ASAM introduction and news

October 2022

Marius Dupuis
Chief Executive Officer, ASAM e.V.

October 26th, 2022
Novi, MI

ASAM Association for Standardization of Automation and Measuring Systems

Agenda

1	ASAM in a nutshell
2	Office and Organization
3	Standards
4	Events
5	Why ASAM?

ASAM in a nutshell

ASAM in a nutshell

Our Mission

ASAM = Association for Standardization of Automation and Measuring Systems

More than 400 member companies, including OEMs, Tier-1s, tool vendors and research institutes from all over the world, convene at **ASAM e.V.** to create **standards for the development, testing and validation of vehicles and driving functions**.

ASAM is a member-driven organization
ASAM standards are non-normative recommendations
ASAM standards work on the implementation level

ASAM acts as an antitrust-compliant umbrella for pre-competitive alignment between stakeholders

ASAM Organization 2022+

Management Team - Persona

Marius Dupuis

CEO

CV

1994	1995	1998	2017	2020	2022
Dipl.-Ing. Aerospace Engineering	Engineering Simulation, Eurocopter Deutschland GmbH	Co-Founder and General Manager, VIRES Simulationstechnologie GmbH	Managing Director, VIRES Business Unit within Hexagon	M|D Engineering Services	CEO at ASAM e.V.

Tasks

Members	Member relationship and communication
	Continued growth of member base
Marketing	Communicate the value of ASAM e.V.
	Develop the brand
Finance	Count the beans
	Provide financial planning and forecasting
Office	Manage the non-tech part of the office
	Direct and monitor the operations

Contact me:
marius.dupuis@asam.net

ASAM Organization 2022+

Management Team - Persona

Benjamin Engel

CTO

CV

M.Eng Mechanical Engineering, UK → Research & Simulation, TU Munich → Simulation Engineer & Innovations Manager, Idiada FZT → Team Lead CAE, Idiada FZT → Global Technology Manager, ASAM e.V. → CTO at ASAM e.V.

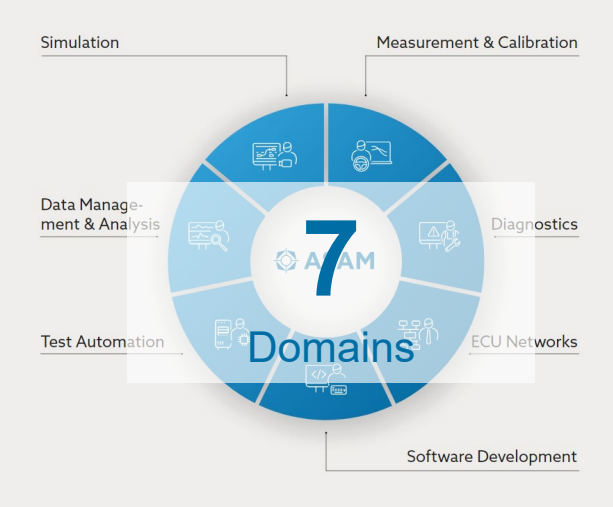
Tasks

Standardisation	Alignment between ASAM‘s domains
	Coordinate ideation & development
Liaison	Align with other standardisation organisations
	Support research activities
Office	Lead ASAM‘s technical team
	Improvement of ASAM‘s processes and infrastructure

Contact me:
benjamin.engel@asam.net

ASAM in a nutshell

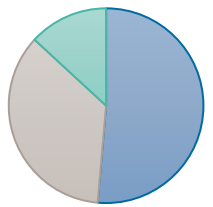
Global Impact



Measurement & Calibration	Diagnostics	ECU Networks	Software Development	Test Automation	Data Management & Analysis	Simulation
ARTI	MCD-2 D	MCD-2 NET	CC	ACI	CEA	OpenCRG
CDF	MCD-3 D		FSX	ASAP 3	ODS	OpenDRIVE
CMP			FSSUE	ATX		OpenLABEL
CPX			GDI	GDI		OpenODD
HMS			MD	iLinkRT		OpenSCENARIO
MCD-1 CCP			MDX	MCD-3 MC		OSI
MCD-1 POD			SCDL	OTX Extensions		
MCD-1 XCP				RCL		
MCD-2 CERP				XIL-MA		
MCD-2 MC						
MDF						

37
Released Standards

Membership Revenue



EMEA Asia America

ASAM standards portfolio

ASAM is currently active in 7 domains

Simulation

OpenCRG | OpenDRIVE | OpenLABEL | OpenSCENARIO | OSI

Measurement & Calibration

ARTI | CDF | CMP | CPX | HMS | MCD-1 CCP / XCP | MCD-1 POD | MCD-2 MC | MCD-2 CERP | MDF

Data Management & Analysis

CEA | ODS

Diagnostics

MCD-2 D | MCD-3 D | SOVD

Test Automation

ACI | ASAP 3 | ATX | GDI | iLinkRT | MCD-3 MC | OTX Extensions | XIL

ECU Networks

MCD-2 NET

Software Development

CC | FSX | ISSUE | LXF | MBFS | MDX | SCDL

https://www.asam.net/standards/

Status: Oct 11, 2022

ASAM

ASAM membership

More than 400 member organizations develop and apply ASAM standards

Status: Oct 11, 2022

ASAM

Strategic partnerships

AUTOSAR –
AUTomotive Open System ARchitecture
www.autosar.org

Eclipse Foundation
www.eclipse.org

IAMTS e.V.
International Alliance for Mobility Testing and Standardization
www.iamts.org

ISO
International Organization for Standardization
www.iso.org

MIPI Alliance
www.mipi.org

Modelica Association / FMI - Functional Mock-up Interface
www.fmi-standard.org

MOST Cooperation
www.mostcooperation.com

prostep ivip Association
www.prostep.org

SAE International
www.sae.com

Government funded R&D projects

KisSME

Artificial Intelligence (AI) for the selective near-real-time recording of scenario- and maneuver data during the testing of highly-automated vehicles

- Funded project, Germany
- Duration:
- http://www.kissme-projekt.de/

RDV - Real Driving Validation

Extension of the verifiability of continuous SW Integration in communication with vehicles in the field

- Funded project, Germany
- Duration
- www.eclipse.org

Set Level

SET Level creates an environment for simulation-based testing and development of automated driving functions (simulation platform).

- Funded project, Germany
- Duration: 2019 - 2022
- https://setlevel.de/

SIP-adus

(Strategic Innovation Program - Innovation of Automated Driving for Universal Service)
Implementation of cooperative automated driving.

- Funded project, Japan
- Duration: 2014 - 2023
- https://en.sip-adus.go.jp/

TreuMoDa

(Trust Office for Mobility Data)
Guidelines for the data protection-compliant exchange, processing and storage of data.

- Funded project, Germany
- Duration: 2022 – 2024
- https://www.treumoda.de/

AVEAS

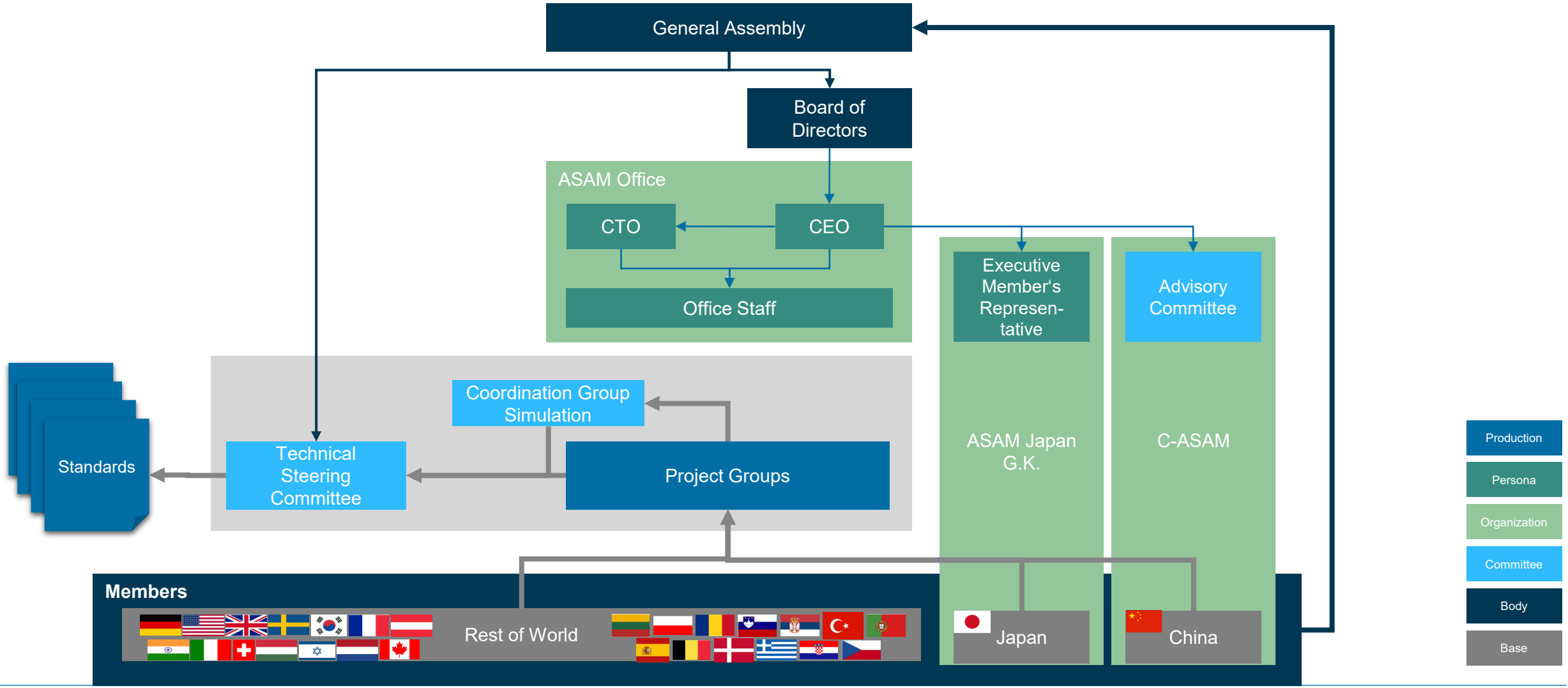
(Absicherungsrelevante Verkehrssituationen Erheben, Analysieren, Simulieren)
Detect critical real-world situations and transfer them into models for scenario generation and simulation.

- Funded project, Germany
- Duration: 2021 – 2024
- https://www.aveas.open-set.org/

Office and Organization

ASAM Organization 2022+

Shared responsibilities – combined forces



Board of Directors – Term 2021 - 2023

Voluntary representatives from international OEMs, tool vendors and research institutes

Chairman

Prof. Dr. Marcus Rieker
HORIBA Europe GmbH

Dr. René Grosspietsch
BMW AG

Prof. Dr. Frank Köster
DLR e.V.

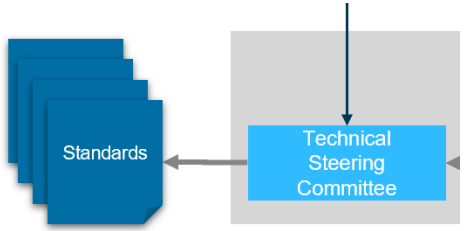
Dr. Ralf Nörenberg
HighQSoft GmbH

Armin Rupalla
RA Consulting GmbH

ASAM

Election Technical Steering Committee – Term 2022 - 2024

A highly experienced international team of experts from the automotive industry



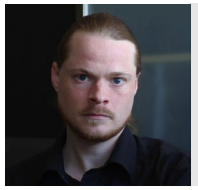
Gil Amid
Foretellix Ltd.

Dr. Christoph Dallmayr
Vector Informatik GmbH

Prof. Dr. Andras Kemeny
Driving Simulation Association

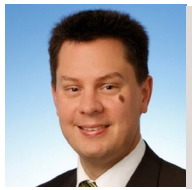
Christian Pahlke
TÜV SÜD

Oliver Philipp
Siemens Industry Software GmbH



Dr. Andreas Richter
Volkswagen AG

Dr. Gerald Sammer
AVL List GmbH



Michael Schwarzbach
BMW Group

Markus Steffelbauer
Softing Automotive Electronics GmbH

Jacques Weber
Vitesco Technologies France

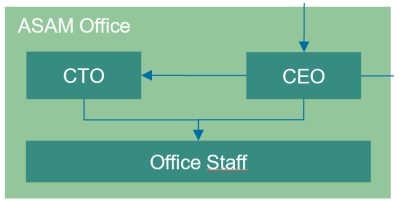
Thilo Wenzel
ETAS GmbH

Dr. Jörg Supke
EMOTIVE GmbH & Co KG

ASAM

ASAM Office 2023

The ASAM team “at your disposal” – at any time

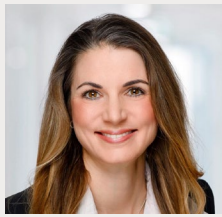


Marius Dupuis
Chief Executive Officer (CEO)
Phone: +49 8102 8061-66
Email: md@asam.net

Ben Engel
Chief Technology Officer (CTO)
Phone: +49 151 61645936
Email: be@asam.net

ASAM Japan G.K.

Yoshiaki Shoi
Representative in Japan
Phone: +81 (0)3-6721-8503
Email: ys@asam.net



Magdalena Weintritt
Management Assistant
Phone: +49 1709210718
Email: mw@asam.net

Christian Gödert
Technical Writer
Phone: +49 170 9210750
Email: cg@asam.net

NN
Technology Manager
Phone: tbd
Email: tbd

Dorothée Bassermann
Marketing Manager
Phone: +49 151 64412188
Email: db@asam.net

Bernd Wenzel
Senior Technical Consultant
Phone: +49 371 5607742
Email: bw@asam.net

Matthäus Lang
Technology Manager
Phone: tbd
Email: tbd

Kathrin Wulff
Management Assistant
Phone: tbd
Email: tbd

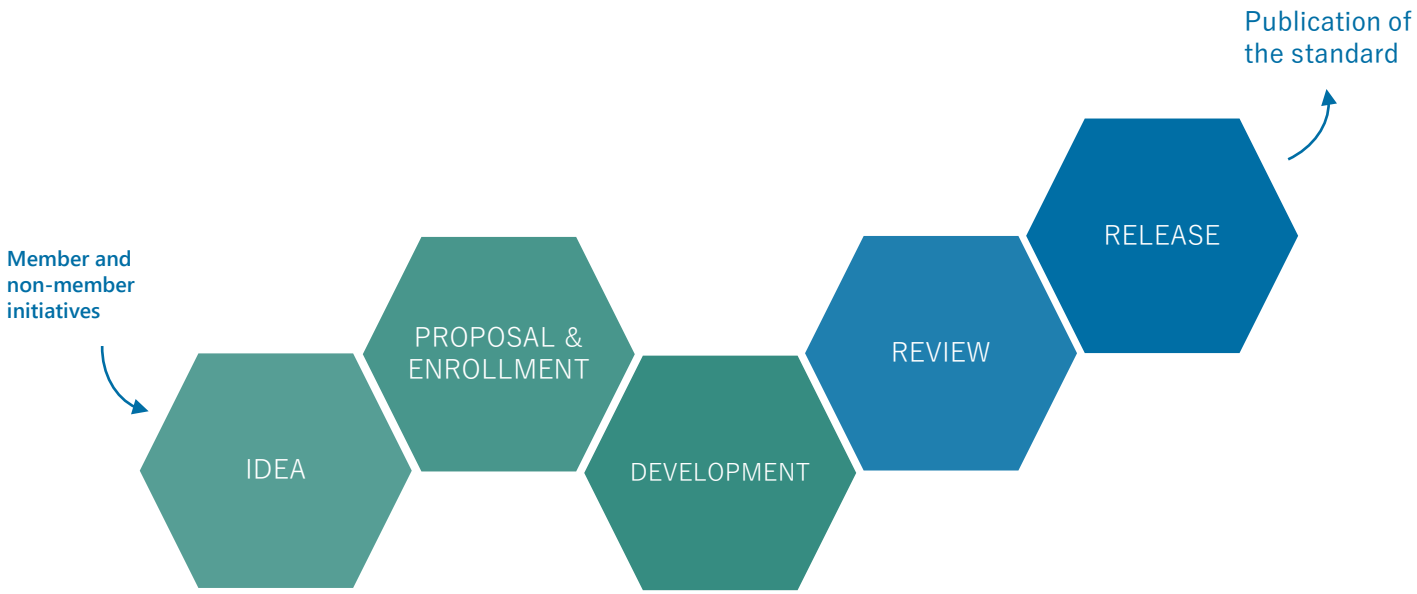
Thomas Matthes
Software Developer

Sachin Shukla
Junior Technology Manager
Phone: +49 160 99218048
Email: sachin.shukla@asam.net

Standards

ASAM Development Process

From the first idea to the publication of a standard

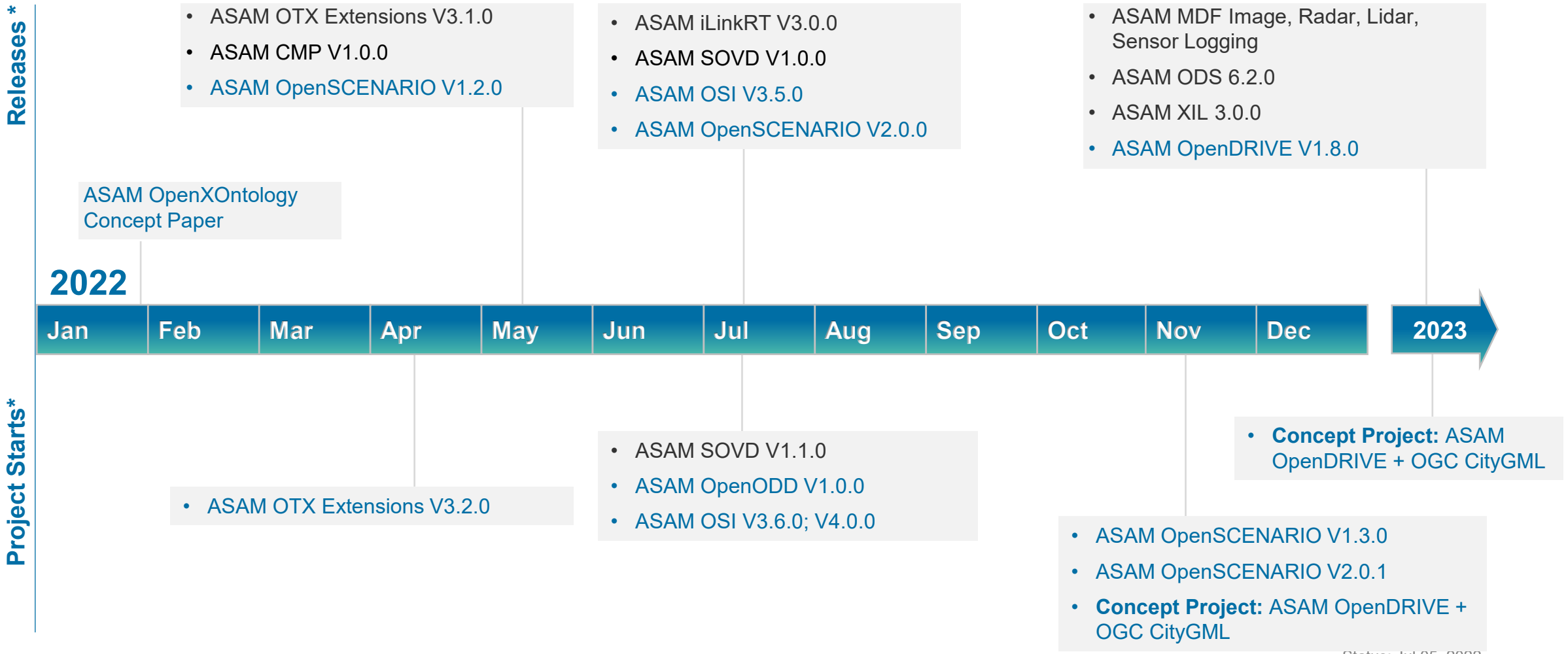


Guiding Principles:

- **Member-driven**
  Initiatives and decisions are taken by the member companies.
- **Open exchange**
  ASAM requests open exchange among all stakeholders.
- **Domain expertise**
  ASAM has a global network of domain experts to develop standards
- **Flexible processes**
  ASAM has lean yet flexible process structures leading to short development times
- **Project support**
  Experienced Technology Managers support the project groups

Release and Project Roadmap 2022

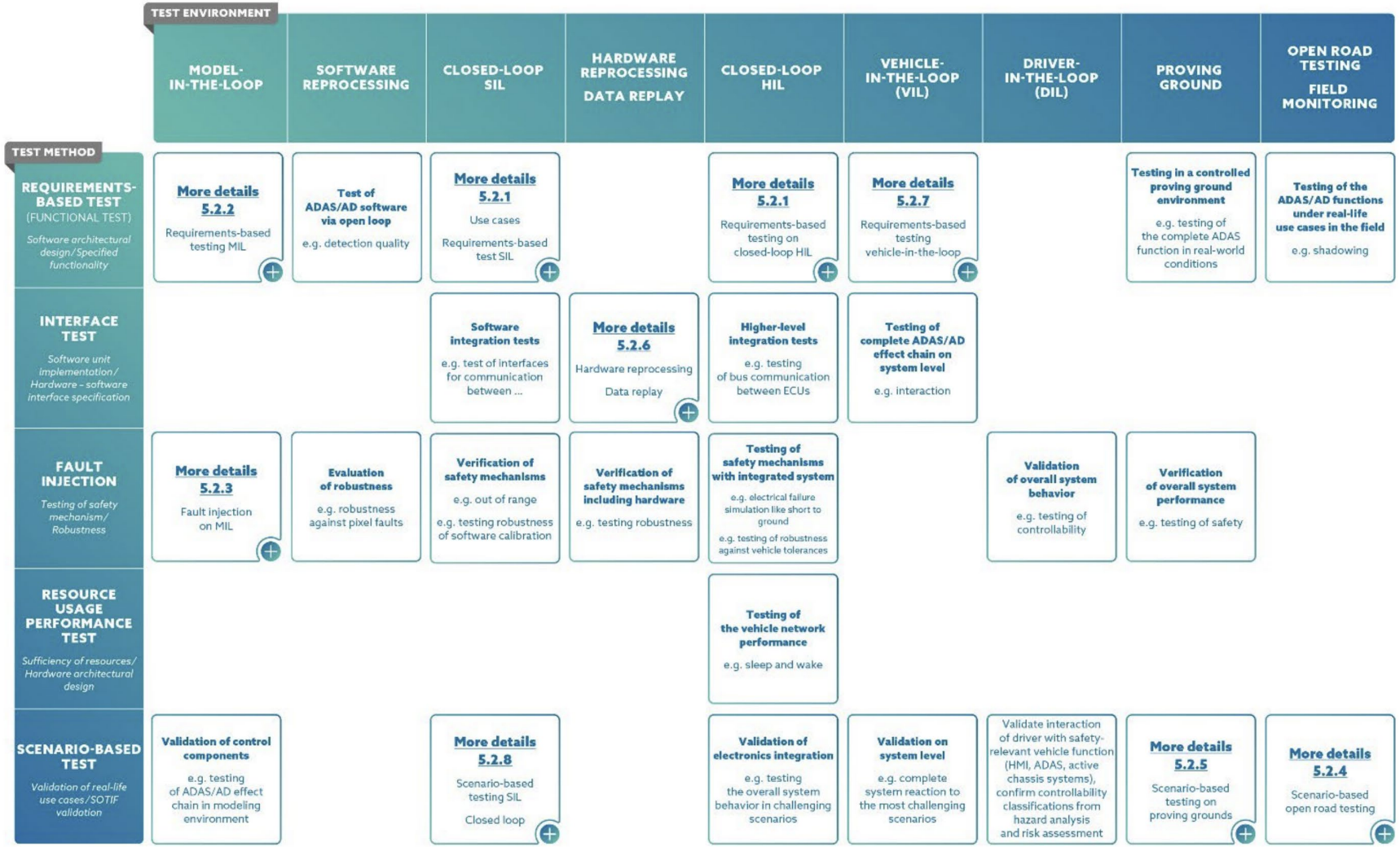
In 2022, we had two completely new standards released (ASAM CMP, ASAM SOVD).



Status: Jul 05, 2022

Highlight: Testing ADAS/AD systems

Seeing the big picture



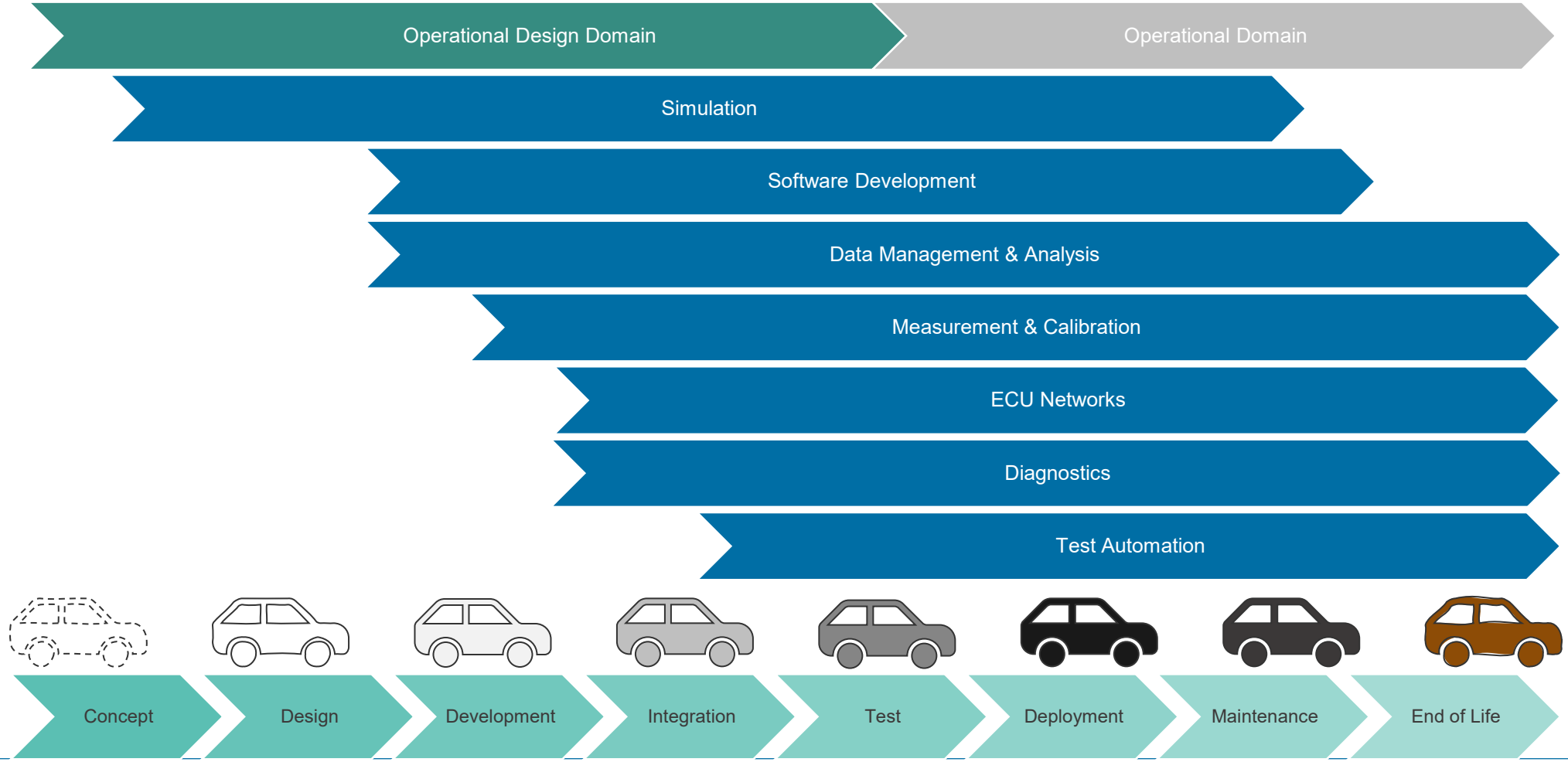
https://www.asam.net/standards/asam-test-specification/

Standards

Application

ASAM standards

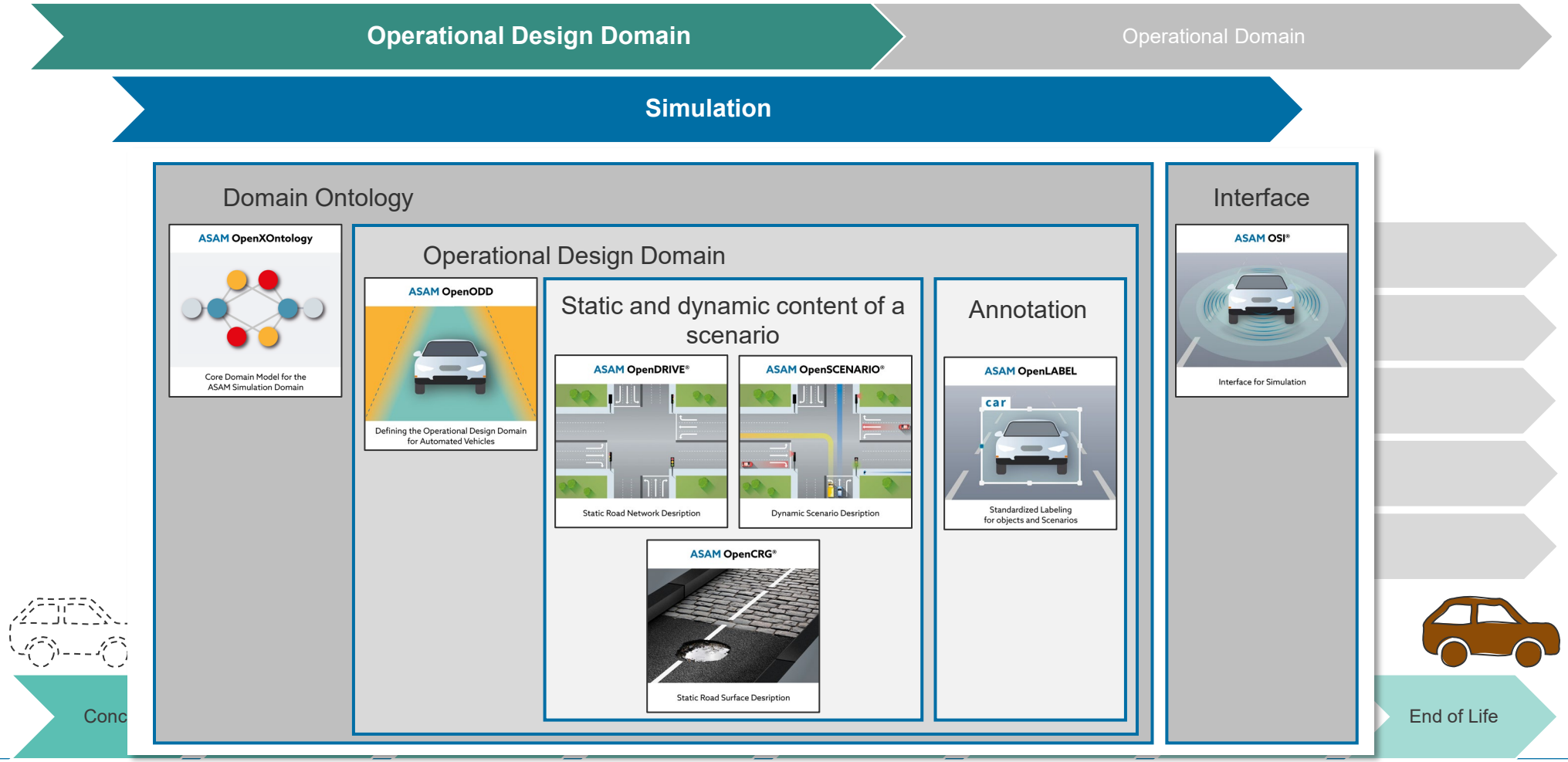
The V-cycle and beyond – covered by ASAM domains



ASAM

ASAM standards for ADAS/AD

Domains in Detail



ASAM standards

Domains in detail

Operational Design Domain

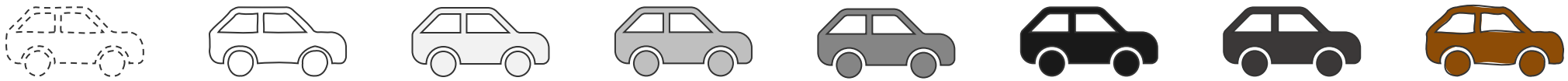
Operational Domain

Simulation

Software Development

- **Supporting ECU software development**
  - Formal description and documentation
  - Description of change requests
- **Development of functional safety features**
  - Correlate safety design to system architecture
- **Example: SCDL (Safety Concept Description Language)**

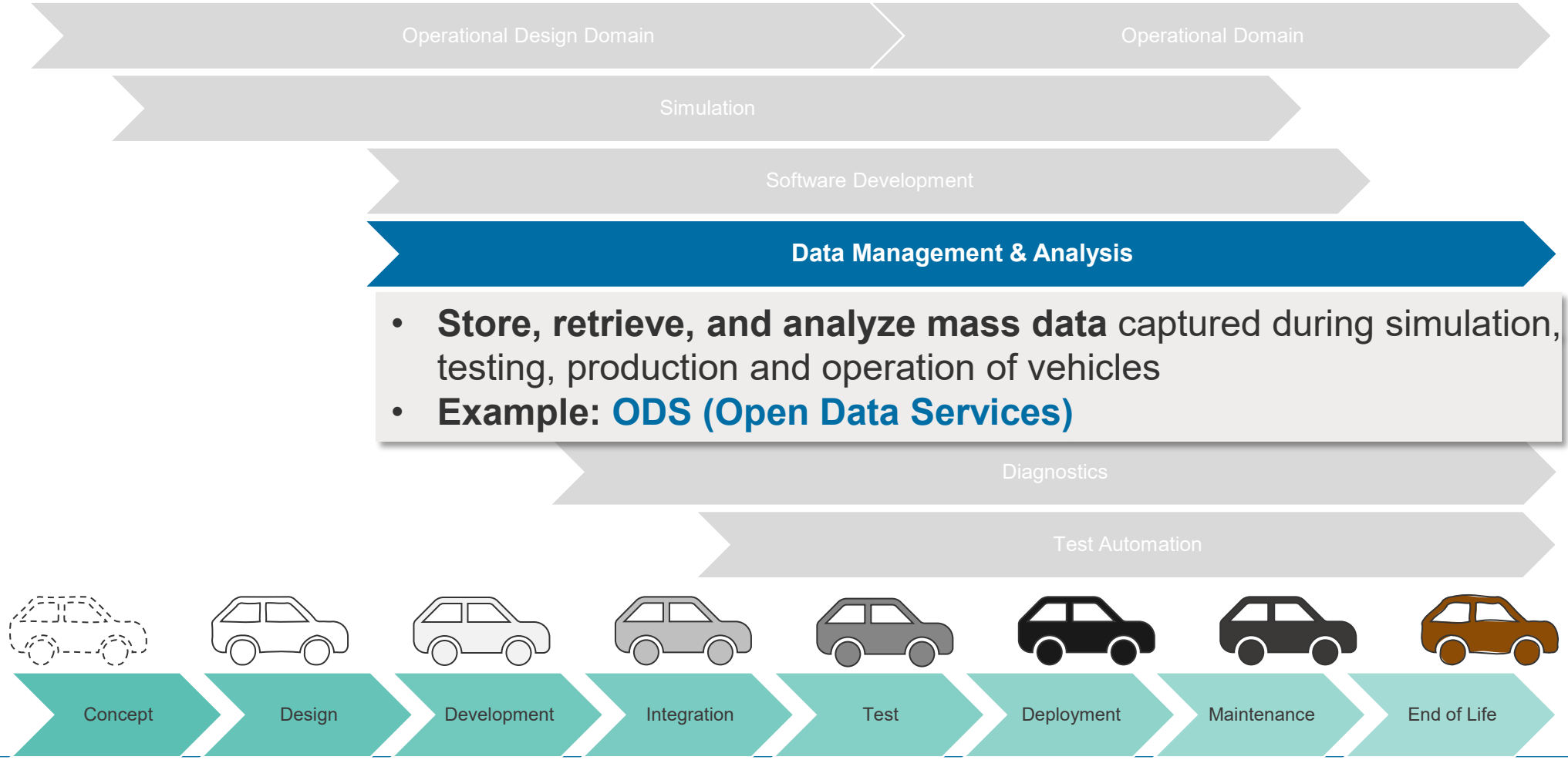
Test Automation



Concept | Design | Development | Integration | Test | Deployment | Maintenance | End of Life

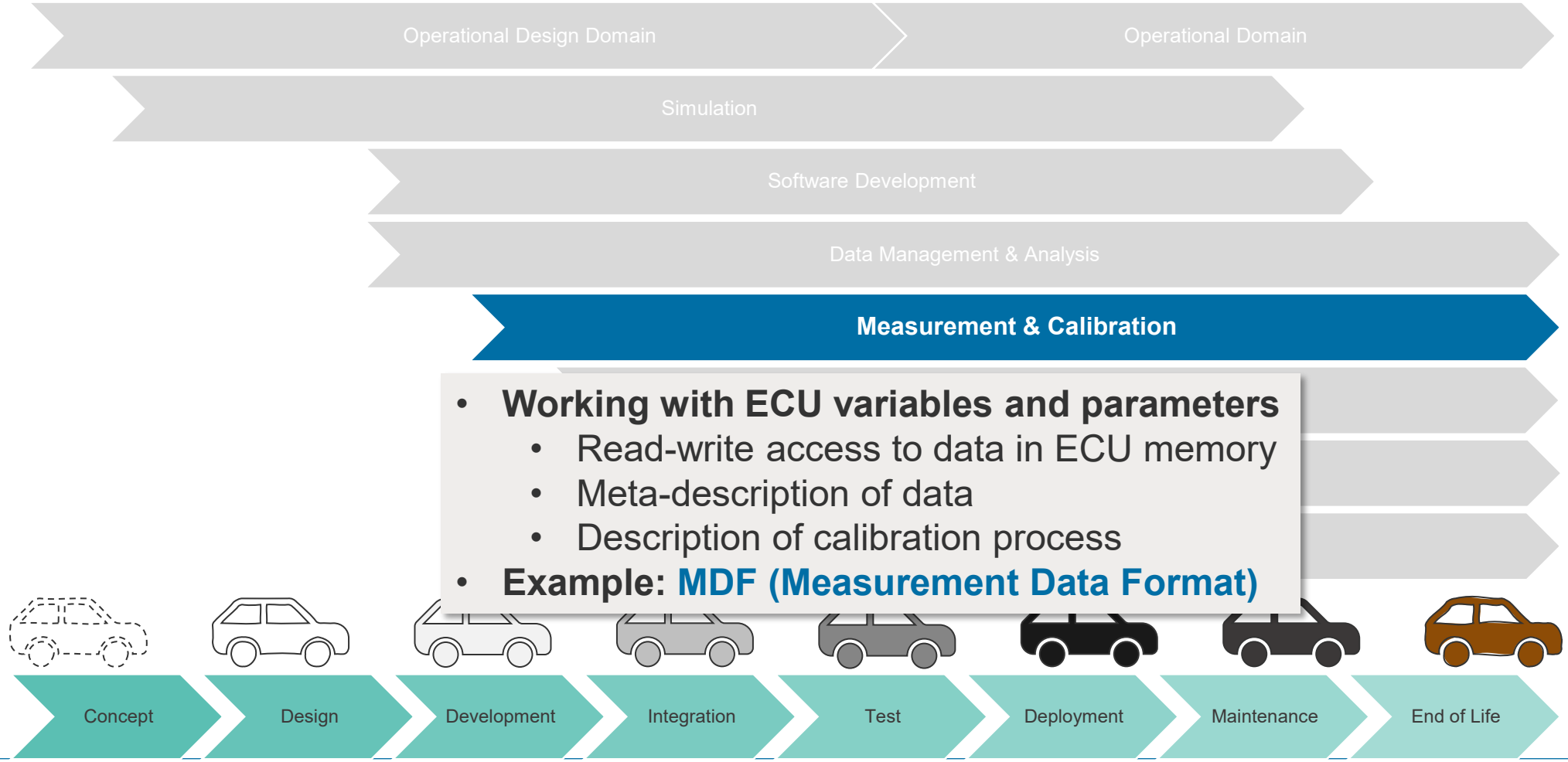
ASAM standards

Domains in detail



ASAM standards

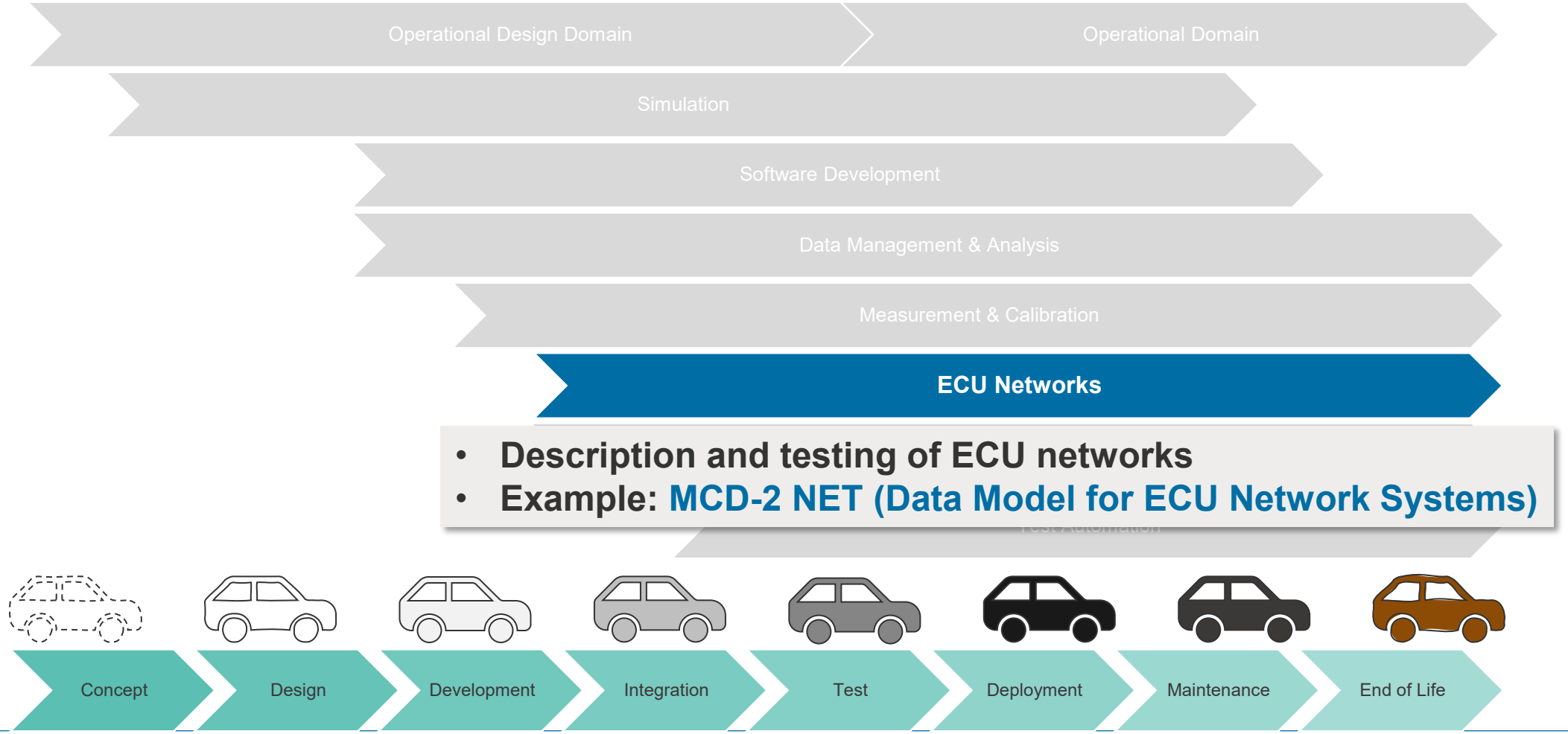
Domains in detail



- **Working with ECU variables and parameters**
  - Read-write access to data in ECU memory
  - Meta-description of data
  - Description of calibration process
- **Example: MDF (Measurement Data Format)**

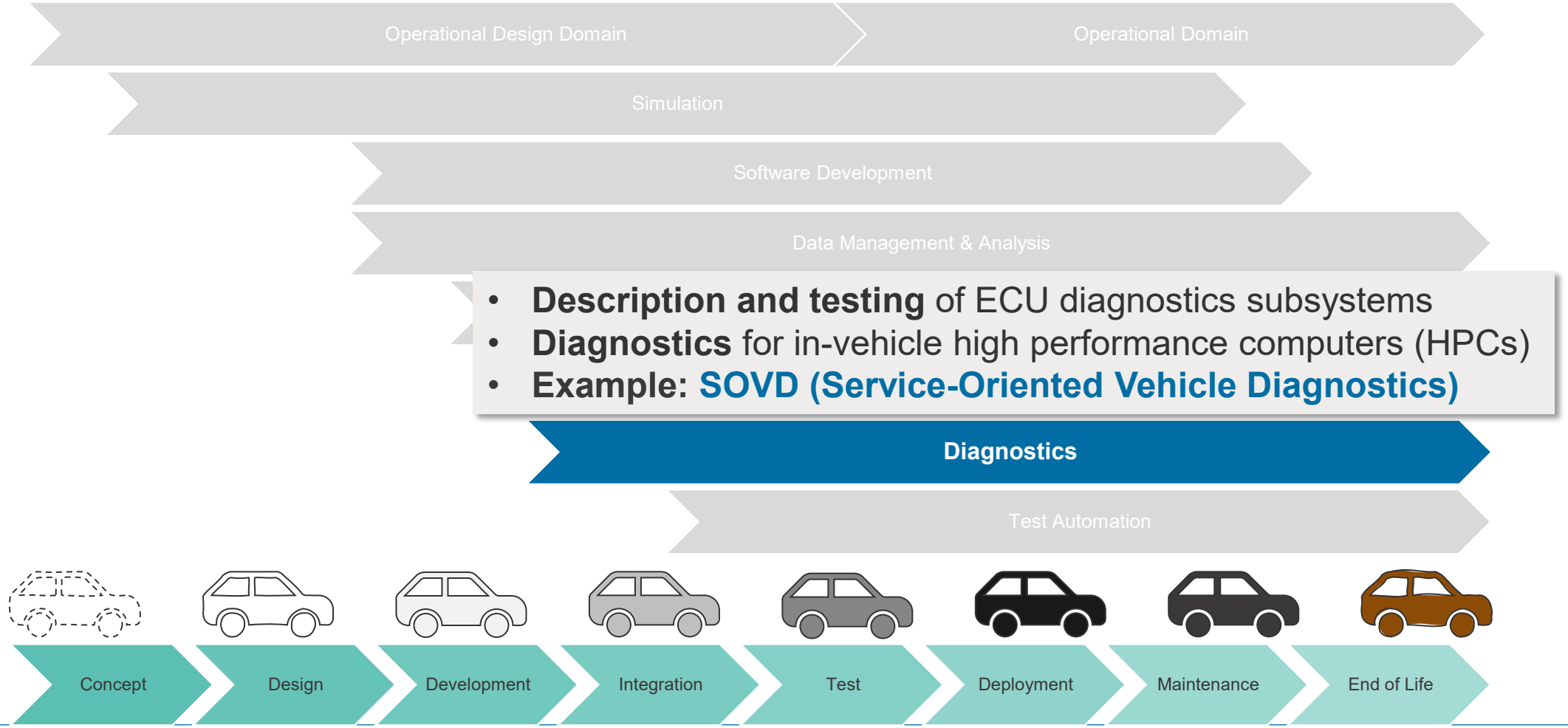
ASAM standards

Domains in detail



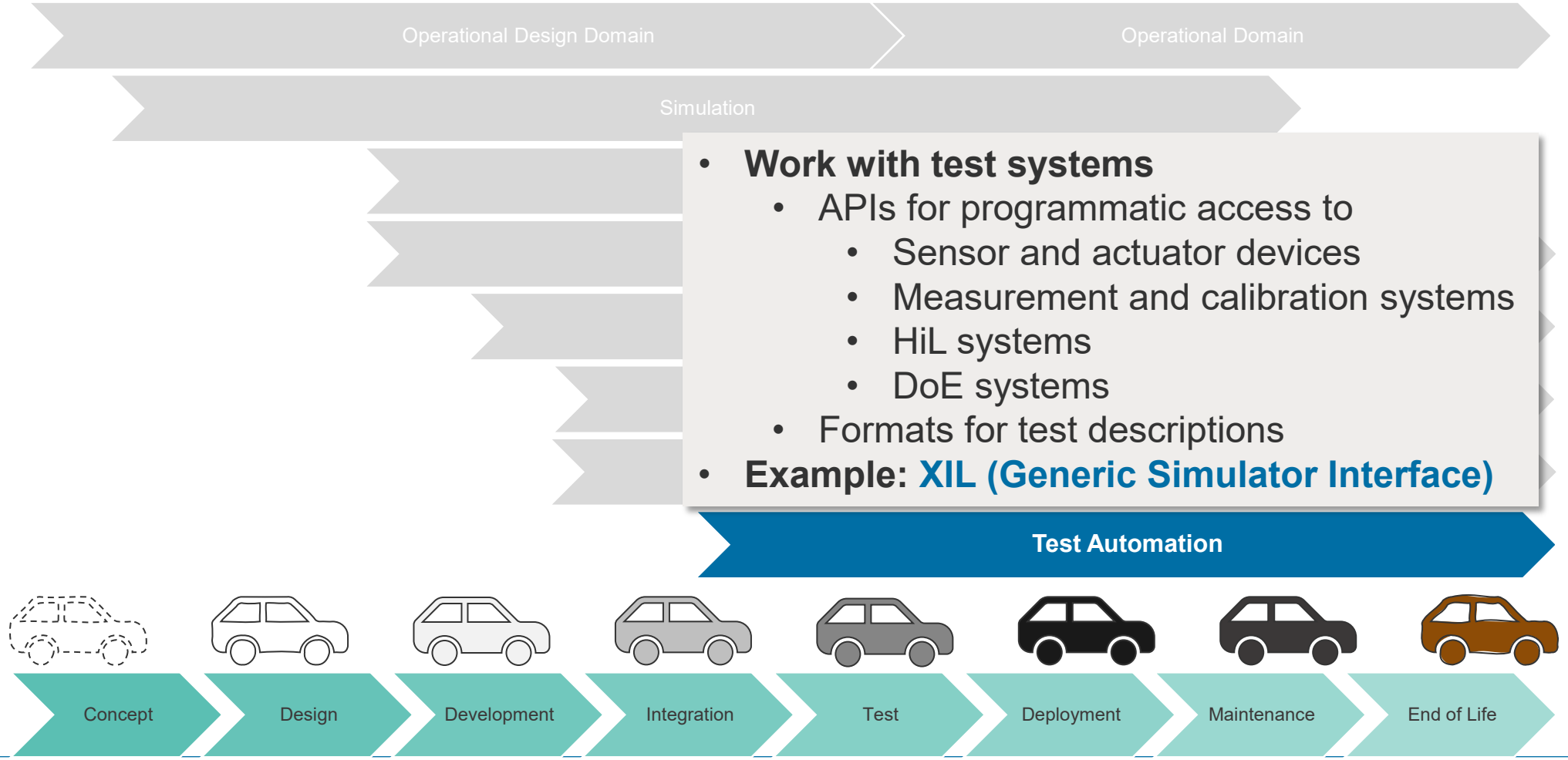
ASAM standards

Domains in detail



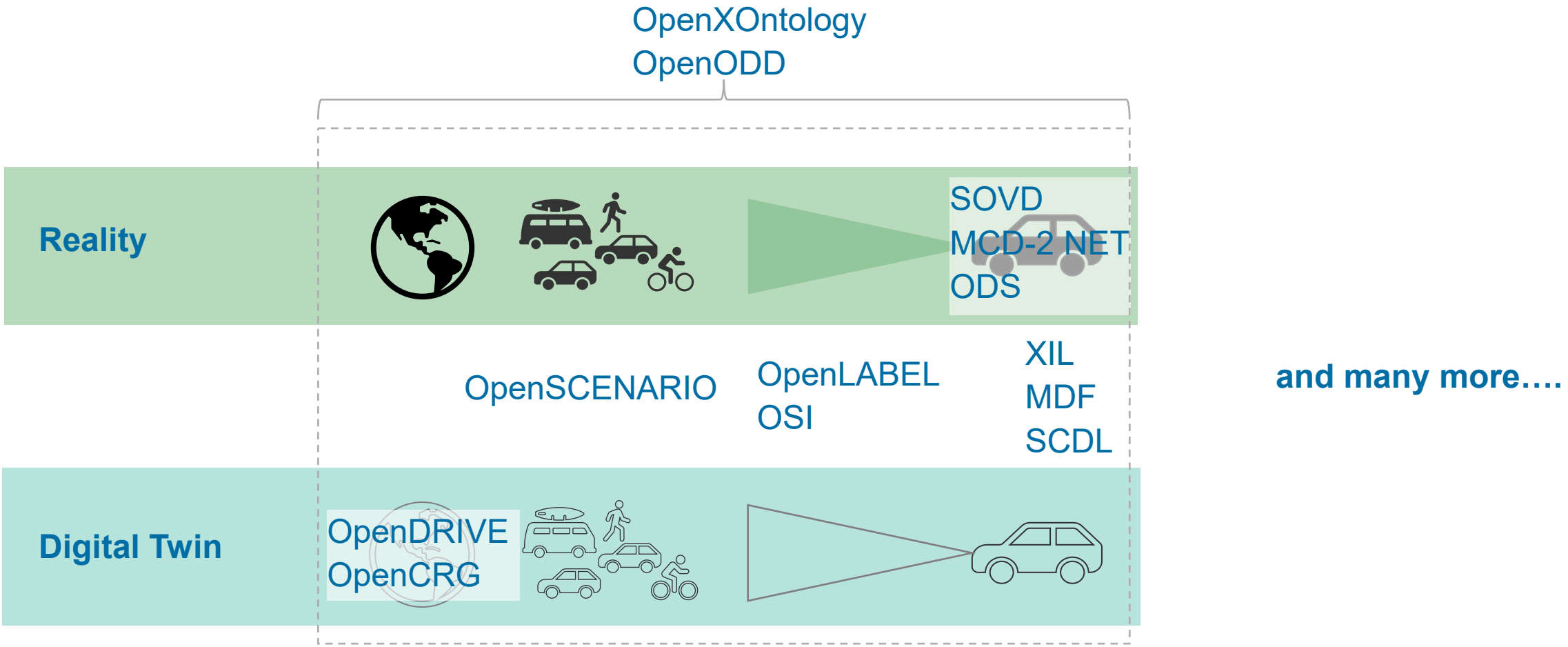
ASAM standards

Domains in detail



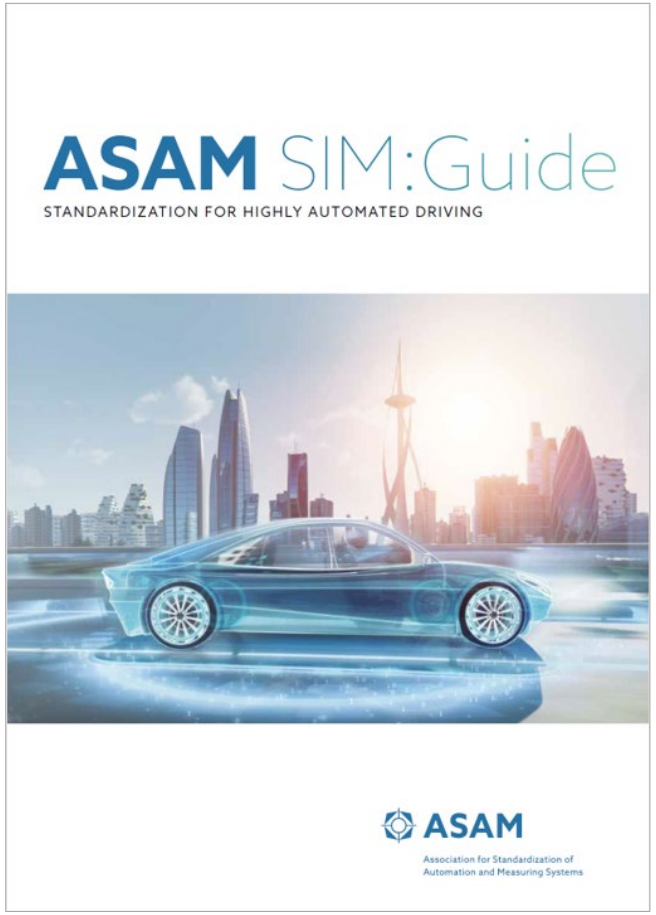
Highlight: Connecting ASAM domains

Beyond OpenX



ASAM SIM:Guide

Standardization for highly automated driving



The guide contains

- Introduction to the ASAM domain "Simulation"
- All current standardization activities by ASAM in the domain
- Current standardization activities outside of ASAM
  -> places the ASAM OpenX standards in the larger context of a global standardization landscape
- Application stories from our members
  -> how do our members use the OpenX standards
  -> how have these standards helped to improve processes
  -> how are they facilitating customer projects

Order your copy today:
www.asam.net/asam-guide-simulation

Upcoming events

Join us!

ASAM International Conference 2022

On Nov 29 – 30, 2022, ASAM will hold its 5th International Conference

https://www.asam.net/conferences-events/detail/asam-international-conference-2022/

Nov
29-30
2022

**“Towards ADAS and AD certification –
Integrated development and testing based on standards”**

Dresden,
Germany

Conference…

Trade Show…

Hybrid event
Meet the actors –
online or in person.

Networking…

ASAM

ASAM International Conference 2022

On Nov 29 – 30, 2022, ASAM will hold its 5th International Conference

https://www.asam.net/conferences-events/detail/asam-international-conference-2022/

Time	Plenary Room
09:00 - 09:15	**Welcome** Prof. Dr. Marcus Rieker, Chairman of the Board of Directors, ASAM e.V. Marius Dupuis, CEO, ASAM e.V.
9:15 - 10:00	KEY NOTE: **Trends and tipping points technologies, autonomous mobility and engineering until 2** Lars Thomsen, Chief Futurist and Founder of future matters AG
10:00 - 10:25	**Safety assessment of driver assistance and automated driving based on real life traffic data** Prof. Günther Prokop, Pr
10:25 - 10:55	**COFFEE BREAK | EXHIB**
Session I: Chairman:	Seamless Data M Lutz Morich, frE
10:55 - 11:15	**Standardization facilita** Stefan Romainczyk, Seni
11:15 - 11:35	**Virtual assessment fran** Hannes Schneider, Lead
11:35 - 11:55	**The validation of autom** Max Winkelmann, Concep
11:55 - 12:15	**5- Minute Pitches for Po** This year, ASAM is hostin presenters.
12:15 - 13:30	**LUNCH | EXHIBITION**

2 days

12:15 - 13:30	**LUNCH | EXHIBITION**
13:30 - 13:50	**Automatic large-scale scenario prod** Charles Shao, Senior Product Manager, LiangDao GmbH
13:50 - 14:10	**Cars in the Cloud: Enabling modern software development methods with large scale testing and simulation** Stefano Marzani, Principal Partner Solutions Architect Automotive, Amazon Web Services
14:10 - 14:30	**How data spaces will shape future data ecosystems for scenario-based testing** Rico Auerswald, Department Mobility and Digital Services, Fraunhofer Institute IVI
14:30 - 14:50	**Enabling Virtual Test & Validation – Defining data quality requirements and acceptance tests for ASAM OpenX simulation data** Carlo van Driesten, BMW Group
14:50 - 15:20	**COFFEE BREAK | EXHIBITION**
Session II: Chairman:	Application of ASAM Standards Dr. René Grosspietsch, BMW AG
15:20 - 15:40	**How ASAM OpenX standards play a critical role for AV development through faster and guaranteed interoperability** Arun Prasad, Product Manager - Autonomous Vehicles | Vignesh Amur, Vignesh Amur Automotive Domain Consultant, Smart Mobility Group, Tata Consultancy Services
15:40 - 16:00	**Scenario description vs expected behavior description: Sample application using ESMini and ASAM OpenSCENARIO** Dr. Christoph Lauer, Virtual Verification at CARIAD Technology
16:00 - 16:20	**ASAM standards to ensure reproducibility and improve efficiency** Michael Kluge, Product Manager, dSPACE GmbH
16:20 - 16:40	**Rapidly precise: Scenario-based perception testing and training - A partnership approach** Bernhard Mueller-Bessler, Head of Autonomous Solutions, Hexagon Heiko Scharke, AVL List GmbH
Session III: Chairman:	Extending the Scope of ASAM Standards Dr. René Grosspietsch, BMW AG
16:40 - 17:00	**Using operational design domain for safe AI in urban air mobility** Akshay Anilkumar Girija, Research Fellow, Institute for AI Safety and Security, DLR e.V.

8:30 - 9:00	PLENARY **Development of international standards for autonomous driving test scenarios** Zhao Wang, Director of Auto Standardization Research Institute, China Automotive Technology and Research Center Co., Ltd.
Session IV Chairman:	Testing & Simulation Concepts Andras Kemeny, Driving Simulation Association
9:00 - 9:25	**Robust scenario definition at the heart of autonomous vehicle validation** Éric Vaillant, Expert Leader Testing, Renault
9:25 - 9:50	**Training and testing autonomous vehicles on edge case scenarios** Dr. Nils Goldbeck, CTO, ØRISK
9:50 - 10:15	**Using ASAM standards for creating re-usable tests a** Dr. Jakob Kaths, Product Owner, Vector Informatik Gm
10:15 - 10:45	**COFFEE BREAK | EXHIBITION**
10:45 - 11:10	**Experiences of virtual testing methods in automate development and challenges in the context of stand** Dr. Christoph Sippl, Sim ngineer, AUDI AG | De TechHub GmbH
11:10 - 11:35	**Automatic scenario g ophisticated traffi functional specification pective ECUs and/or** Intakhab Khan, Managing Director, Automotive Artifici GmbH
Session VI Chairman:	Safety Aspects Bernard Dion, Ansys
11:40 - 12:05	**Functional safety and cybersecurity: A unified appr** Dr. Long Lu, Global Head of Digital Safety & Security, N
12:05 - 12:30	**System safety based out of ISO 26262 and SOTIF (Sa functionality)** Karthikeya S M, Senior Safety Consultant, AVIN System
12:30 - 13:45	**LUNCH | EXHIBITION**

8 sessions

Session V: Chairman:	Standards-Based Tool Chains Shuai Zhao, CATARC	
9:00 - 9:25	**Standardization's impact on quality using the example of operational design domains** Dr. Andreas Richter, Engineering Program Manager Operational Design Domains, Volkswagen AG	
9:25 - 9:50	**Applying ASAM OpenSCENARIO V2.0.0 on real-life requirement-based testing**	
13:45 - 14:10	**Sensitivity Analysis within the Prospective Safety Integrity Framework** apl. Prof. Dr. Moritz Werling, Senior Expert Safe System Design, BMW Group	**Auto traffic model development and calibration for vehicle co-simulation** Shaleen Srivastava, CEO, Goleyo
14:10 - 14:35	**A systematic scenario-based framework for safety validation of autonomous vehicle system** Dr. Babak Jahromi, Staff Systems Engineer, Aurora Innovation	**On the utilization of ASAM OpenLABEL for complex multi-sensor data labeling** Dr. Marcos Nieto, Director of Department, Vicomtech
		Session VIII: Related Activities Chairman: Prof. Dr. Marcus Rieker, HORIBA Europe
14:35 - 14:55	**Compilation of driving simulation languages via retargetable and semantics-based translation** Prof. Dr. Joern Schneider, Full Professor, Trier University of Applied Sciences	**N development and use of a worldwide standard for map data** Fabian Kiebert, Technical Coordinator NDS
14:55 - 15:15	**Accident data based scenario and simulation techno solved SOTIF issue** ChuZhao Li, Deputy Secretary of Data and Simulation Department, Intelligent Connected Technology of CAERI Co., Ltd. (ICTC)	**m-AUTOSAR Partners** Martin Lunt, AUTOSAR Project Lead, Robert Bosch GmbH
15:15 - 15:35	**Wireless channel simulation tool for connected and autonomous vehicles** Longxiang Wang, Head of R&D department, CAICT Innovation Center of Automotive and Transportation	**Opportunities and limitations of OSI within the VIVID and DIVP projects** Lukas Elster, Research Associate, Technical University of Darmstadt
15:35 - 15:50	**COFFEE BREAK | EXHIBITION**	**COFFEE BREAK | EXHIBITION**
	PLENARY	
15:50 - 16:20	**Assuring regulatory compliance of CAVs during their operational lifetime** Richard Goebelt, Representative of the joint IAMTS/CITA Study Group Vehicle Compliance	
16:20 - 16:40	**PLENARY DISCUSSION: Key findings** All Session Chairs	
16:40 - 16:45	**Closing Remarks**	

39 presentations

ASAM

Conclusion

Why ASAM?

Conclusion

ASAM provides the

- Motivation
- Know-how
- Framework and
- Community

for efficient development, deployment and maintenance of standards
that are relevant to making automotive projects a reality – today and tomorrow!

Thank you for your attention!

Marius Dupuis
CEO
ASAM e.V.

email: marius.dupuis@asam.net

ASAM International Conference 2022

On Nov 29 – 30, 2022, ASAM will hold its 5th International Conference

https://www.asam.net/conferences-events/detail/asam-international-conference-2022/

Nov
29-30
2022

**“Towards ADAS and AD certification –
Integrated development and testing based on standards”**

Dresden,
Germany

Conference…

Trade Show…

Hybrid event
Meet the actors –
online or in person.

Networking…

ASAM