Concept Project ASAM OpenTestSpecification

ASAM Regional Meeting in South Korea

Chaegyoeng Park
TÜV SÜD Korea Ltd.

2023-09-13
Jeju Island, Republic of Korea

ASAM Association for Standardization of Automation and Measuring Systems

Agenda

1	How did the activity start?
2	ASAM Test Specification Study Group
3	Concept Project ASAM OpenTestSpecification
4	Next Step: Call for Candidates
5	Q&A

How did the activity start?

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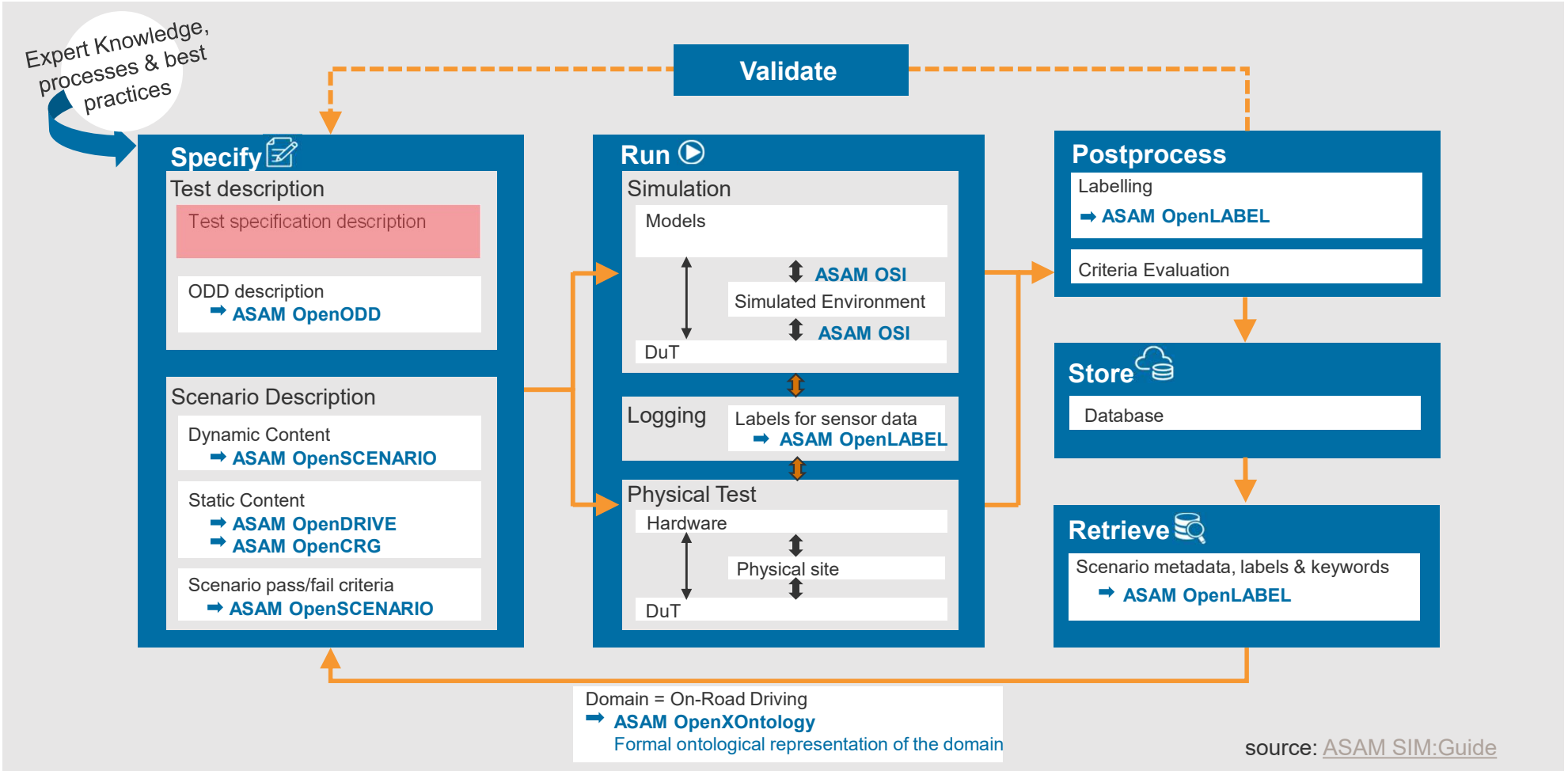

source: ASAM SIM:Guide

ASAM Test Specification Study Group

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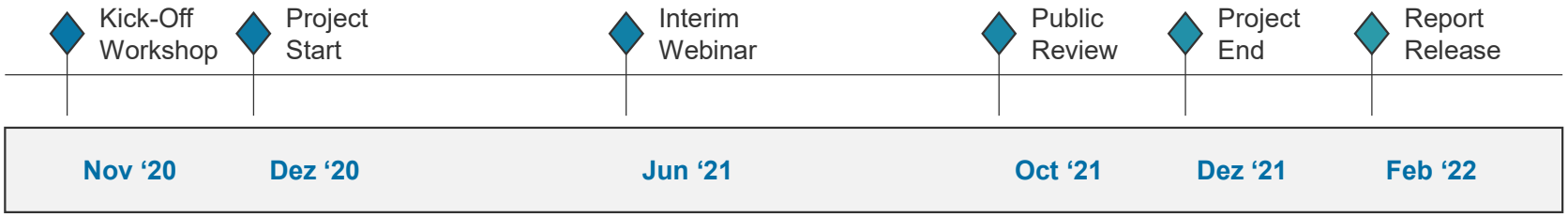
ASAM Test Specification Study Group

Project summary

- **Major goal**
  - ✓ To understand and document the comprehensive overview of testing landscape for ADAS/AD domain
  - ✓ To identify the potentially needed additions to existing standards, connection between standards, or need for completely new standards
  - ✓ To develop a valid technical basis for follow-up activities and projects

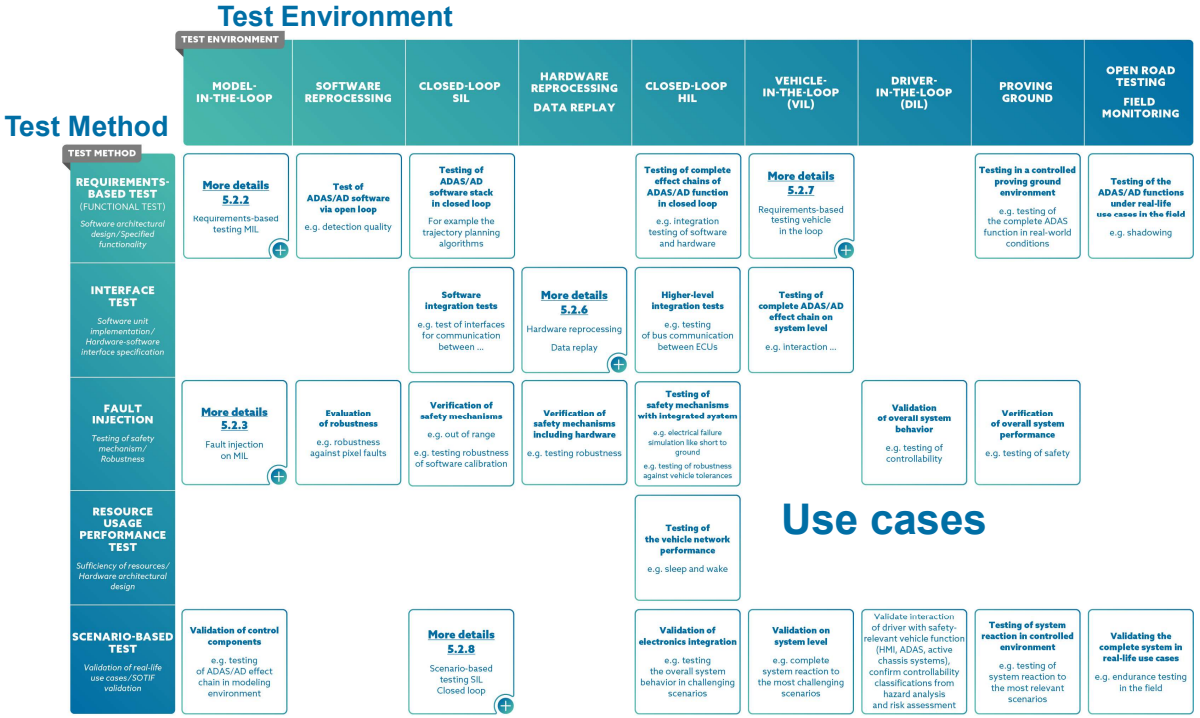
- **Schedule**



- **Deliverable**
  - ✓ ASAM Test Specification Study Group Report 2022: https://report.asam.net/
  - ✓ Test Strategy Blueprint

ASAM Test Specification Study Group

Test strategy Blueprint



- The blueprint encompasses various test environments and test methods
- **A holistic best practice** that can be tailored according to the specific requirements of manufacturing and other projects, but one that meets regulatory, legal, and technical requirements.
- **Possible basis** to achieve the intended goals of testing and homologation for ADAS/AD domain

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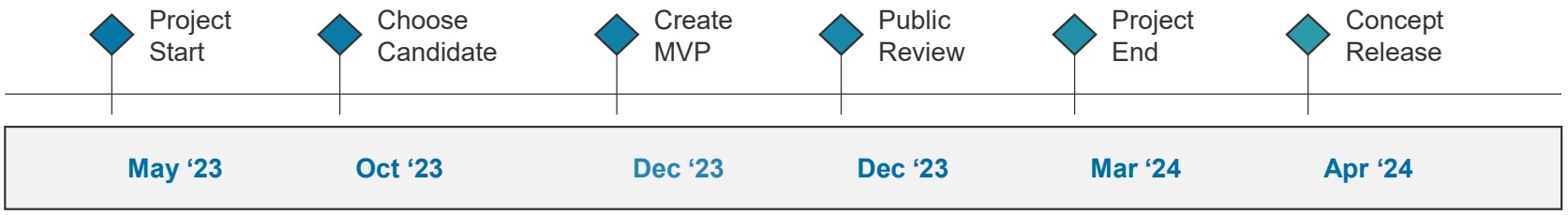
Project summary

- **Major goal;**
  - ✓ To ensure that different test methods and test environments along the test strategy blueprint are applicable and used
  - ✓ To develop technical basis including clear requirements, for how a suite of standards could support various testing workflows

- **Schedule**



- **Deliverables**
  - ✓ Requirements document
  - ✓ The blueprint update of the Test Specification Study Group

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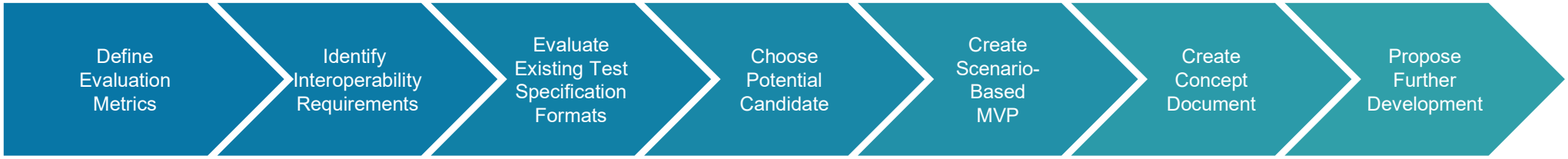
Project overview

Standardization proposal (Requirements report)



Blueprint update

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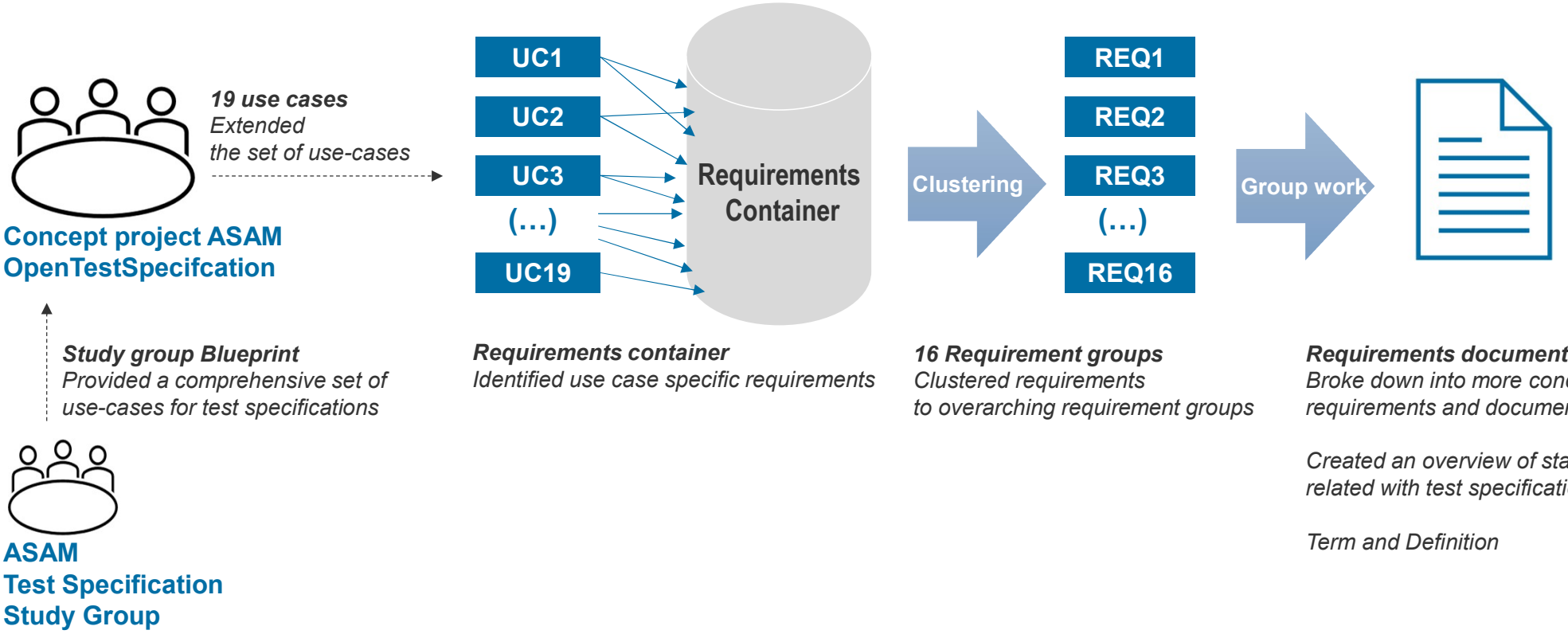
Requirements on a standardized test specification



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Test specification related standards

- **Generic test and quality standard**
  - ✓ ISO/IEC/IEEE 29119, Software and systems engineering — Software testing
  - ✓ ISO/IEC 2501x, Systems and software engineering
  - ✓ …
- **Automotive-domain specific safety standards**
  - ✓ ISO 21448:2022, Road vehicles — Safety of the intended functionality (SOTIF)
  - ✓ ISO 26262-x:2018, Road vehicles — Functional safety
  - ✓ ….
- **Automotive-domain specific standards**
  - ✓ ASAM OpenX
  - ✓ ModellicaFMI
  - ✓ ISO/TR 21959-1:2020, Road vehicles — Human performance and state in the context of automated driving — Part 1: Common underlying concepts
  - ✓ …
- **ODD-related standards**
  - ✓ BSI PAS 1883 (Operational Design Domain (ODD) taxonomy for an automated driving system (ADS) - Specification)
  - ✓ ASAM OpenODD (Data format for ODD description exchange)
  - ✓ NHTSA 13882 (A Framework for Automated Driving System Testable Cases and Scenarios)
  - ✓ ….

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19 Use cases

ID	Name	ID	Short Name
UC #1	REQ-based Test MIL	UC #11	Interface Test HIL Closed-Loop
UC #2	Scenario-based Test MIL	UC #12	Fault Injection Test HIL Closed-Loop
UC #3	REQ-based Test SIL Replay (Open-Loop)	UC #13	Scenario-based Test HIL Closed-Loop
UC #4	Scenario-based Test SIL Replay (Open-Loop)	UC #14	Scenario-based Test VIL
UC #5	REQ-based Test SIL Closed-Loop	UC #15	REQ-based Test DIL
UC #6	Interface Test SIL Closed-Loop	UC #16	Interface Test DIL
UC #7	Fault Injection Test SIL Closed-Loop	UC #17	Fault Injection Test DIL
UC #8	Scenario-based Test SIL Closed-Loop	UC #18	Scenario-based Test Proving Ground
UC #9	Resource usage Perf. Test HW Replay	UC #19	Scenario-based Test Open Road
UC #10	REQ-based Test HIL Closed-Loop		

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16 overarching requirements groups

ID	Name	ID	Short Name
REQ #1	Referencing of external artifacts	REQ #9	Use-case specific
REQ #2	Test specification	REQ #10	General
REQ #3	Reporting	REQ #11	Hardware/Software
REQ #4	Consistency	REQ #12	Timing and Synchronization
REQ #5	Traceability	REQ #13	Preconditions, Parameterization and Configuration
REQ #6	Intuitiveness	REQ #14	Scenarios
REQ #7	Abstraction	REQ #15	Modeling/Virtualization
REQ #8	Interoperability	REQ #16	ODD-related requirment

4.16.3 Relevance in Use-Cases

This requirement is relevant for use-case UC1-UC19 (all).

NOTE All requirements define the relevant use cases.

Next Steps: Call for Candidates

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Call for candidates

- The project group is finalizing the requirements documents, which will serve as foundation for the evaluation of existing test specifications (“candidates”) and their potential to serve as basis for standardization

- On **September 15th,** within a “Call for Candidates”, application documents will be distributed by ASAM e.V.:
  - Abstract (Brief description of the candidate)
  - ASAM OpentestSpecification Requirements Document (Detailed description of the requirements)
  - ASAM OpentestSpecification Requirements Evaluation Sheet (Requirement assessment sheet)

- Applications from interested parties who would like to present a candidate will be accepted until October 6"

- After successful submission, applicants will be invited for individual, 30-minute candidate presentations

- After completion of all presentations, the project group will select none, one or more (complementary) candidates for further standardization. Therefore, applications should be considered even if not all requirements are met.

- The selected candidate(s) will serve as basis for implementation of an exemplary test specification demonstrating scenario-based SiL simulation and its validation in a generic tool chain to further evaluate its/their potential

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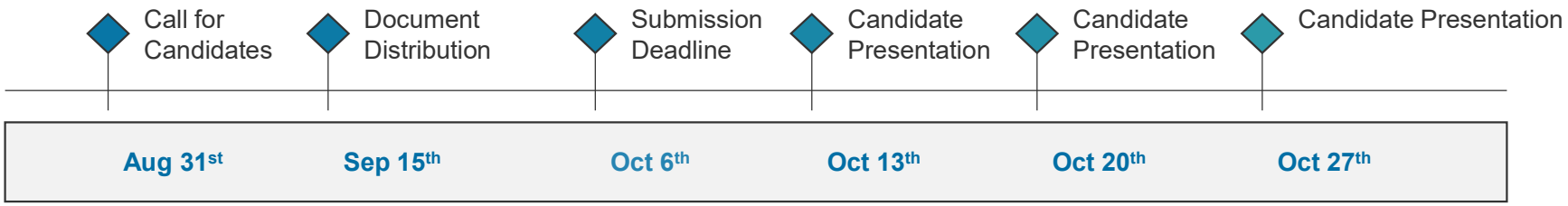
Call for candidates

- August 31st: Webinar, presentation of “Call for Candidates”
- September 15th: Distribution of application documents by ASAM e.V.
- October 6th: Deadline for submission of completed documents by interested parties
- From October 13th: 30-minute presentations in weekly project meeting (Fridays, 12-14)



Q&A

In case of further questions please contact the ASAM Office Responsible below via Email.

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