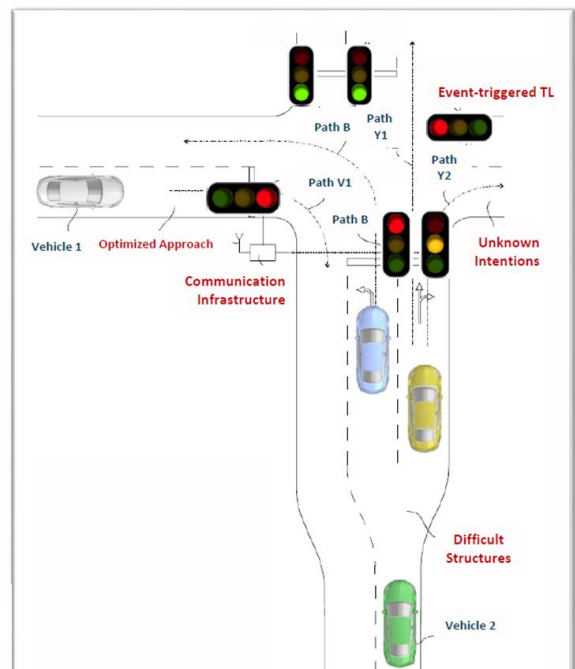
Why is the Urban Environment so different?

New challenges emerging due to high situational complexity



Traffic Environment
Missing information on Driver Intentions
Complex Road Structure
Signal Phases & Queues

And also pedestrians, cyclist and playing children etc. need to be considered

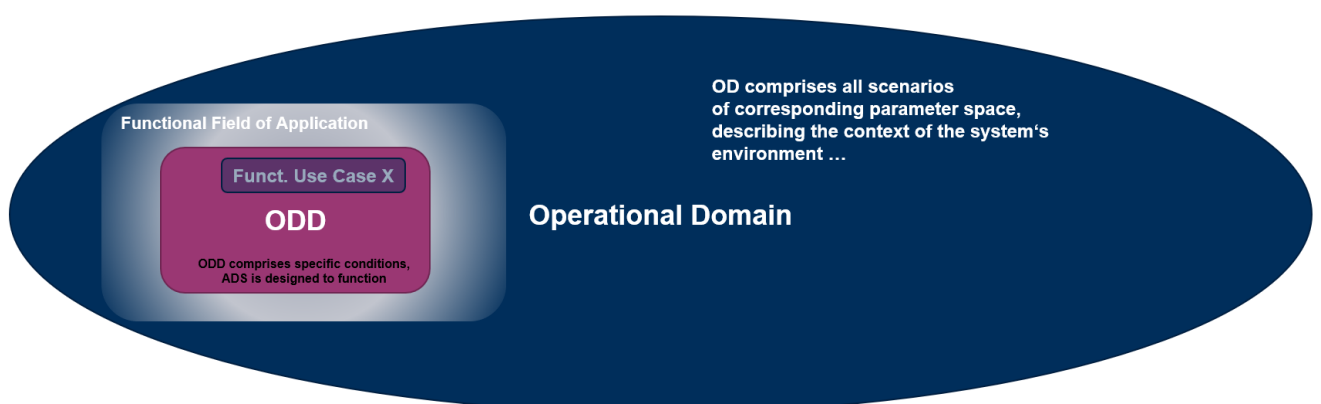


- A structure is needed to describe the environment of Cooperative and Automated Driving
- The required structure contains separate levels called „Operating Domain“, Operating Design Domain, Functional Use Case and Scenario.
- A Functional Use Case is the „Atom“ of an ODD or OD
- The Functional Field of Application is the area around the ODD which is passively affected by the vehicle-under-test.
- A „Customer Functions“ as a technical vehicle-based requirements document is closely linked, but separate from the OD, ODD and FUC categories

A World Called Operational Domain

SAE J3016
OPERATIONAL DESIGN DOMAIN (ODD)
The specific conditions under which a given driving automation system or feature thereof is designed to function, including, but not limited to, driving modes, under which a given driving automation system or feature thereof is designed to function.

→ The Operational Domain OD can be the full world or a subset



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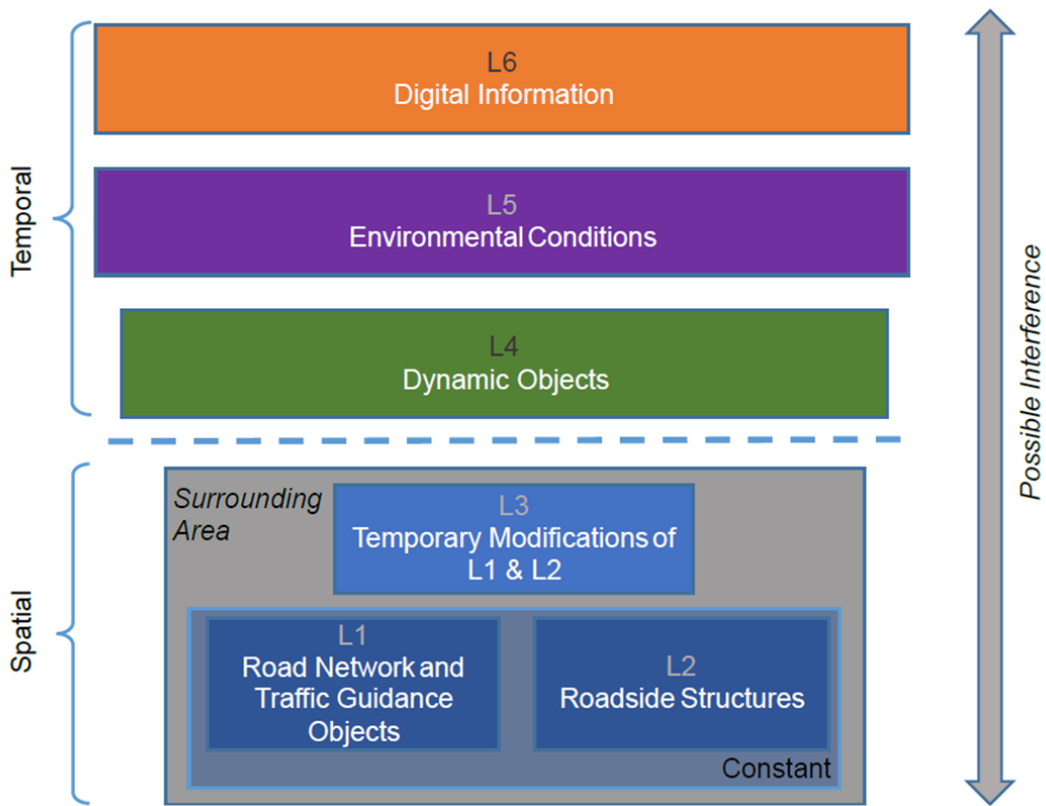


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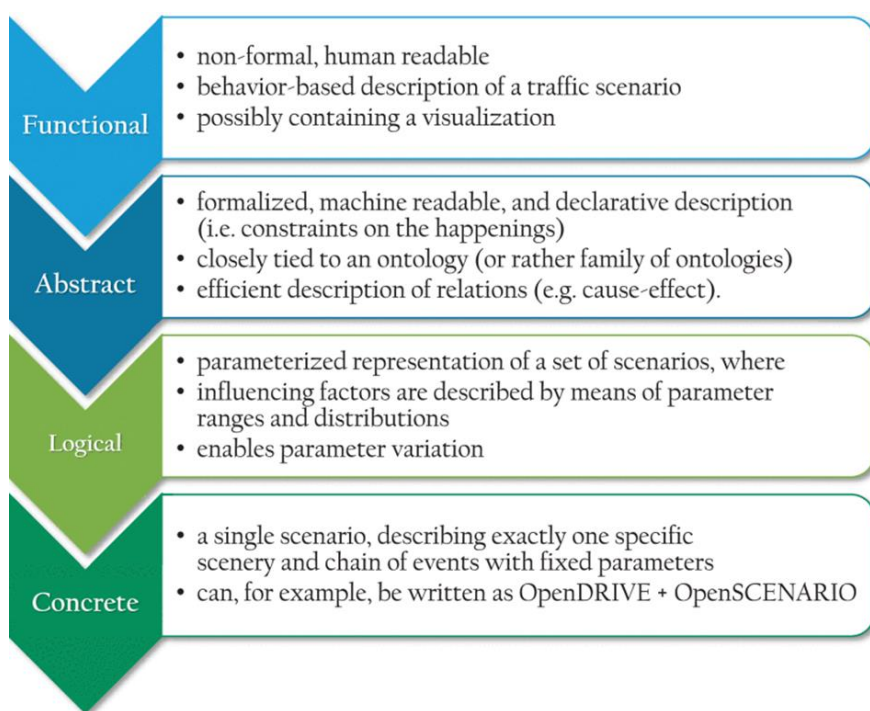
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The Urban Six-Layer-Model containing the relevant information starting with roadnetwork information over the dynamic objects to digital information. This structural model provides a basis for OD and ODD description. Numerous scenarios can take place in an “ODD atom” or smallest reasonable part of an ODD, called “Functional Use Cases”.

For some investigations also the area around of the chosen ODD needs to be considered, the so called „Functional Field of Application“. In this area objects could be passively affected by the scenarios in the ODD. Different types of scenarios sorted by their level of abstraction and detail are needed.



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