

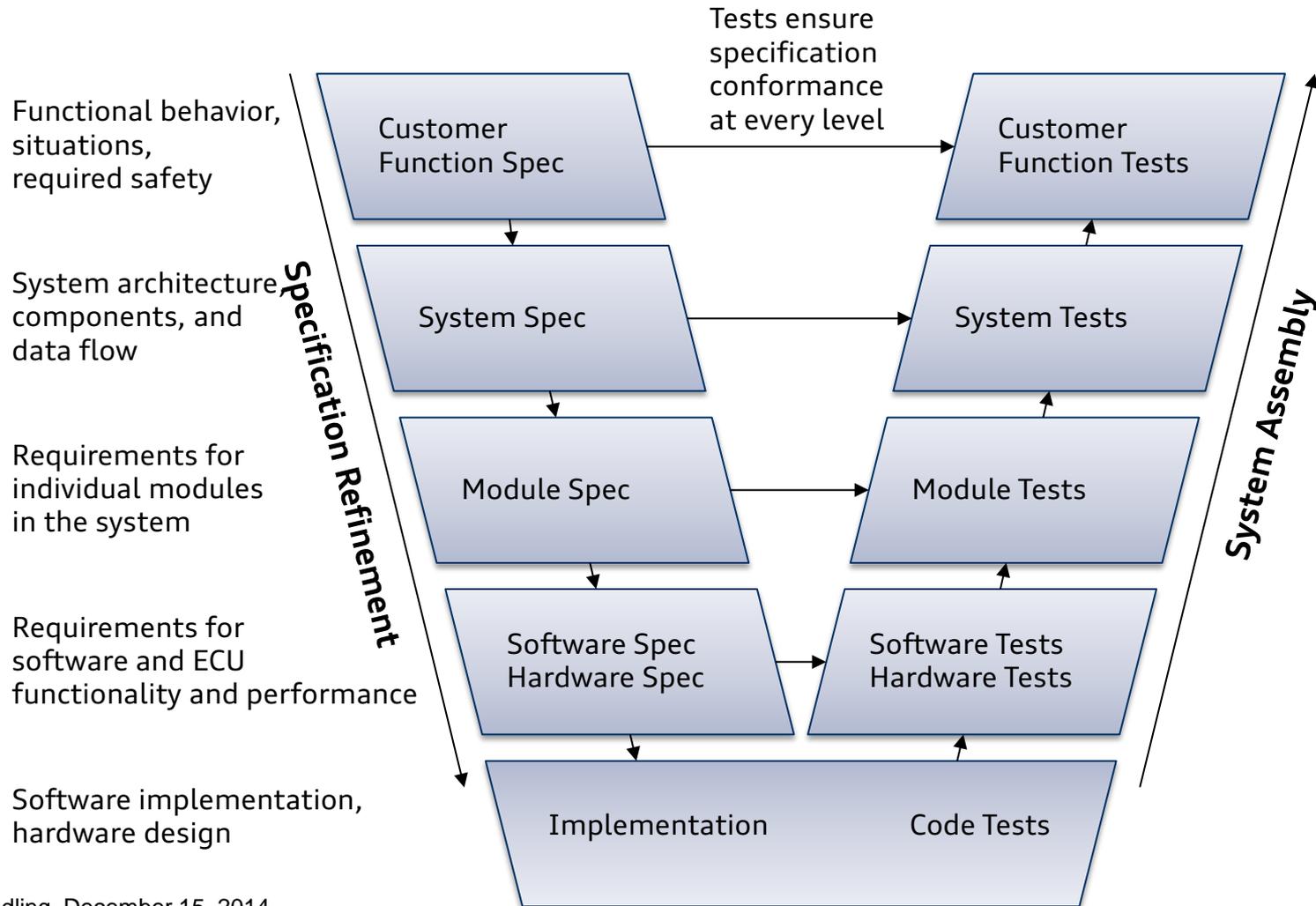
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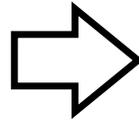
Testing Considerations for Automated Driving Systems

Testing in the product development phase closely follows the "V" model

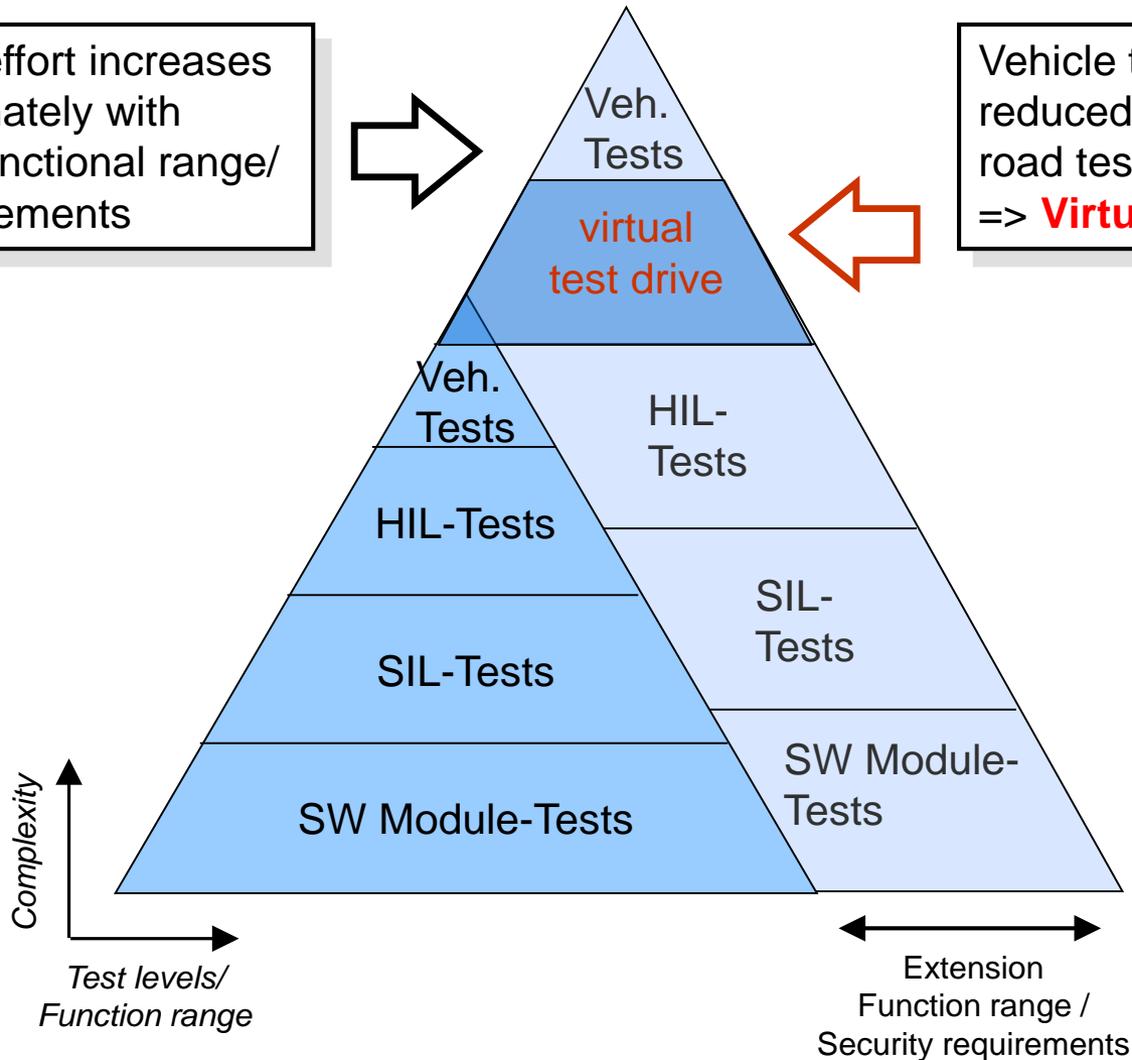


Test volume and complexity management

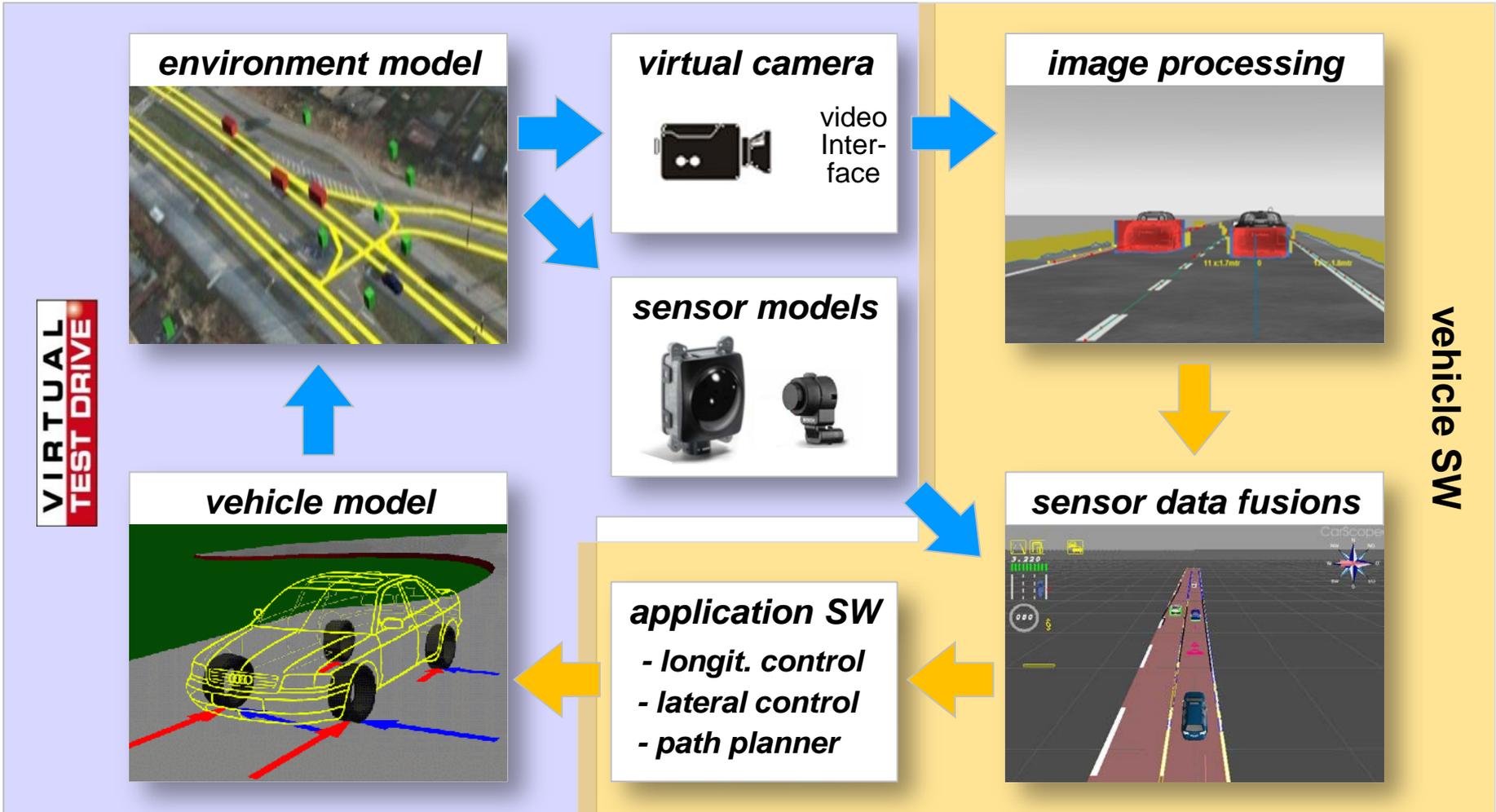
The testing effort increases disproportionately with increasing functional range/ safety requirements



Vehicle testing effort can be reduced by shifting from on-road testing to simulation.
=> **Virtual Test Drive**



Simulation via virtual test Drive



But virtual testing does not replace vehicle testing

- ❑ Testing of automated driving system applications requires validation of nominal, limit, and failure performance under real-world operating conditions
- ❑ Nominal performance testing can be safely performed on public roads by trained test drivers
- ❑ Some test scenarios for limit and failure performance are not suitable for conducting on public roadways:
 - may pose a risk to other road users
 - could disrupt traffic
 - require special test equipment and/or infrastructure
 - require choreographed traffic situations (incl. other road users)
- ❑ Such tests require specialized facilities
- ❑ Ensuring privacy for testing entities will be important

DRAFT SAE J3018 - Guidelines for Safe On-Road Testing of SAE Level 3, 4, and 5 Prototype Automated Driving Systems (ADS)

- Test Driver Training
- Test Driver Workload
- Managing Test Drivers
- Safety Development Process
- Software Development and Modifications
- Selection of Test Routes
- Graduated Road Testing
- Test Data Capture
- Safety Override

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