

ASAM Regional Meeting Japan 2023

ASAM News



Marius Dupuis
Chief Executive Officer, ASAM e.V.

June 28th, 2023
Tokyo, JP



Association for Standardization of
Automation and Measuring Systems

ASAM in a nutshell

ASAM in a nutshell

Our Mission

ASAM = Association for Standardization of Automation and Measuring Systems

- founded in 1998 -

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 standards portfolio

7

Domains

37

Released Standards

Simulation

OpenCRG OpenDRIVE OpenLABEL
OpenSCENARIO OSI

Data Management & Analysis

CEA ODS

Test Automation

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

Measurement & Calibration

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

Diagnostics

MCD-2 D MCD-3 D SOVD

ECU Networks

MCD-2 NET

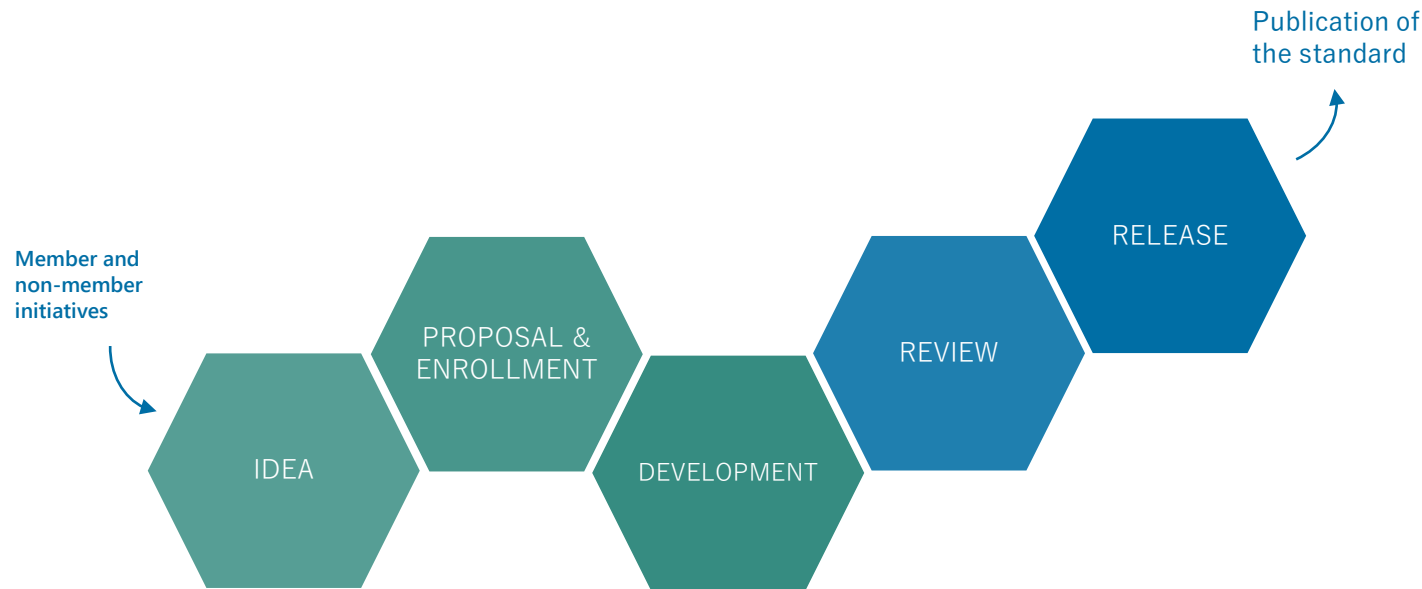
Software Development

CC FSX ISSUE LXF MBFS MDX **SCDL**



ASAM Development Process

From the first idea to the publication of a standard



Guiding Principles:

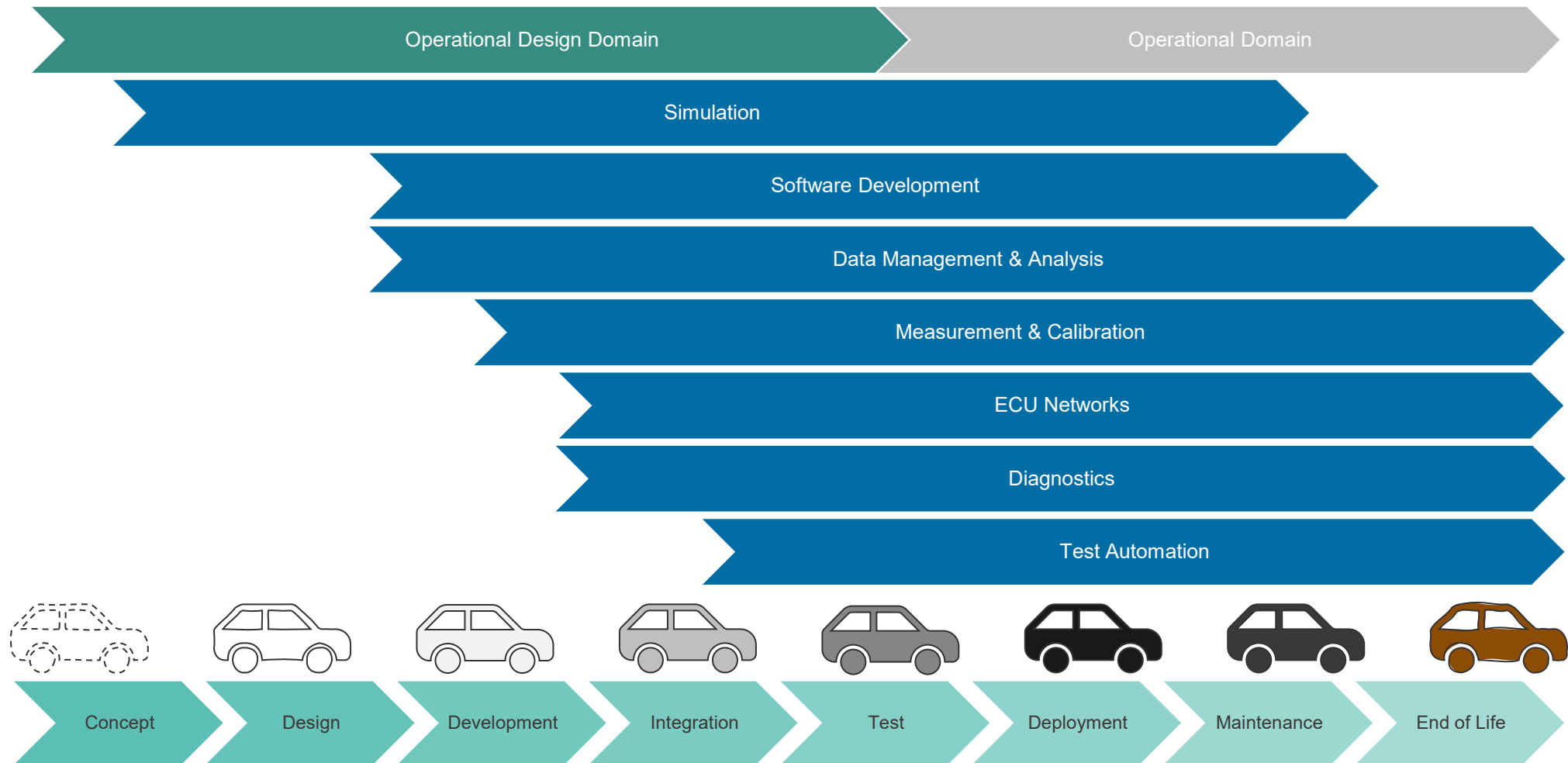
- **Member-driven**
Initiatives and decisions are taken by the member companies.
- **Open exchange**
ASAM requests open exchange among all stakeholders.
- **Domain expertise**
ASAM has a global network of domain experts to develop standards
- **Flexible processes**
ASAM has lean yet flexible process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

Scope

Covering the entire vehicle lifecycle

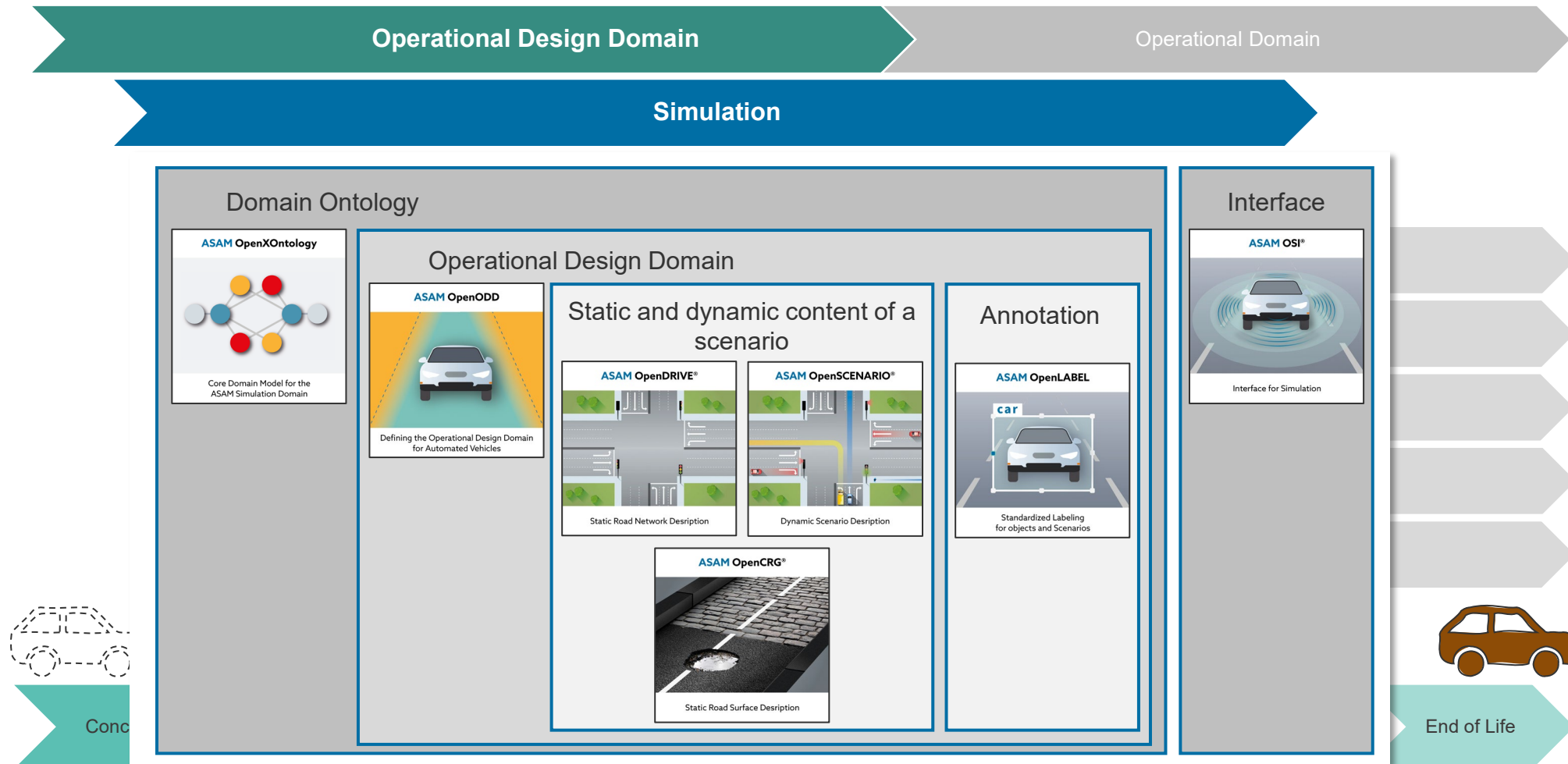
ASAM standards

The V-cycle and beyond – covered by ASAM domains



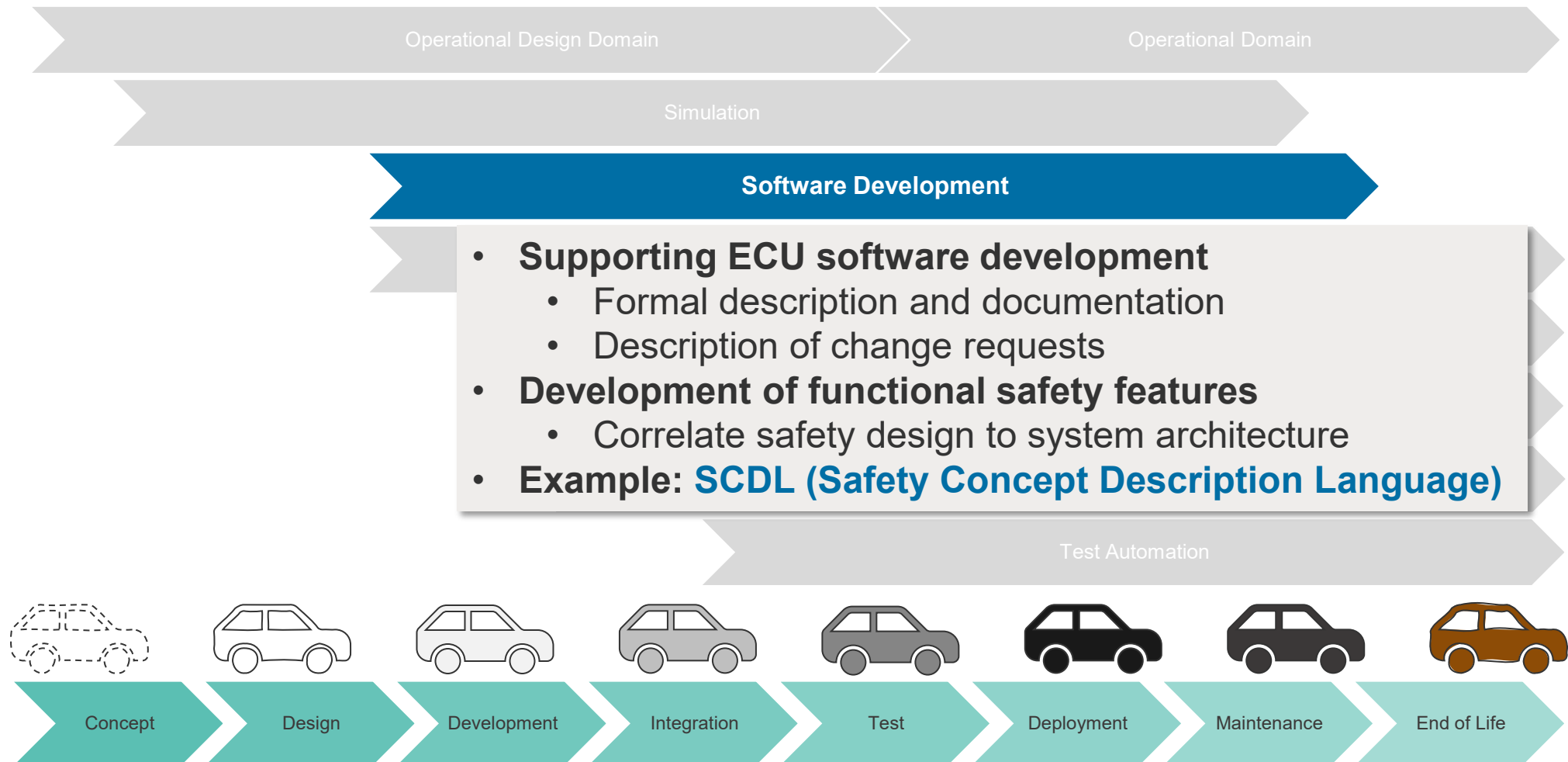
ASAM standards for ADAS/AD

Domains in Detail



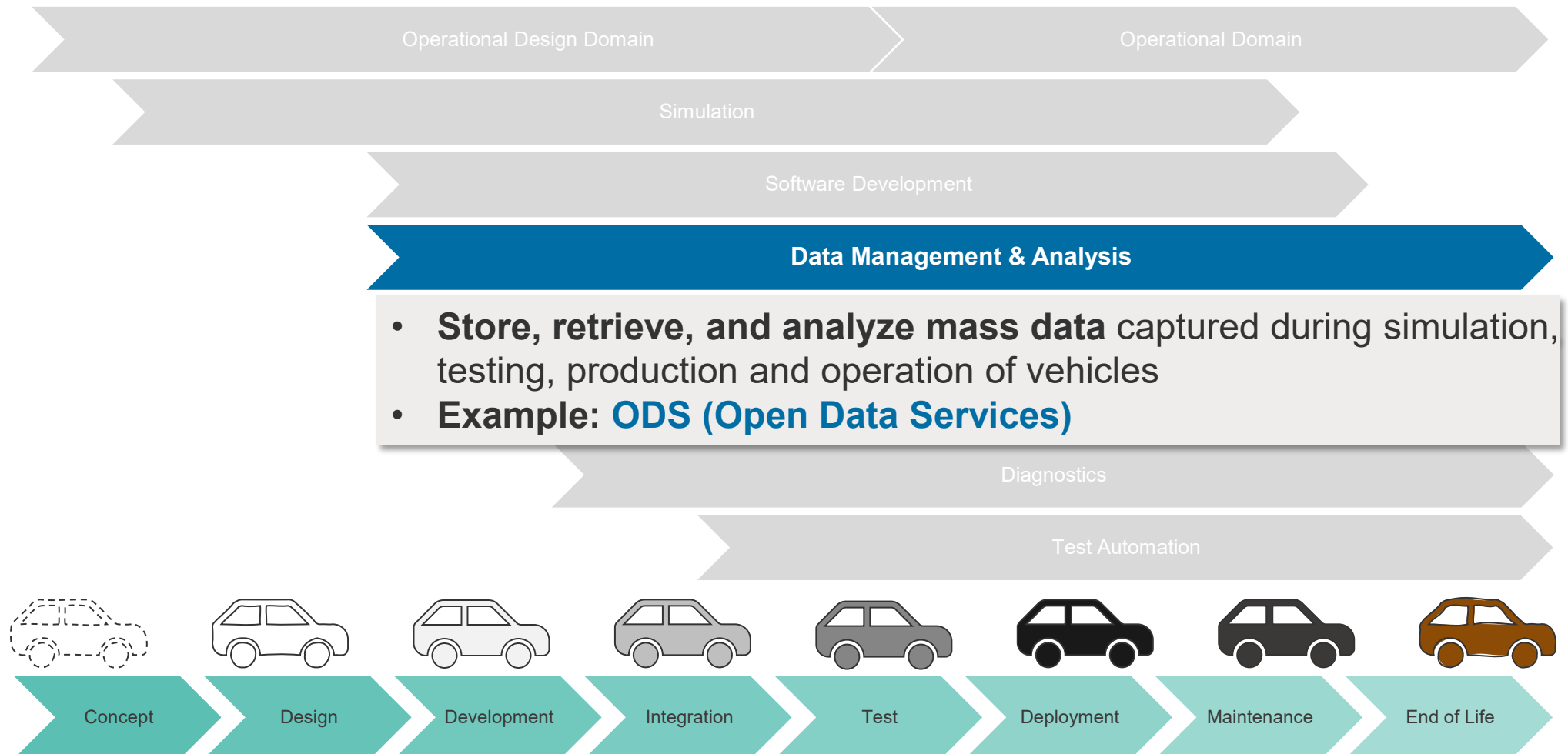
ASAM standards

Domains in detail



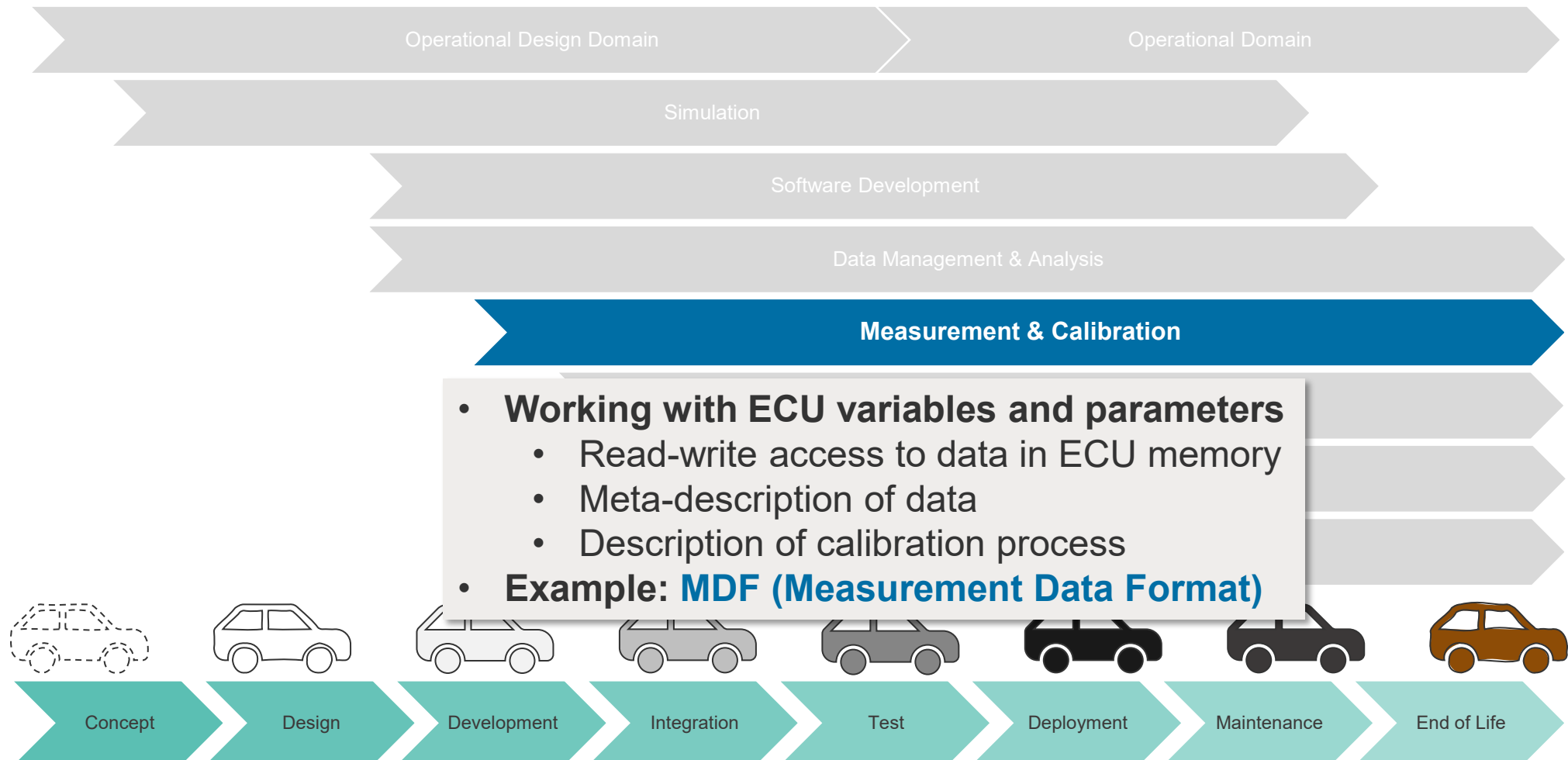
ASAM standards

Domains in detail



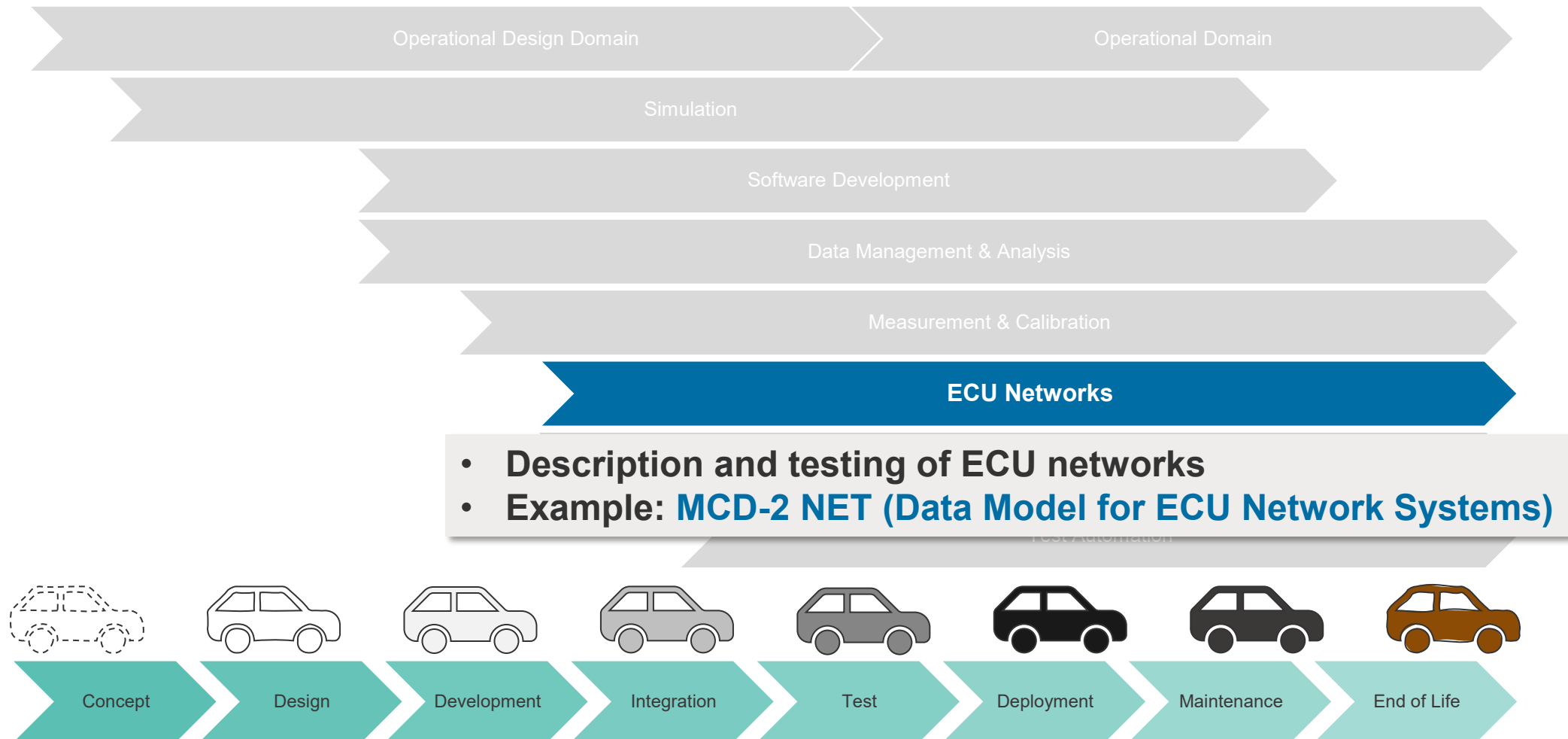
ASAM standards

Domains in detail



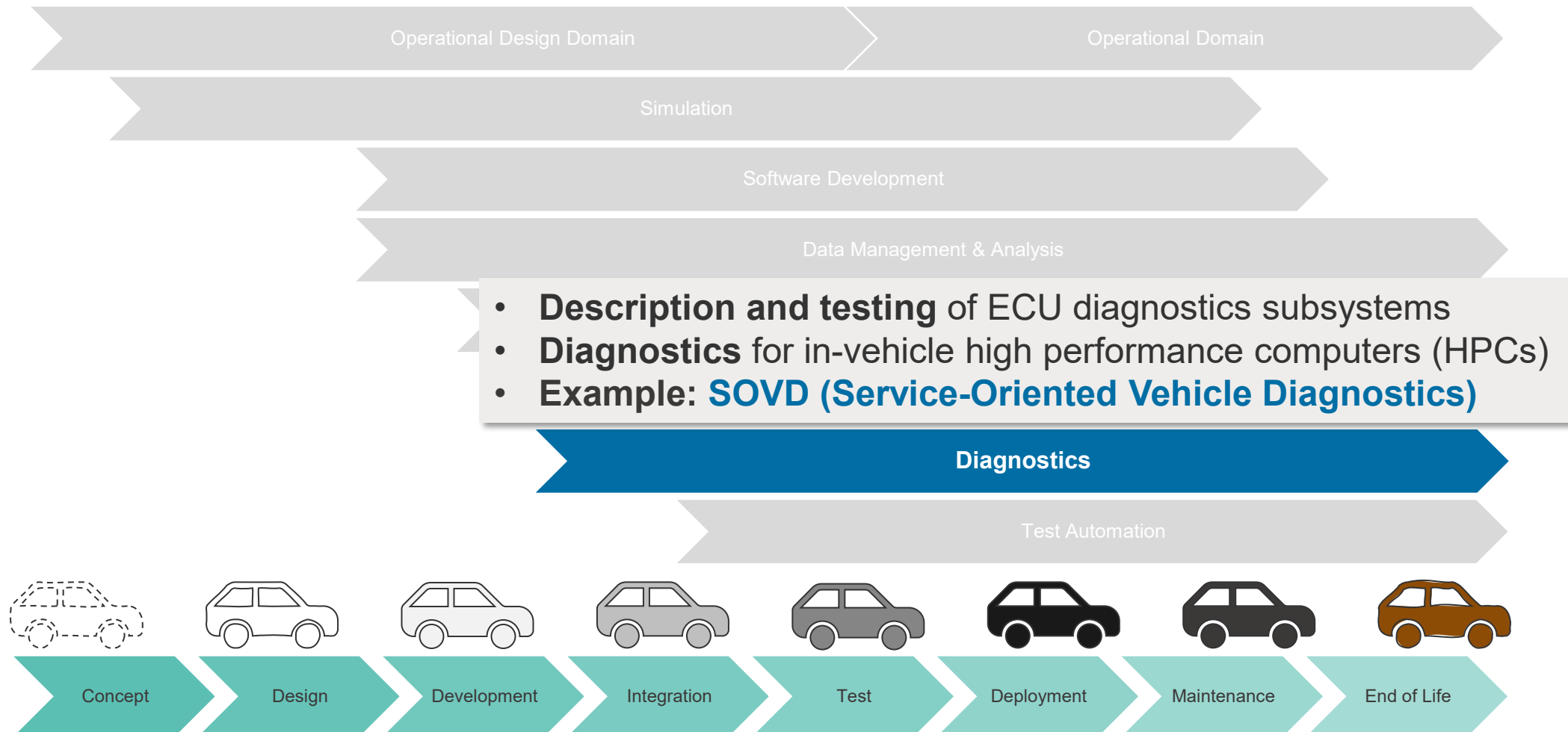
ASAM standards

Domains in detail



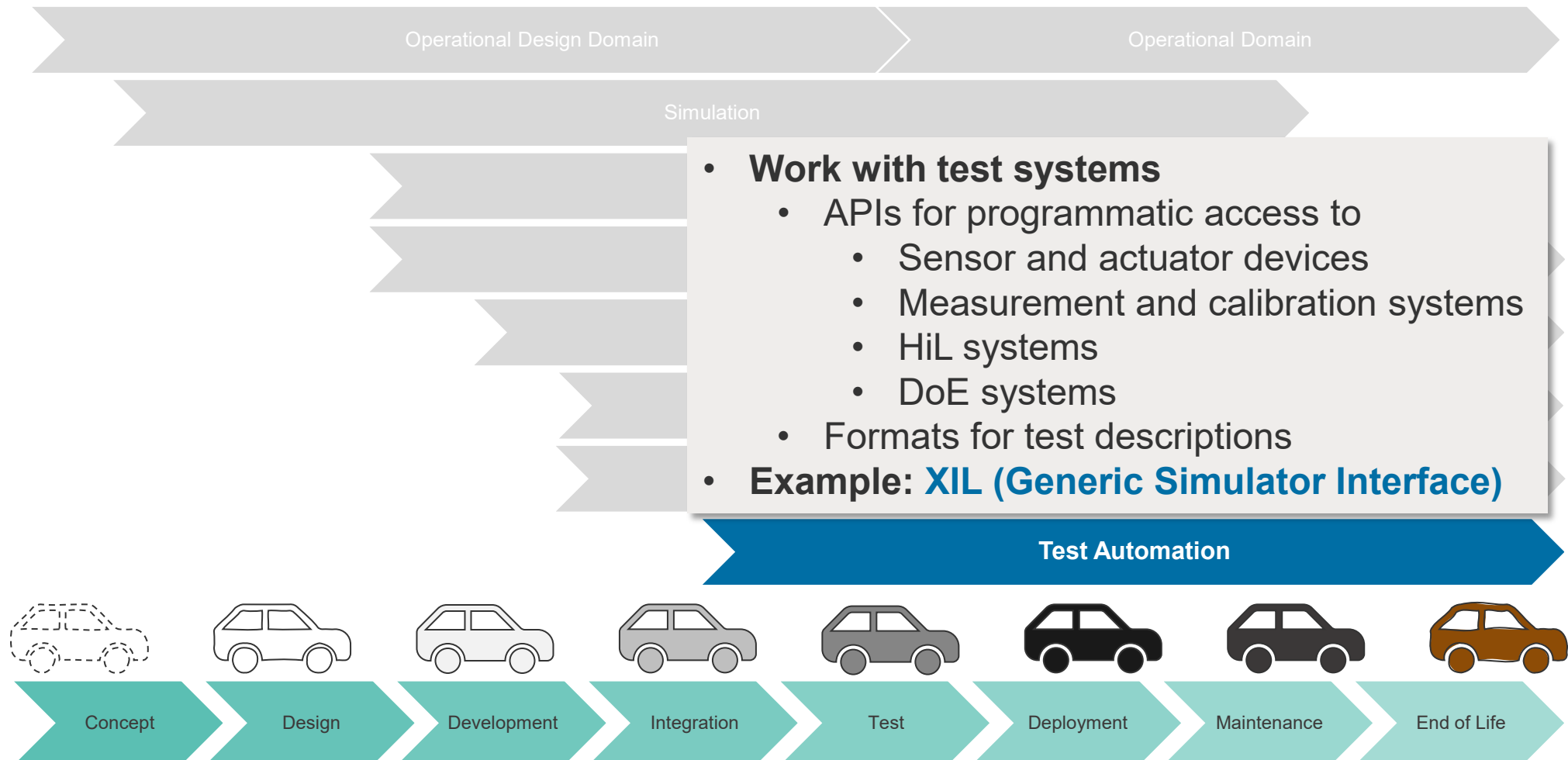
ASAM standards

Domains in detail



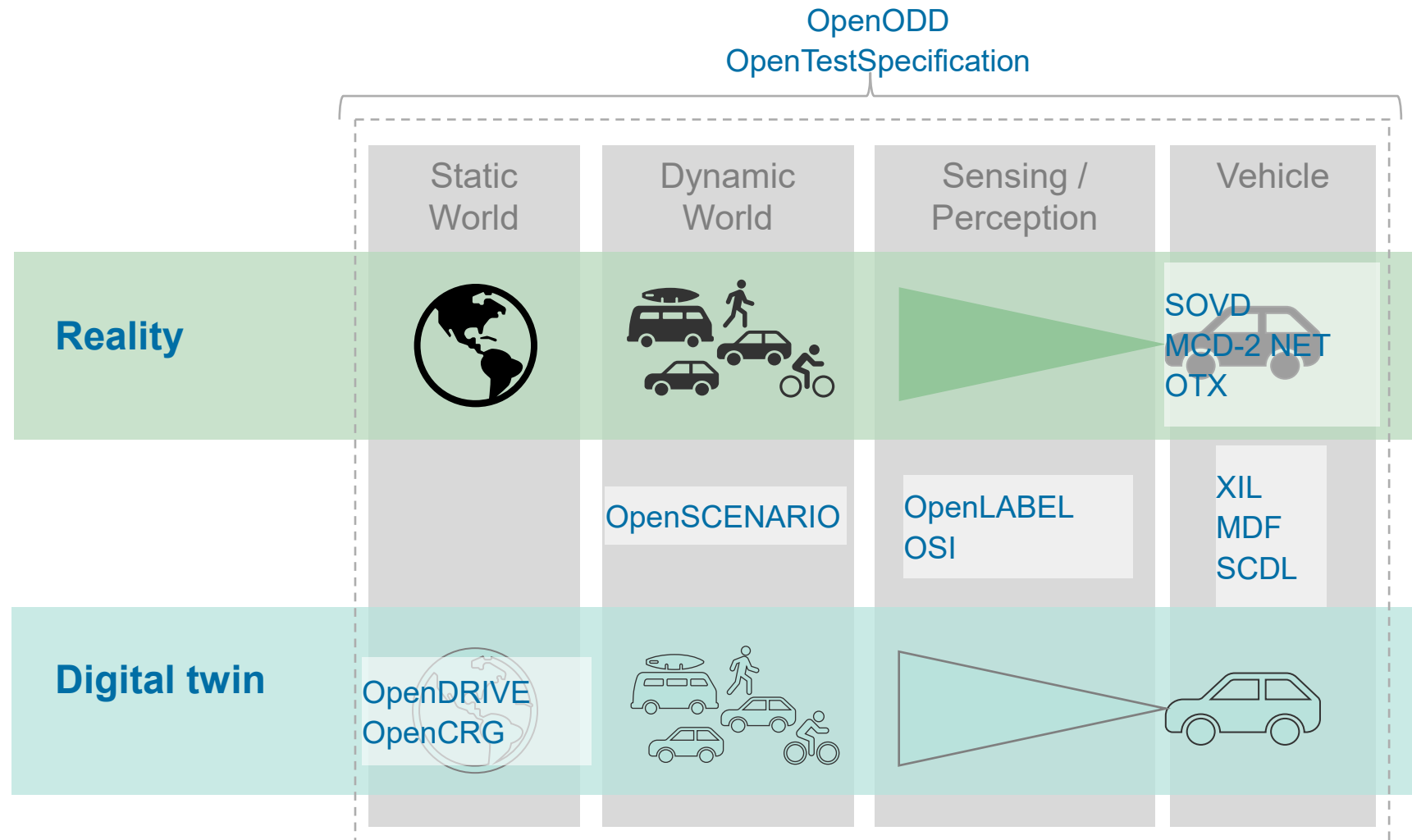
ASAM standards

Domains in detail



ASAM's offer

Connecting the real and the virtual world



and many more....

Highlight: Testing ADAS/AD systems

Seeing the big picture

TEST METHOD	TEST ENVIRONMENT							
	MODEL- IN-THE-LOOP	SOFTWARE REPROCESSING	CLOSED-LOOP SIL	HARDWARE REPROCESSING DATA REPLAY	CLOSED-LOOP HIL	VEHICLE- IN-THE-LOOP (VIL)	DRIVER- IN-THE-LOOP (DIL)	OPEN ROAD TESTING FIELD MONITORING
REQUIREMENTS- BASED TEST (FUNCTIONAL TEST) <i>Software architectural design/Specified functionality</i>	<u>More details 5.2.2</u> Requirements-based testing MIL	Test of ADAS/AD software via open loop e.g. detection quality	<u>More details 5.2.1</u> Use cases Requirements-based test SIL		<u>More details 5.2.1</u> Requirements-based testing on closed-loop HIL	<u>More details 5.2.7</u> Requirements-based testing vehicle-in-the-loop		Testing in a controlled proving ground environment e.g. testing of the complete ADAS function in real-world conditions
INTERFACE TEST <i>Software unit implementation/ Hardware - software interface specification</i>			Software integration tests e.g. test of interfaces for communication between ...	<u>More details 5.2.6</u> Hardware reprocessing Data replay	Higher-level integration tests e.g. testing of bus communication between ECUs	Testing of complete ADAS/AD effect chain on system level e.g. interaction		
FAULT INJECTION <i>Testing of safety mechanism/ Robustness</i>	<u>More details 5.2.3</u> Fault injection on MIL	Evaluation of robustness e.g. robustness against pixel faults	Verification of safety mechanisms e.g. out of range e.g. testing robustness of software calibration	Verification of safety mechanisms including hardware e.g. testing robustness	Testing of safety mechanisms with integrated system e.g. electrical failure simulation like short to ground e.g. testing of robustness against vehicle tolerances		Validation of overall system behavior e.g. testing of controllability	Verification of overall system performance e.g. testing of safety
RESOURCE USAGE PERFORMANCE TEST <i>Sufficiency of resources/ Hardware architectural design</i>					Testing of the vehicle network performance e.g. sleep and wake			
SCENARIO-BASED TEST <i>Validation of real-life use cases/SOTIF validation</i>	Validation of control components e.g. testing of ADAS/AD effect chain in modeling environment		<u>More details 5.2.8</u> Scenario-based testing SIL Closed loop		Validation of electronics integration e.g. testing the overall system behavior in challenging scenarios	Validation on system level e.g. complete system reaction to the most challenging scenarios	Validate interaction of driver with safety- relevant vehicle function (HMI, ADAS, active chassis systems), confirm controllability classifications from hazard analysis and risk assessment	<u>More details 5.2.5</u> Scenario-based testing on proving grounds
								<u>More details 5.2.4</u> Scenario-based open road testing



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

ASAM Organization

Facts and figures

ASAM members

Global Impact

2022

373

Members
active

Jan 01

+68

New members

-32

Terminations

-2

Acquisitions

Dec 31

2023

407

Members
active

Jan 01

+24

New Members

431

Members
active

Jun 06

New ASAM members in 2022

In 2022, 68 new organizations joined ASAM.

EUROPE



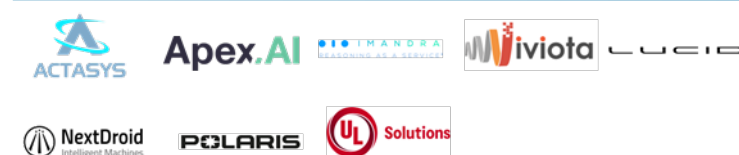
REST OF ASIA



CHINA



NORTH AMERICA



JAPAN



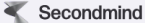
Status: Mar 16, 2023

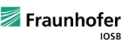
New ASAM members in 2023

Since Jan 2023, 24 new organizations joined ASAM.

EUROPE







Fraunhofer-Institut für Optoelektronik, Systemtechnik und Bildauswertung IOSB

REST OF ASIA



CHINA

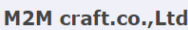


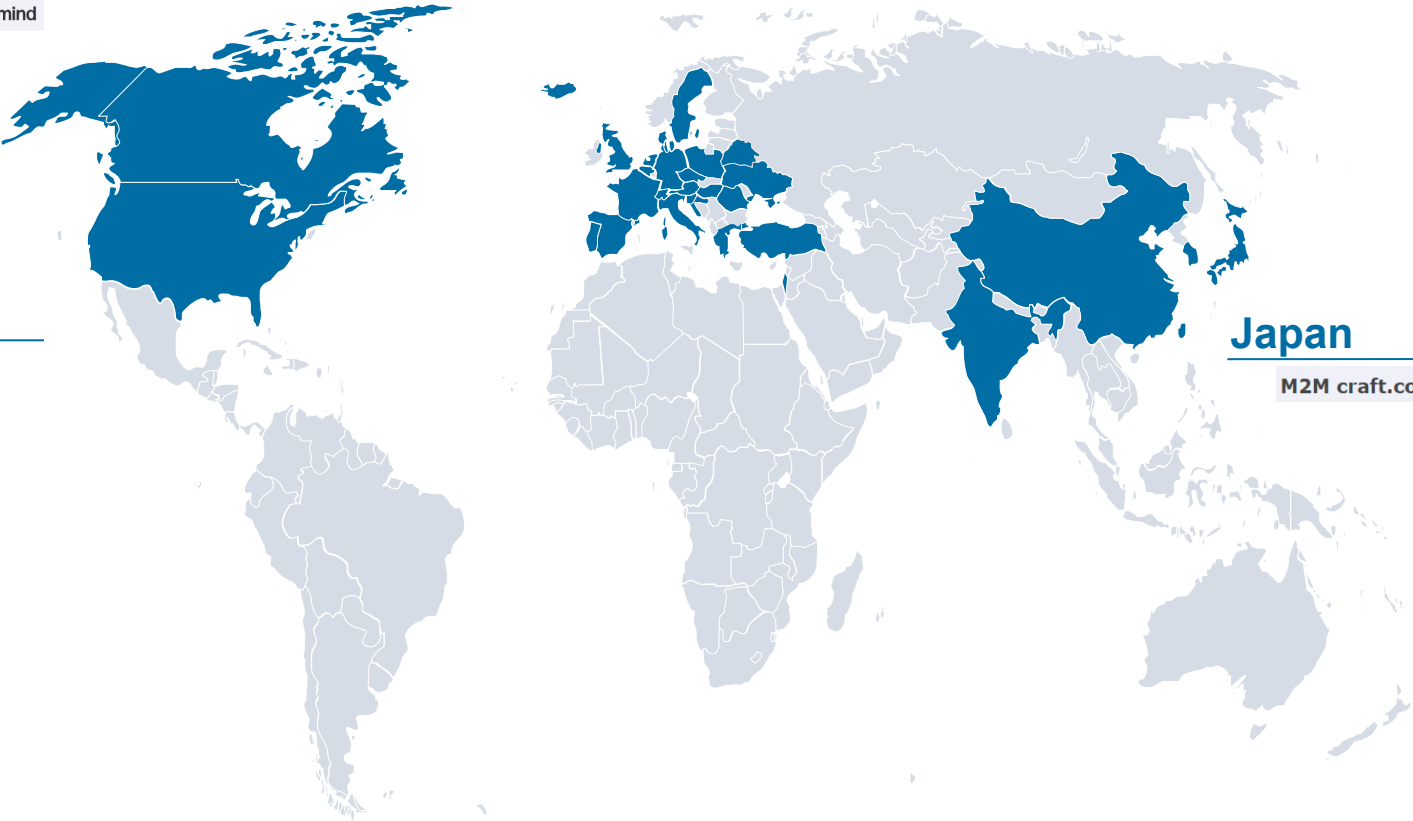
WEICHA Shenyang MXSmart Technology Co., Ltd

NORTH AMERICA



Japan





Status: Mar 16, 2023

ASAM membership

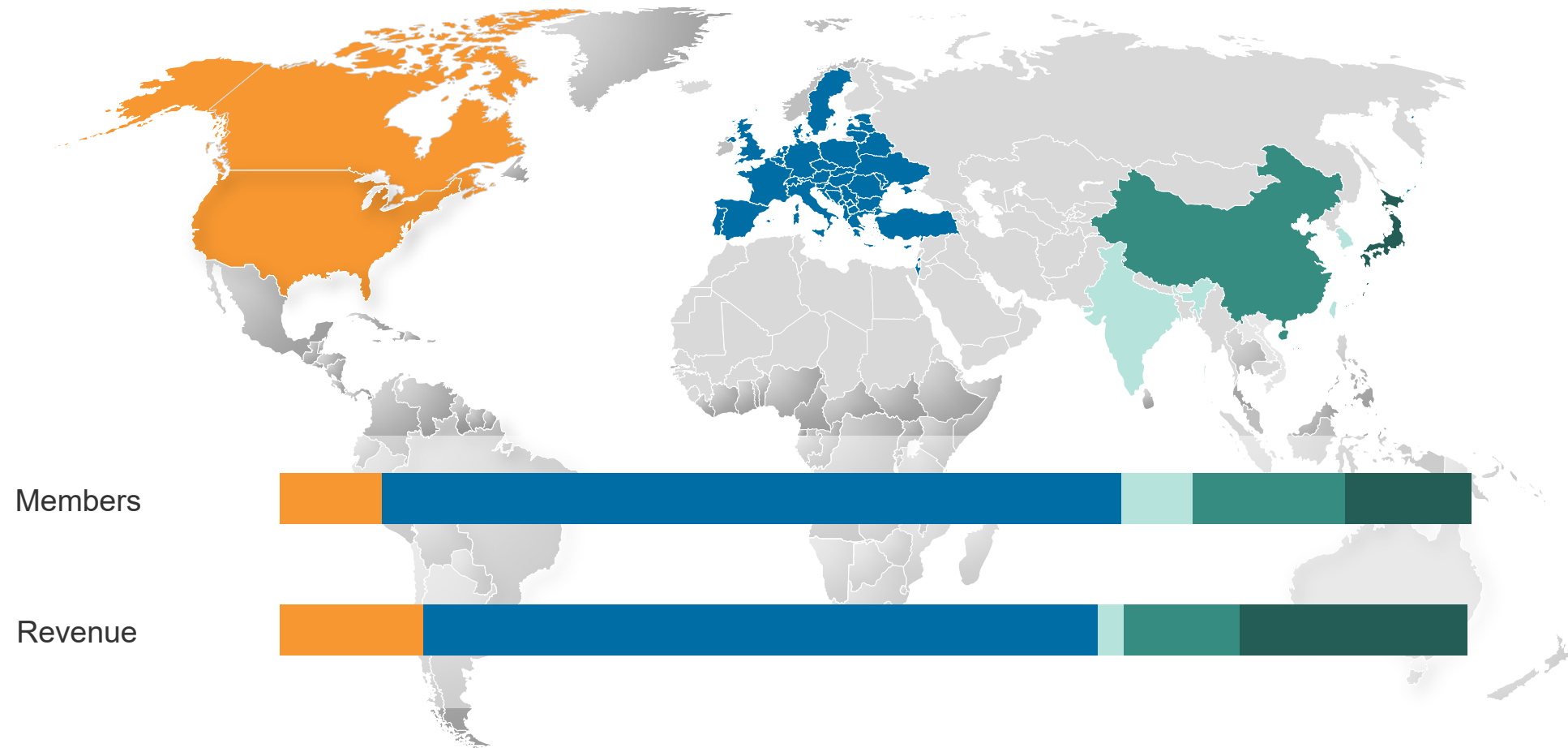
More than 400 member organizations develop and apply ASAM standards



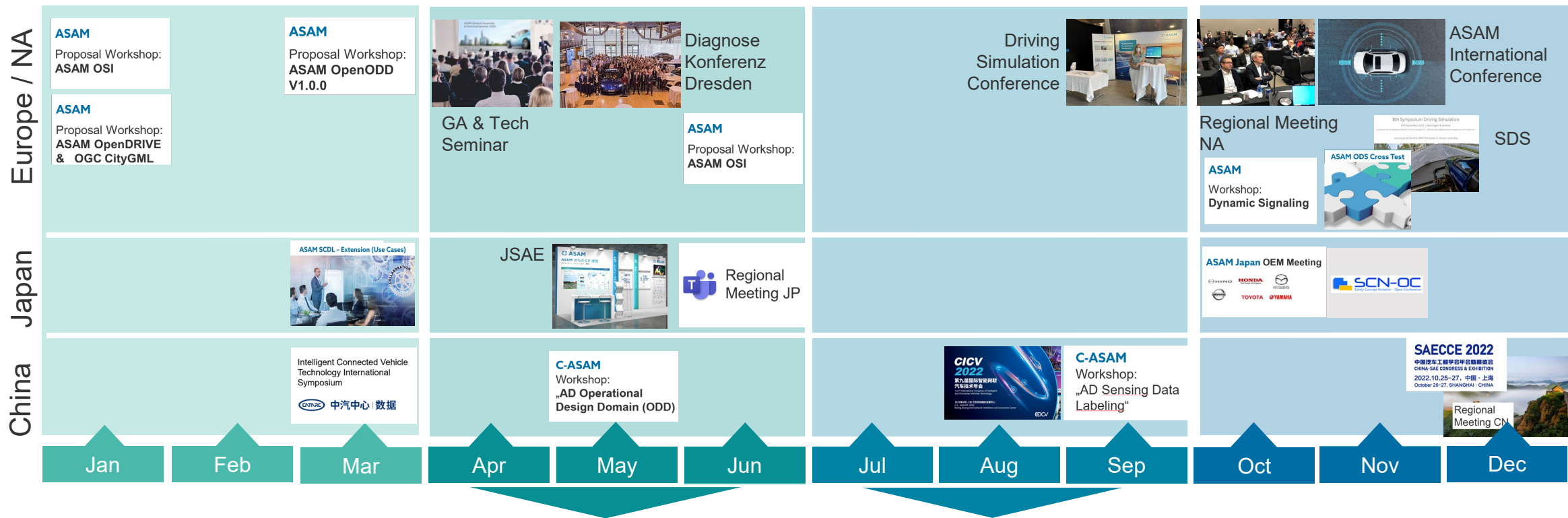
Status: Mar 16, 2023

ASAM – a truly international association

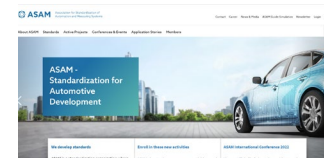
Global distribution of members and revenue, March 2023



ASAM Activities 2022

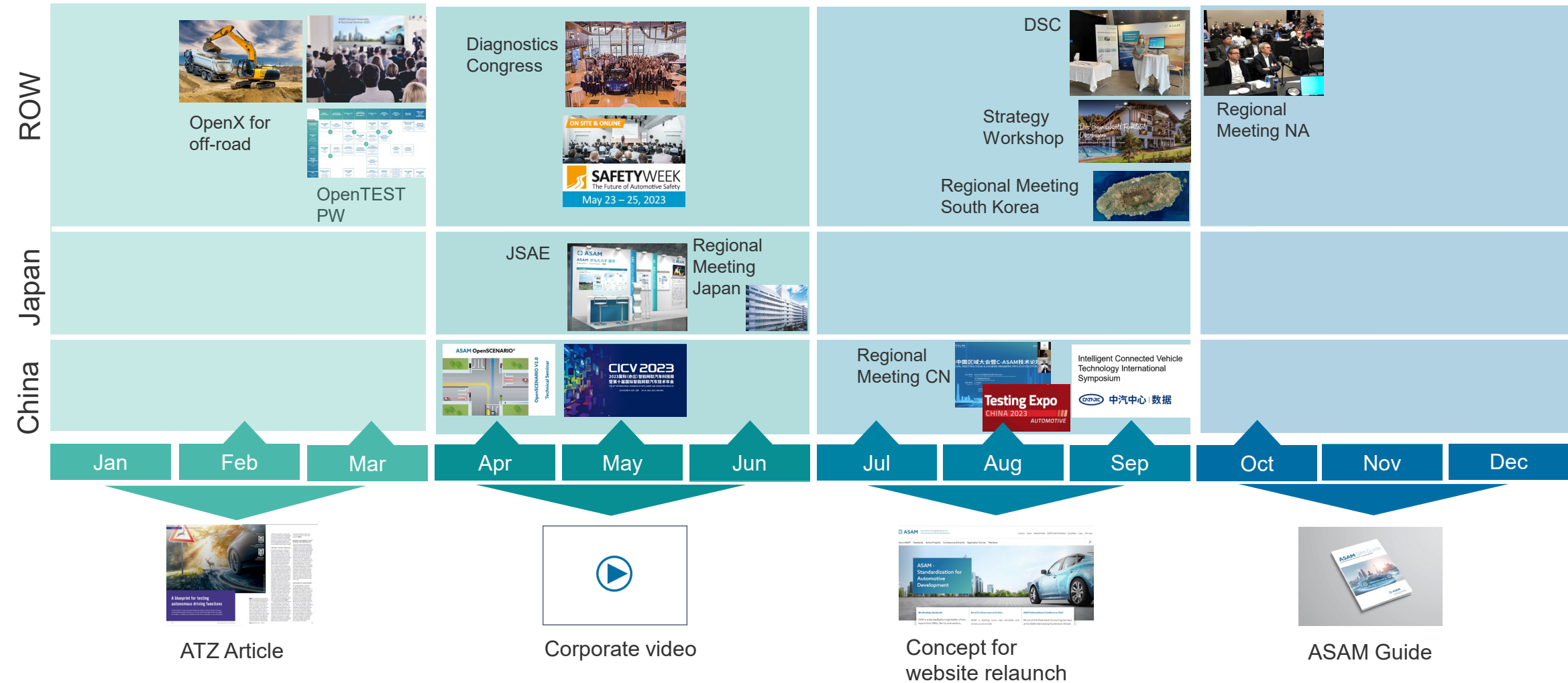


report.asam.net
online



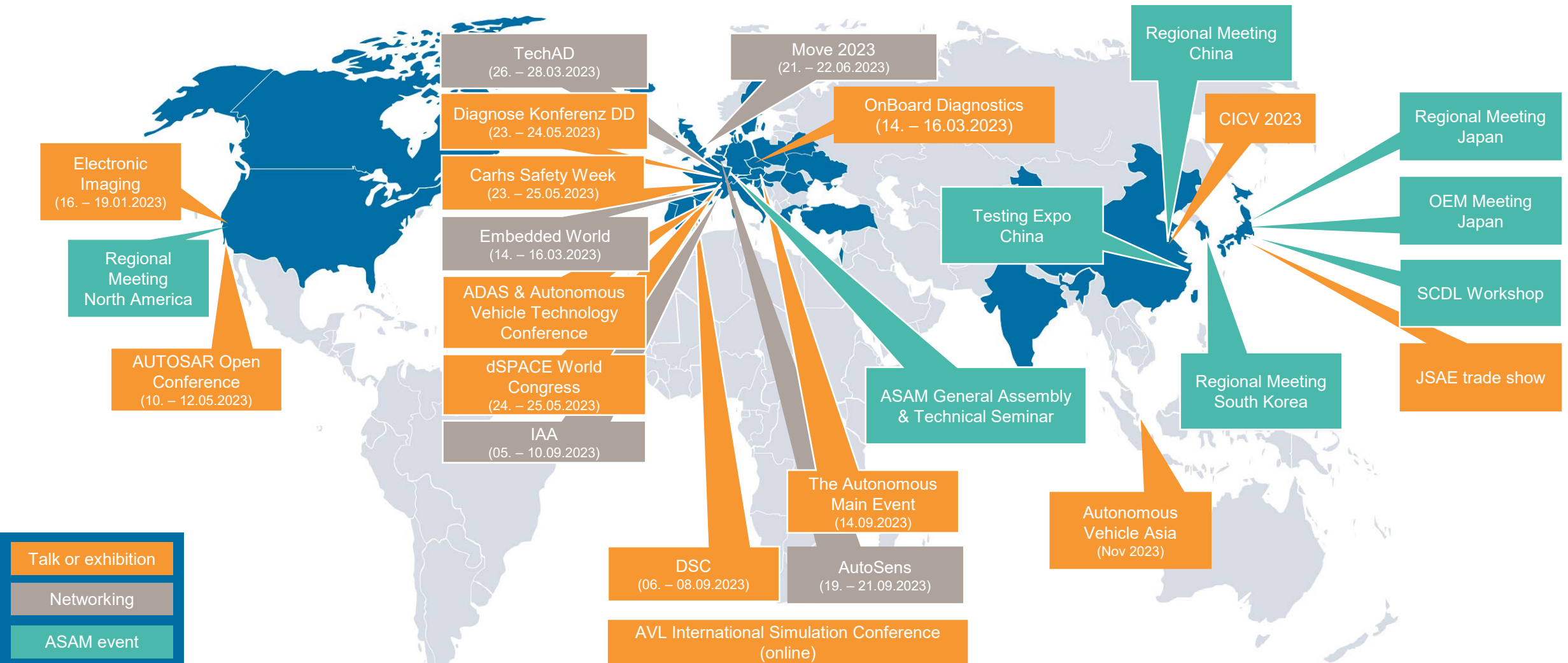
New Key Visual

ASAM Activities 2023



ASAM – a truly international association

Lobbying for ASAM and its standards worldwide



Activities in Japan



ASAM in Japan

Regional project groups and expert meetings

2022

Meetings

- ASAM regional meeting Japan (150 participants)
- OEM meeting (October 2022)
- Regular OEM committee meetings

Projects

- SCDL Use-case workshop
- ODS Study group
- 3V-SG (Virtual Verification & Validation using vECU Study Group)
- DIVP (Driving Intelligence Validation Platform)
- SCN-SG (Safety Concept Notation - Study Group)

Events

- JSAE Trade show
- Virtual Mechanics Conference
- SCN-SG Open Conference
- SIP-adus Conference

2023

Meetings

- April 2023
 - OEM committee
 - Project meetings
 - Meetings with various parties
- June 2023
 - ASAM Regional meeting Japan
 - Meetings with various parties

Projects

- ODS Study group
- OpenMATERIAL discussions with DIVP
- SCN-SG (Safety Concept Notation – Study Group) (SCDL / SOTIF / Security Extension)
→ Start ASAM project

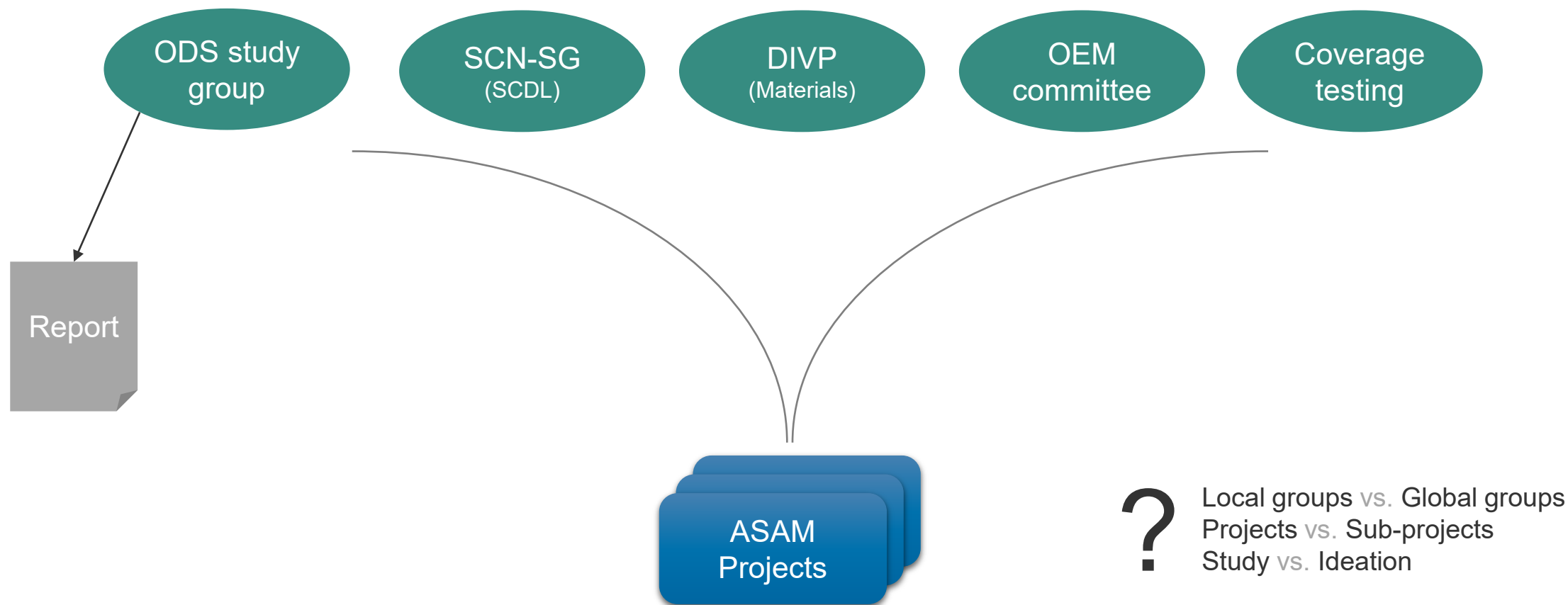
Events

- JSAE Trade show (May 2023)



ASAM in Japan

Unleashing the potential



Partnerships

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



The Autonomous
www.the-autonomous.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/>

Government funded R&D projects

ASAM acting on the advisory board



Sunrise - (Safety assurance framework for connected, automated mobility Systems)
PL: IDIADA (H2020 project)
The project will define, implement and demonstrate the building blocks of this Safety Assurance Framework: harmonized and scalable safety assessment methodologies, procedures and metrics tailored for use cases, a federated European Scenario Database framework and its necessary data interfaces, a commonly agreed simulation framework including tools and interfaces.
Duration: 2022-2025
[SUNRISE - ika \(rwth-aachen.de\)](https://www.sunrise-ika.rwth-aachen.de/)



VIVID
PL: DLR (BMW/VDI)
In the framework of VIVID, industrial and academic partners work on the design and implementation of a high-fidelity virtual validation tool chain, connecting software-based traffic and sensor simulations with environmental and signal propagation modelling as well as installed sensor performance testing in virtual environments.
<https://www.safecad-vivid.net/>



ArchitectECA2030

PL: Infineon (H2020 project)
ArchitectECA2030 envisions to cover both safety assurance by design and safety assurance in-operation.

- Manage failure modes, uncertainties, and failure probabilities
- Develop a widely agreed homologation framework
- Propose, align and develop a concept
- Bring together the representative stakeholders from ECS industry

<https://autoc3rt.automotive.oth-aw.de/>



GAMMS

PL: GEOSAT (H2020 project)
The overall objective of GAMMS is to develop an autonomous terrestrial mobile mapping system (AMMS), based on the tight integration of

- Autonomous vehicles (AVs)
- Navigation/geodetics
- Artificial Intelligence (AI) technologies.

<https://gamms.eu/index.php/robots-mapping-for-robots/>



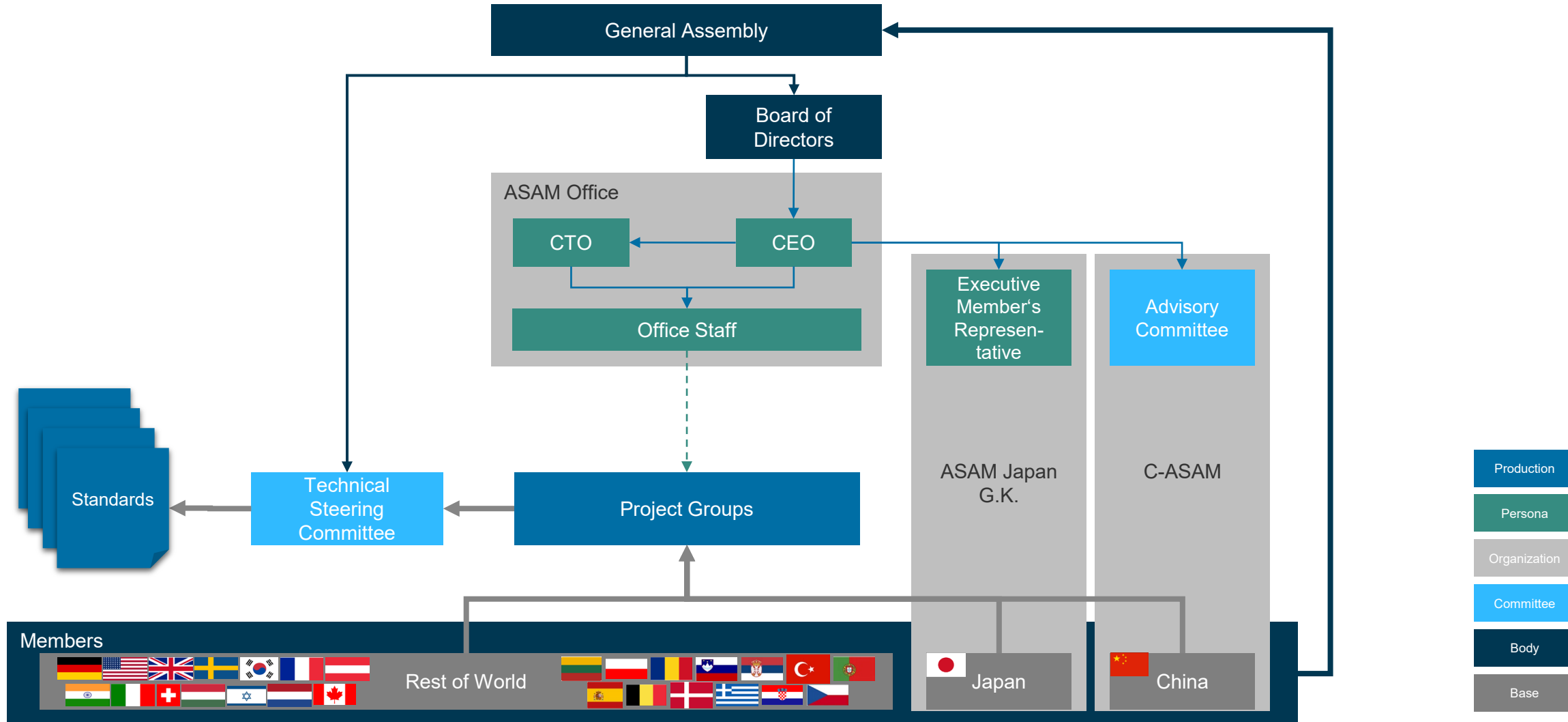
V4Safety

PL: TNO (H2020 project)
The main objective of V4SAFETY is to provide a comprehensive procedure for conducting computer simulations to determine the long-term performance and impact of road safety solutions, from the identification and collection of the relevant input data to the projection of the results to a region of interest (e.g., the EU) and a prediction of changes in performance and impact that might be expected in the coming years.
[V4SAFETY \(v4safetyproject.eu\)](https://v4safetyproject.eu/)

Office and Organization

ASAM Organization 2023+

Shared Responsibilities – Combined Forces



ASAM Board of directors 2023-2025

Leading the association



Dr.
René Grosspietsch
BMW AG
[Profile](#)



Dr.
Andras Kemeny
Driving Simulation
Association
[Profile](#)



Dr.
Ralf Nörenberg
HighQSoft GmbH
[Profile](#)



Prof. Dr.
Frank Köster
DLR
[Profile](#)

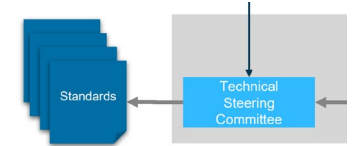


Armin Rupalla
RA Consulting GmbH
[Profile](#)

Speaker

Technical Steering Committee – Term 2022 - 2024

Leading the standardization



Gil Amid
Foretellix Ltd.



Dr. Christoph Dallmayr
Vector Informatik GmbH



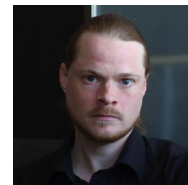
Prof. Dr. Andras Kemeny
Driving Simulation
Association



Christian Pahlke
TÜV SÜD



Oliver Philipp
Siemens Industry Software
GmbH



Dr. Andreas Richter
Volkswagen AG



Dr. Gerald Sammer
AVL List GmbH

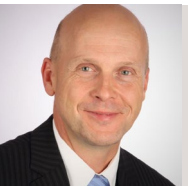


Michael Schwarzbach
BMW Group

Speaker



Markus Steffelbauer
Softing Automotive
Electronics GmbH



Dr. Jörg Supke
EMOTIVE GmbH & Co KG



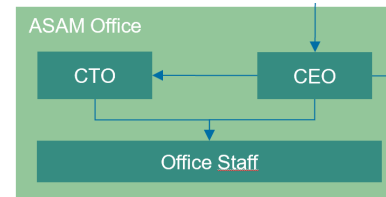
Jacques Weber
Vitesco Technologies
France



Thilo Wenzel
ETAS GmbH

ASAM Office 2023

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



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Ben Engel

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ASAM Japan G.K.



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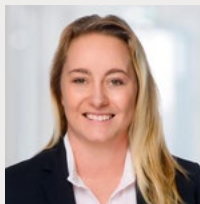
Dorothee Bassermann

Marketing Manager
Phone: +49 8102 70139-085
dorothee.bassermann@asam.net



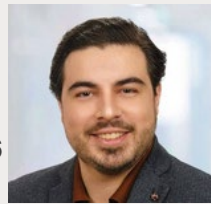
Thomas Matthes

Software Developer
thomas.matthes@asam.net



Kathrin Wulff

Management Assistant
Phone: +49 8102 70139-086
kathrin.wulff@asam.net



Matthäus Lang

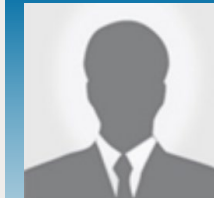
Technology Manager
Phone: +49 8102 70139-083
matthaeus.lang@asam.net



Mohammed Habib

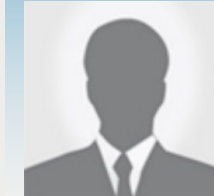
Technology Manager
Phone: +49 8102 70139-088
mohammed.habib@asam.net

Extension 2023



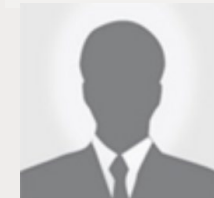
NN

IT Administrator and
Software Developer



NN

Technology Manager



NN

TM / Technical
Assistance

Technical Report

Ben Engel (CTO)

What has the membership been up to since the last time we met?

- Major releases:
 - SOVD 1.0.0
 - CMP 1.0.0
 - OpenSCENARIO 2.0.0
- New projects initiated
- Inter-standard alignment intensified
- Cross-organisational alignment strengthened
- Additional resources to support you in your efforts
 - Growth of the docs-as-code workflow
 - Project Guide
 - Editorial Guide
 - More TMs

Where do we stand today?

396
participants



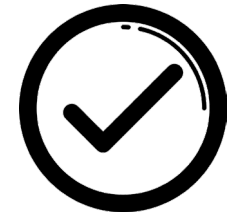
202
unique companies



7 Standardisation
projects



9 Releases
in 2022



1 Concept
project

1 Ongoing
ideation



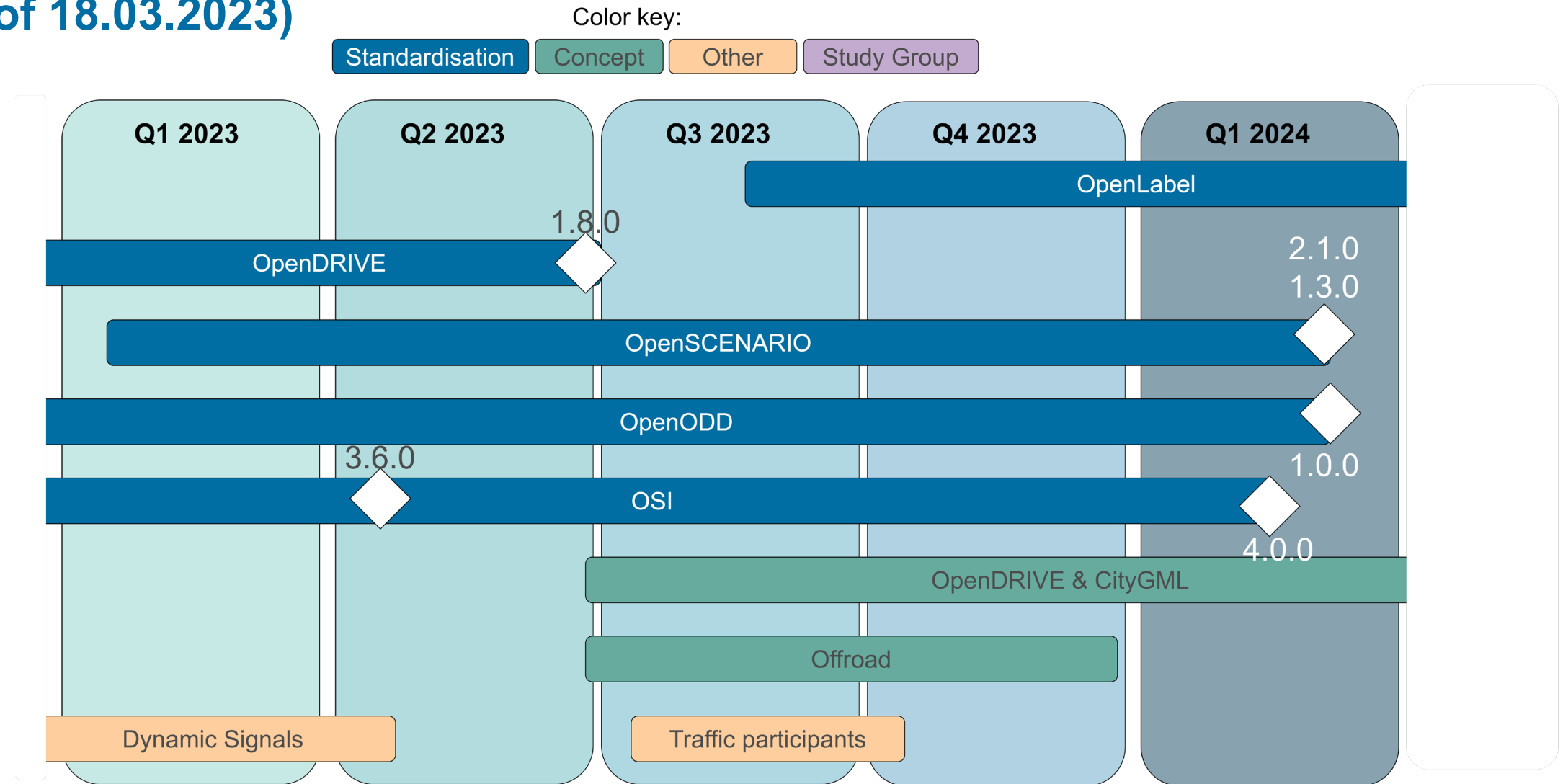
2 Study
groups



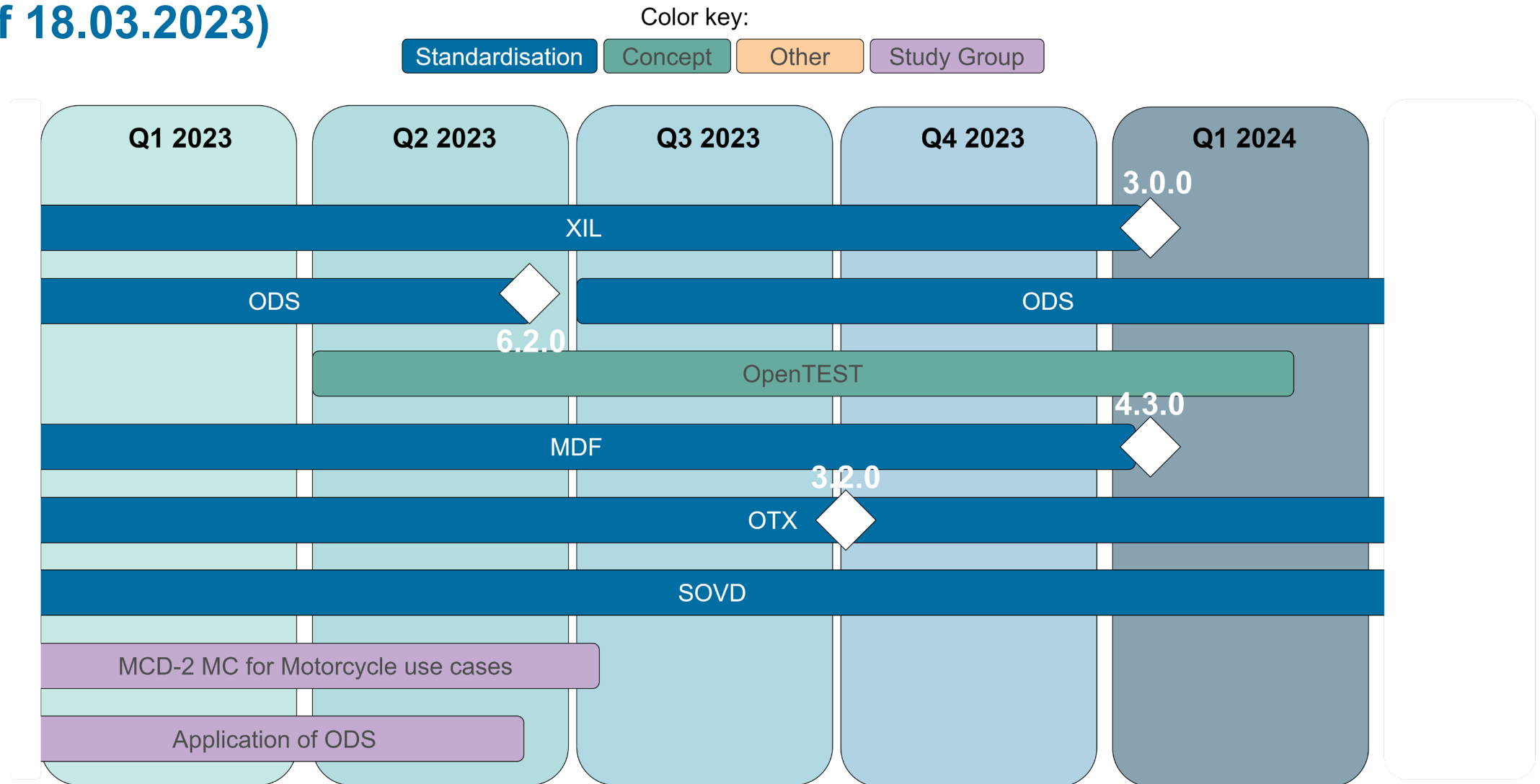
1 Inter-standard
alignment
activity

4 Office
employees
supporting
projects

Project roadmap 2023 (simulation) (as of 18.03.2023)



Project roadmap 2023 (all other domains) (as of 18.03.2023)



Topics for 2023 and beyond



Data logging
& replay

Sensor
calibration

Environment
modelling

X-Domain

Test
Specification



Looking further ahead

(or topics that we predict will play a role @ ASAM in the coming months/years)

Cybersecurity

SDV

AI & ML

Telematics

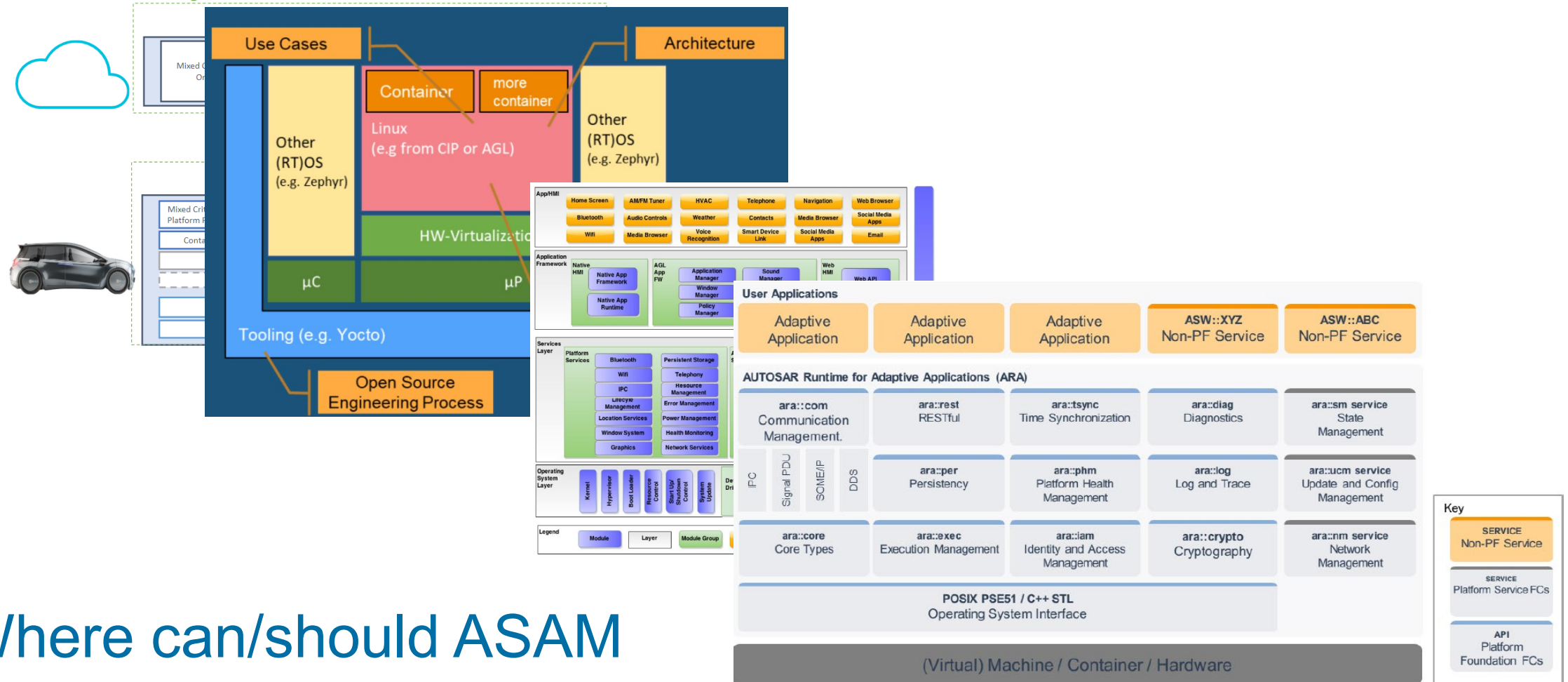


image generated by Midjourney...

SDV?

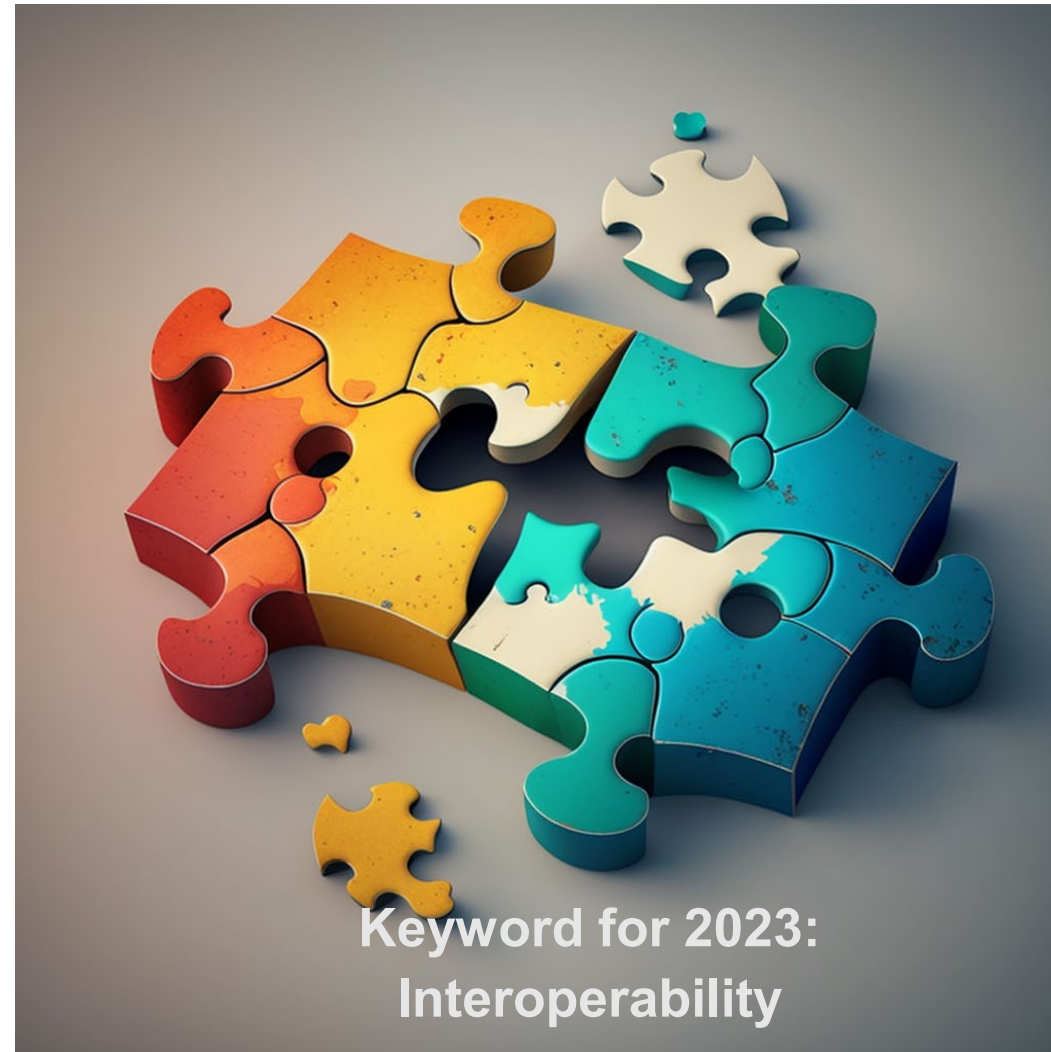
SOAFEE Cloud Native Architecture Vision

Framework for enabling mixed critical workload across cloud and vehicle



Where can/should ASAM play a role?

Coming back down to earth...



Coming back down to earth...

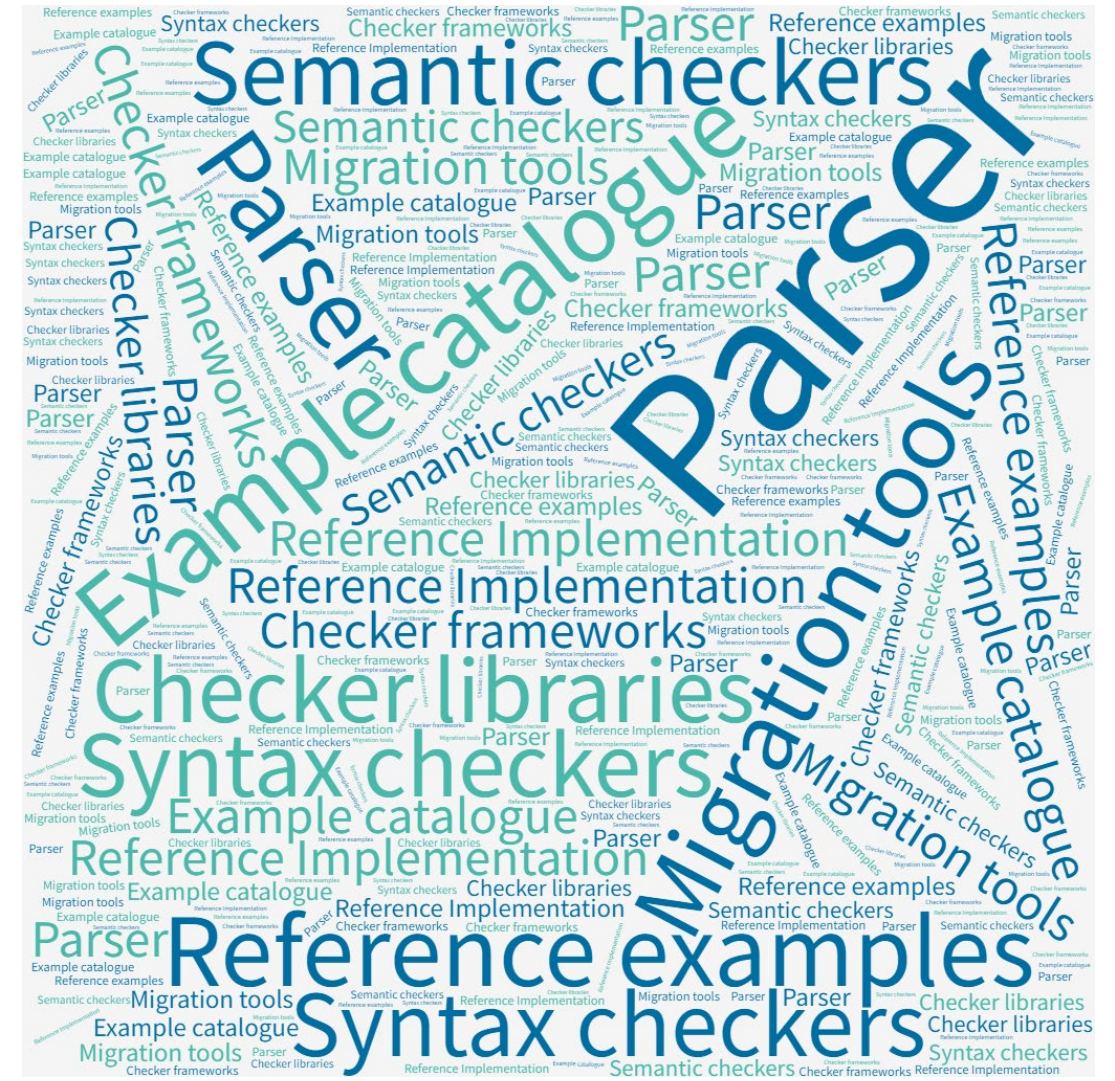
- Interoperability between standards
 - Alignment `where it makes sense`
 - Dynamic signals
 - Terminology
 - OpenTestSpecification
 - MDF, OSI & sensor data
 - OTX & SOVD
- Interoperability between projects
- Interoperability between organisations



The question of tools...

Supporting the industry shift towards highly complex, modular and open toolchains

Stronger focus on interoperability of standards, and verification of implementations



ASAM Organization 2023 and beyond

Update of regulations

Update of regulations



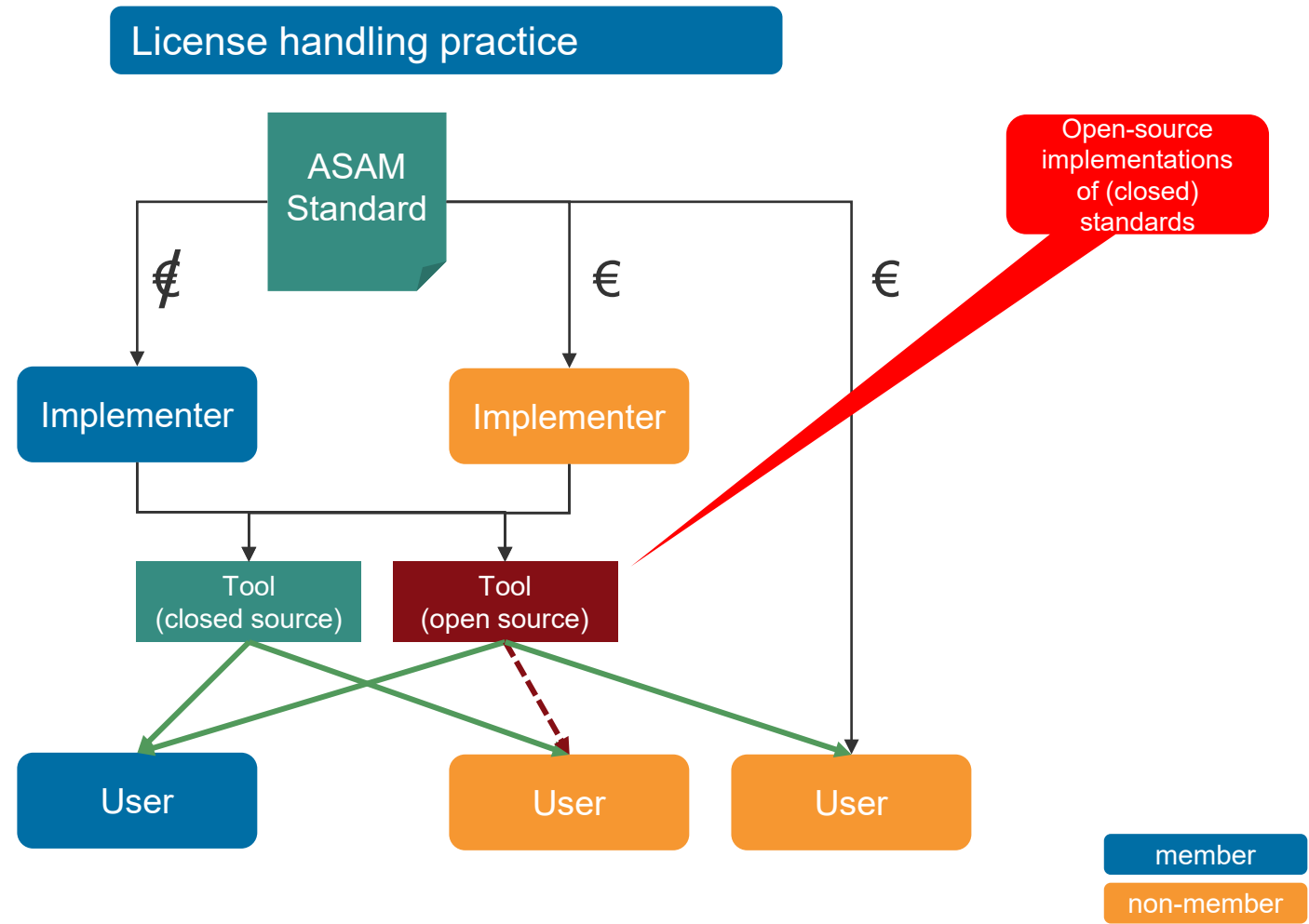
- Bylaws / statutes



- IP rules

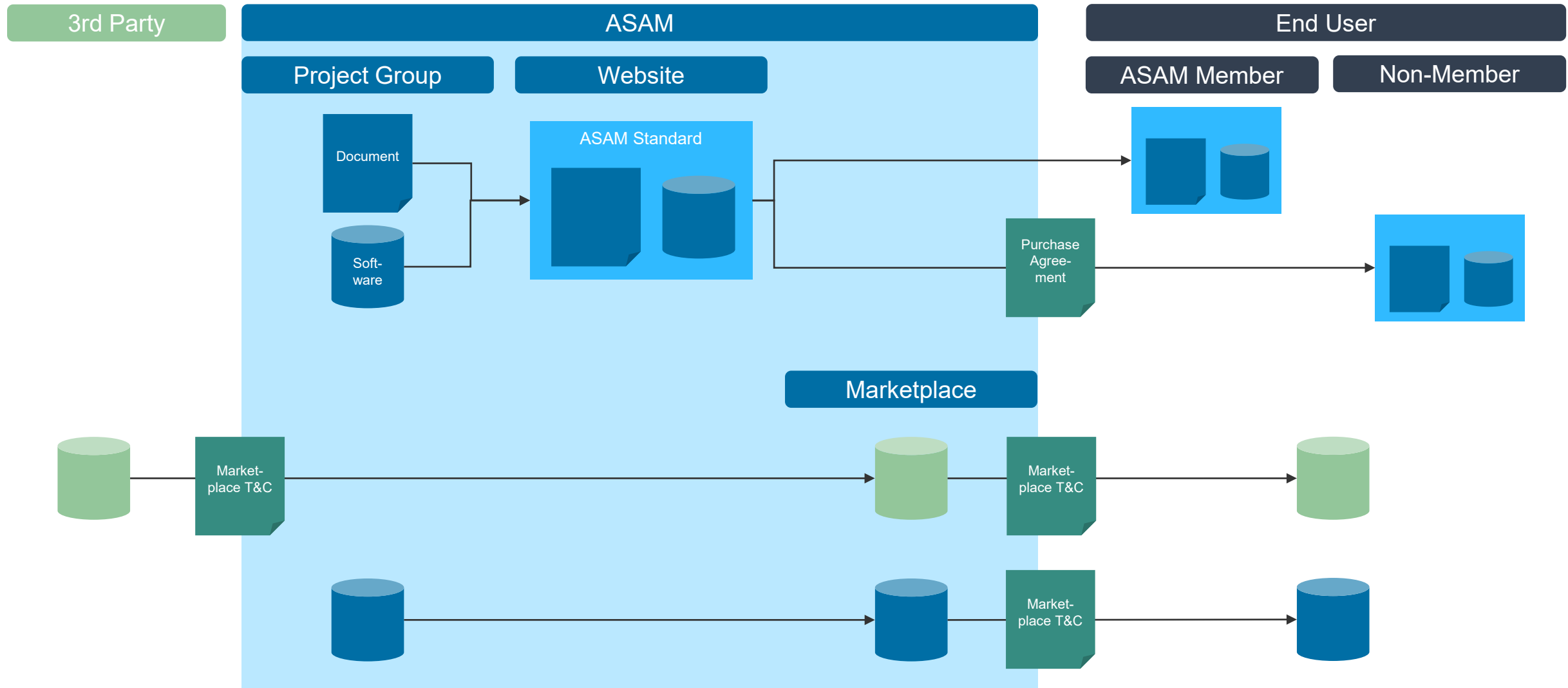


- License agreement



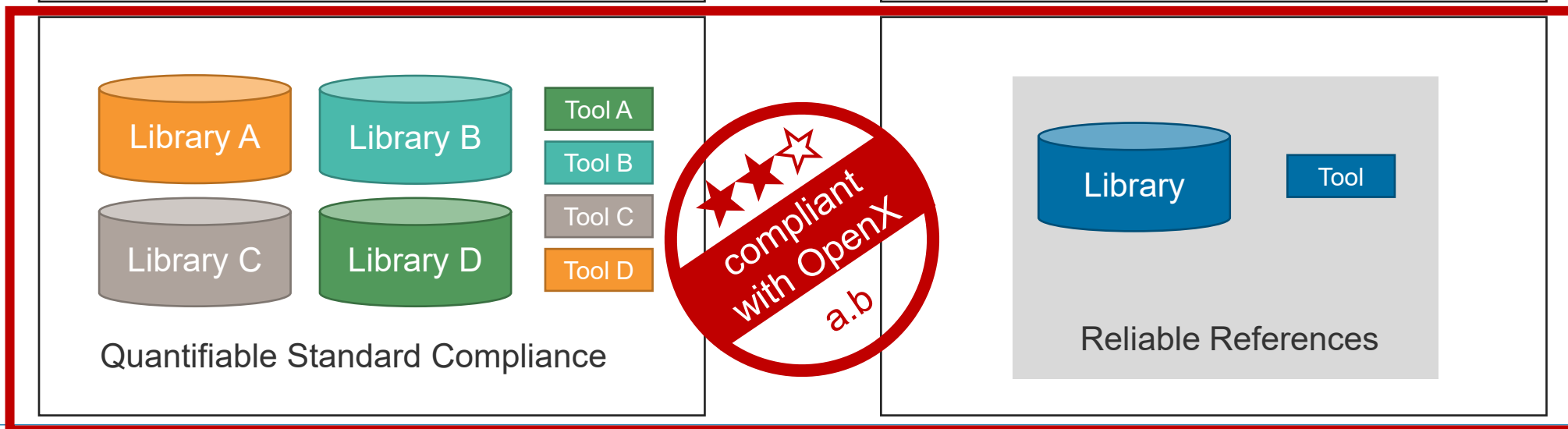
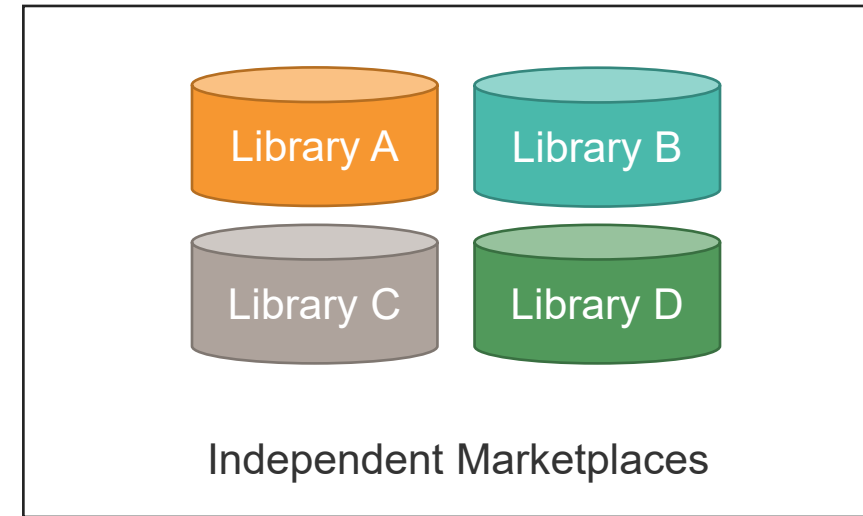
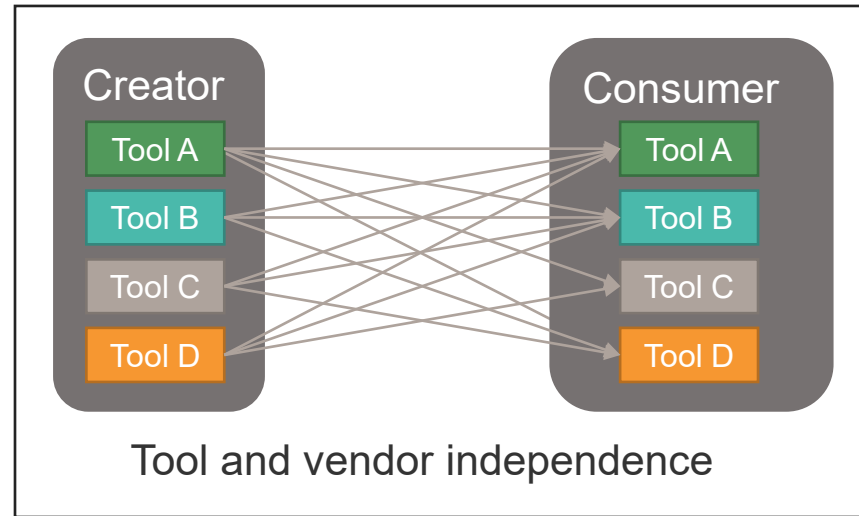
ASAM organization

Open-source strategy (proposal)



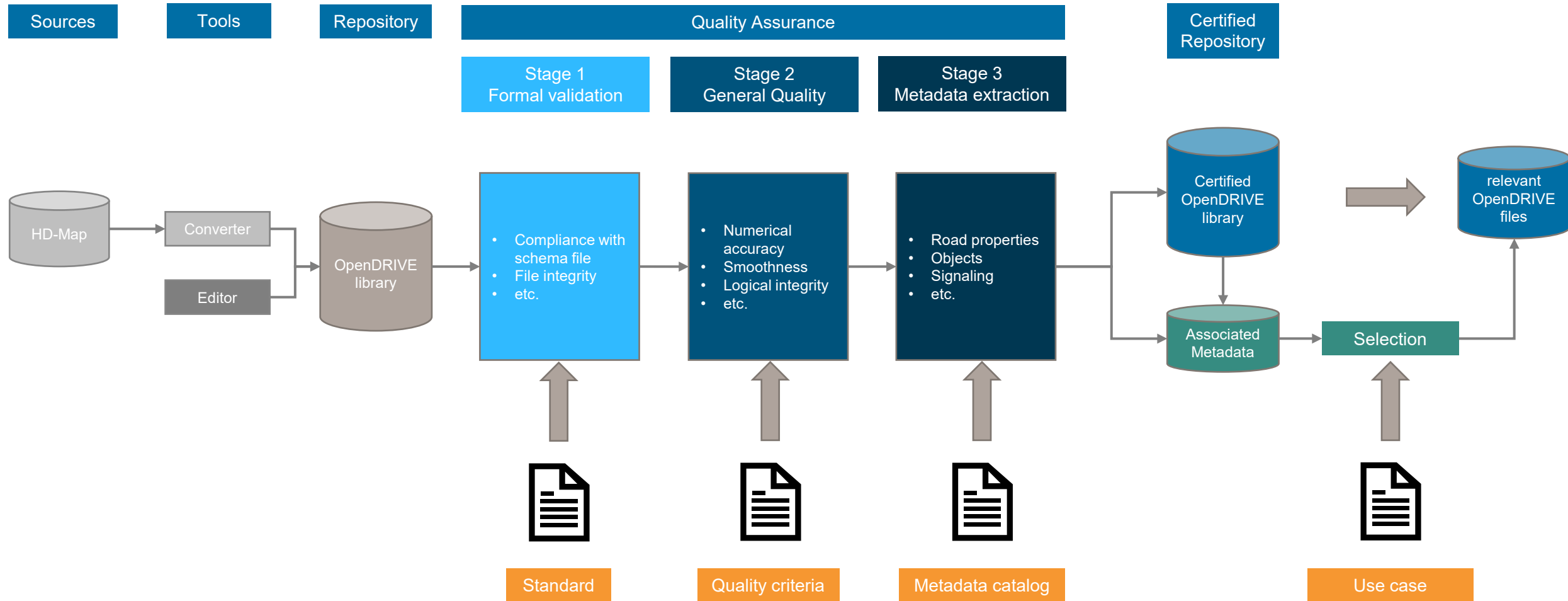
ASAM organization

Certifying standard compliance



Data flow for OpenDRIVE certification

Prototype concept w/ C-ASAM

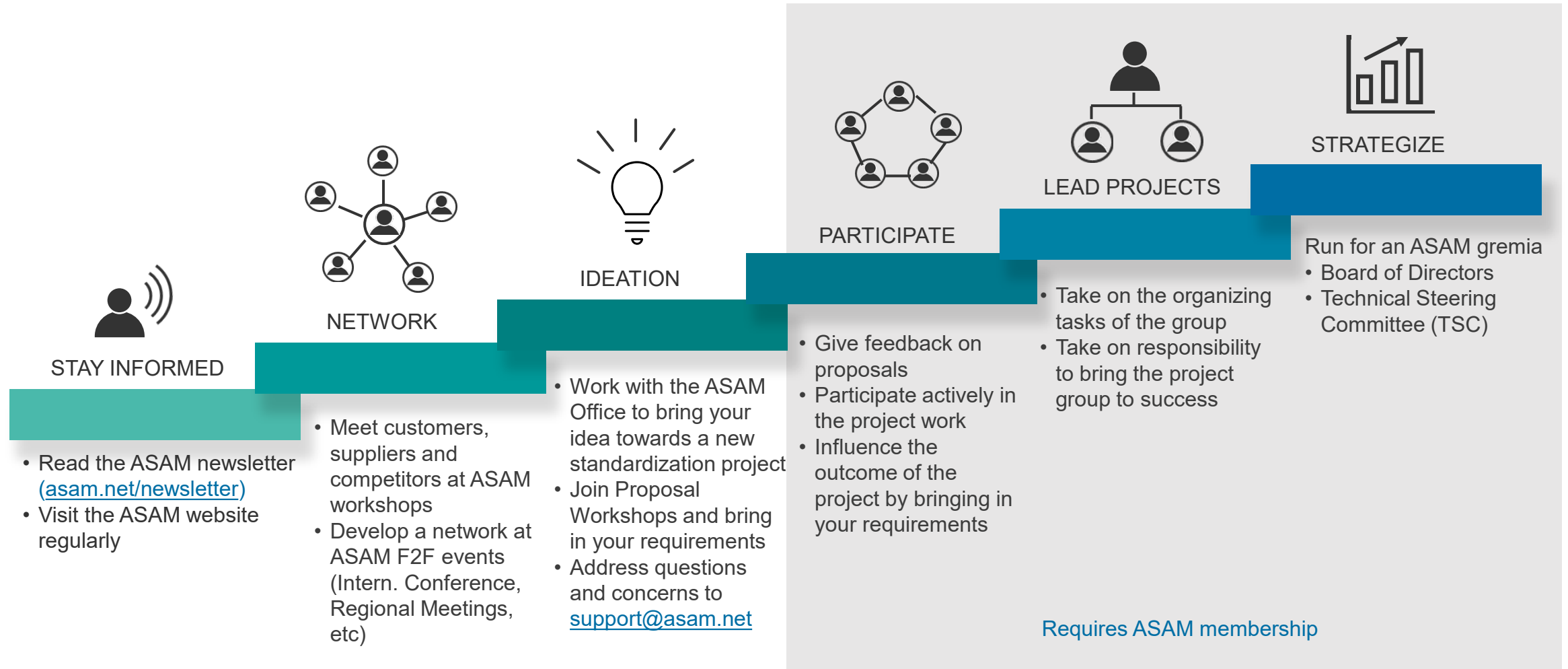


ASAM membership

Great value for a moderate investment

How to get involved in ASAM

There are different levels of getting involved with ASAM, depending on your time and needs.



The value

Why join ASAM?



Speed

- Ideation at any time
- **12-18 months from idea to standard**
- Committee meetings every 4 months



Coverage

- **Standards across the entire vehicle lifecycle**
- Standards for real world and digital twin
- Cutting-edge technologies addressed
 - Simulation
 - HPCs in the vehicle
- Unmatched coverage of the simulation domain



Focus

- **Focus on implementation standards**
- Regular scan of technology landscape



Assets

- 37 released and regularly updated standards
- 7 domains
- **Free access to all assets for active members**



Community

- **420+ like-minded companies**
- Regional study groups
- Global project groups
- Annual member meeting
- Annual technical seminar
- Up-to-date information by newsletters
- Online Member directory
- Easy networking between members



Processes

- **Well-established processes**
- Flexibility where necessary
- Permanent monitoring and optimization



Leadership

- Committees of industry professionals
 - 5 Board members
 - 12 TSC members



Activity

- 9 releases in 2022
- **396 participants in technical meetings from 202 companies**
- 7 active standardization projects
- 1 concept project
- 1 ideation topic
- 2 study groups
- 1 alignment project



Value

- Early access to information
- **Influence on future standards**
- Increased efficiency by standards
- Creation of a competitive market

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!

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