SCN-SG Safety Concept Notation Study Group

SCDL Safety Concept Description Language

Introduction to SCDL Next Generation

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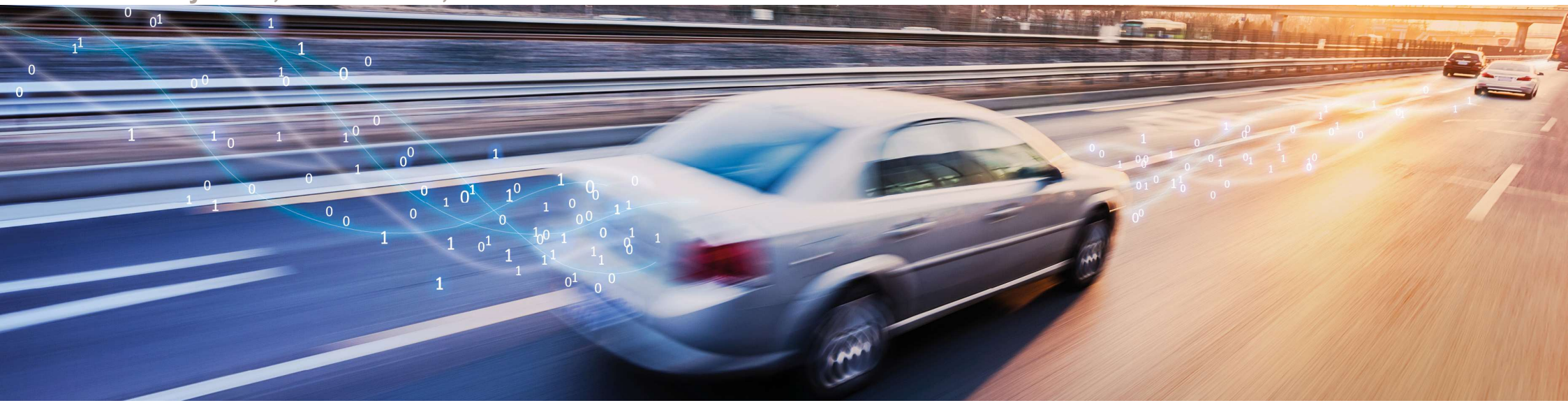

ASAM Association for Standardization of Automation and Measuring Systems

Agenda

1	ASAM SCDL Next generation motivation including issues and limitations of the current version
2	Overview of extensions to the next generation
3	Introduction to new project

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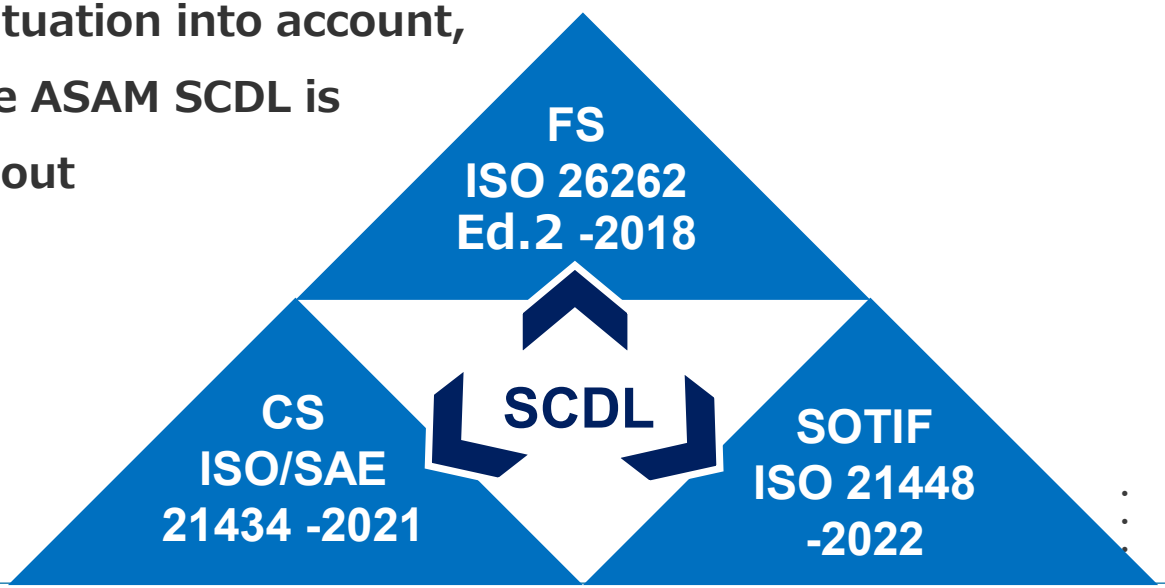
SCDL Safety Concept Description Language

Three safety and security standards era has come

- 3 major safety related standards for automotive electrical control systems are existing since 2022
- All 3 standards are closely related each other
- Implementing all of them to control system development within efficient and effective correlation is necessary

➡ By taking this situation into account, expansion of the ASAM SCDL is started pointed out



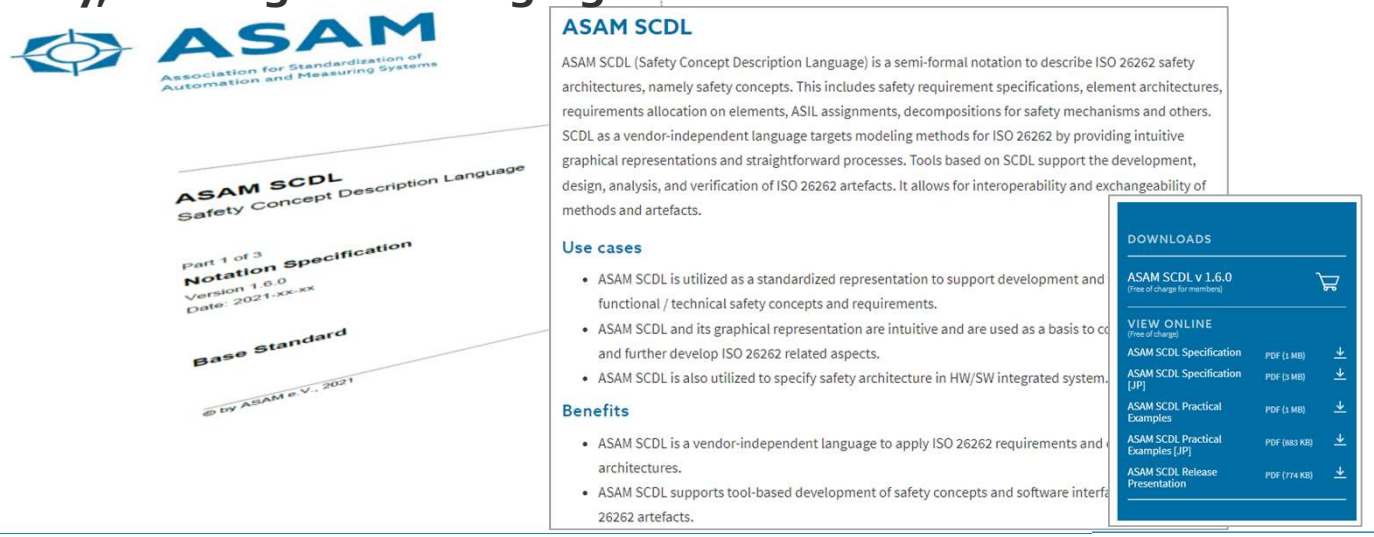
- FS – Functional Safety
- CS – Cyber Security
- SOTIF – Safety Of The Intended Functionality

SCDL
Safety Concept Description Language

Issues and limitations of the ASAM SCDL v1.6.0

And also, based on the usage experience of v1.6.0, the following issues have been identified:

- **Due to the scalability of the system and other factors, diagrams have become more complex, leading to a decrease in readability.**
- **Safety concept diagrams, safety requirement specifications, and safety analysis results are generated individually, making it challenging to track their content correspondences.**



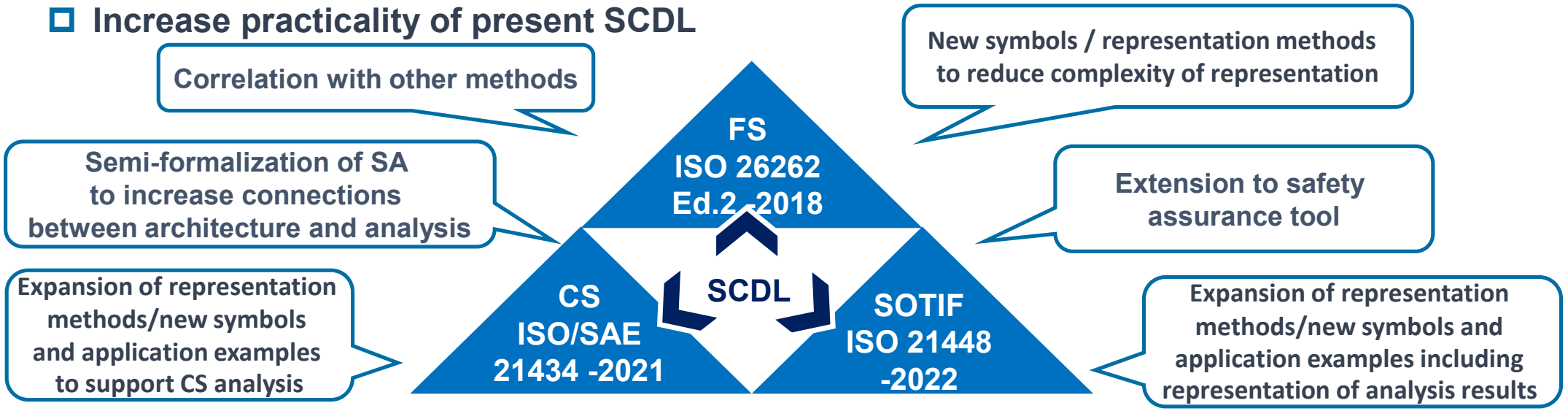
ASAM

Discussions regarding evolution of SCDL to adapt to new era

Adaption to 3 standard era and issues and limitations of the v1.6.0

➡ 3 motivations

- Extension to CS area
- Expand SCDL application to SOTIF area
- Increase practicality of present SCDL



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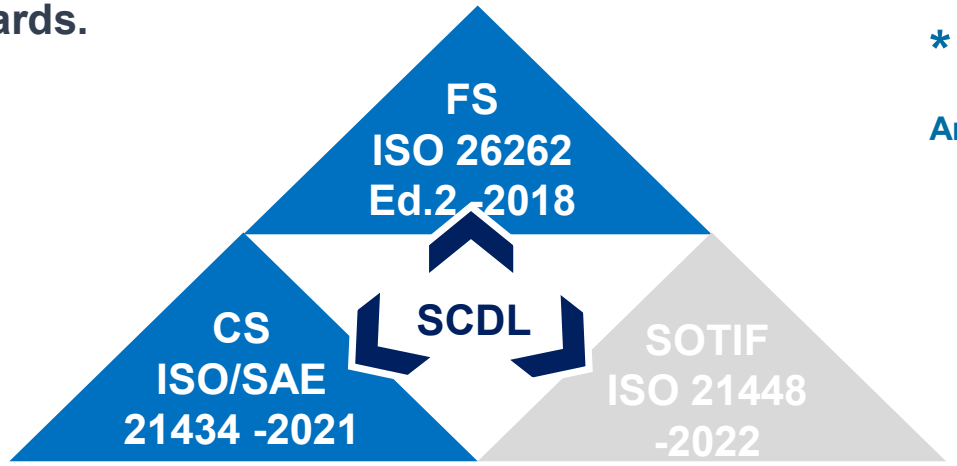
Motivation: Cybersecurity

Extension of ASAM SCDL to CS area

- In ISO 21434, information, function, and physical assets which could be the target to threat shall be identified and their risks shall be analyzed and treated.
- It is already reported* that application of SCDL to threat analysis from safety point of view is effective
- There is an expectation for further extension of ASAM SCDL to enable efficient collaboration between both standards.



Expansion of representation methods/new symbols and application examples to support CS analysis

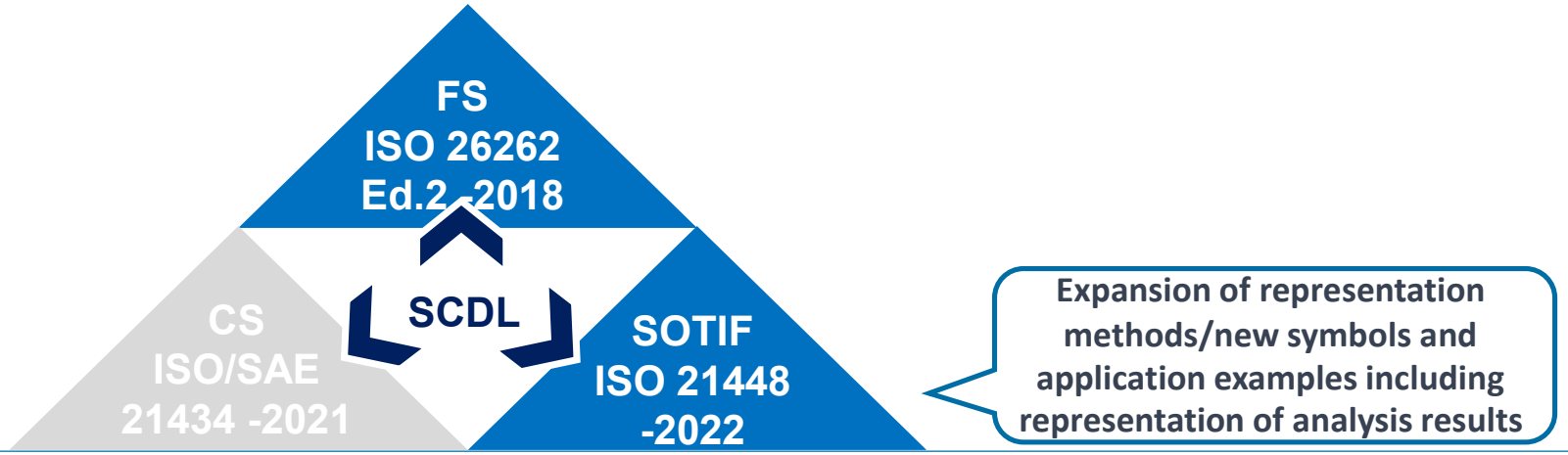
* "Threat Analysis Framework for Safety Architectures in SCDL" @SafeComp2020

SCDL Safety Concept Description Language

Motivation: SOTIF

Expand ASAM SCDL application to SOTIF area

- The result of intended functionality (IF) development based on ISO 21448 is provided to item definition specified in ISO 26262.
- To support effective and efficient implementation of both standards to actual system development, utilize of ASAM SCDL to architectural description during SOTIF activity to rationally discuss SM applications occurring in safety architecture, among other aspects.



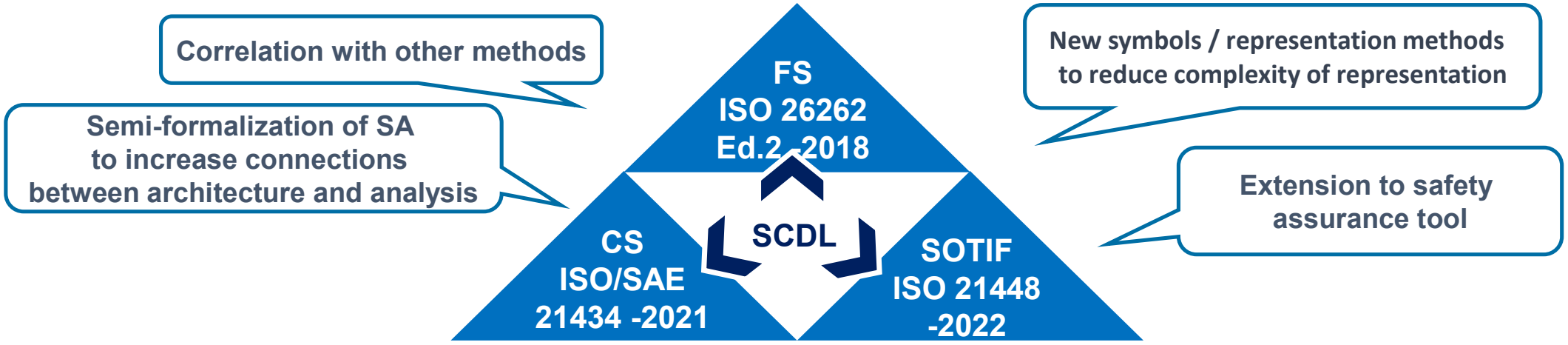
ASAM

SCDL Safety Concept Description Language

Motivation: Increase practicality of present SCDL

Increase practicality of present SCDL

- Further sophistication of notation is necessary to accommodate the handling of numerous safety goals and safety requirements in large-scale systems.
- Discussions have commenced regarding the semi-formalization of safety analysis, effectively linking it with safety architecture analysis.
- The role as a crucial tool to support clear safety argumentation demanded in the three standards era is becoming increasingly important.



ASAM

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Invitation to SCDL Next Gen. project

- We would like to receive feedback on our concept for the next generation through discussions with people from around the world.
- We are planning to launch a new project for ASAM SCDL.
- Your valuable input will sophisticate ASAM SCDL next generation.
- Future schedules
  - Based on the results of the workshop, we are considering one of two new project proposals.
  - Standard Development Project (Major / Minor / Revision)
  - Concept Project

2023				2024	2025
9	10	11	12	1	1
◆ 9/19 : Workshop		◆ TSC: Proposal meeting			

Based on the result

The consideration is sufficient → Standard Development Project → ◆ ASAM SCDL next version release

Further deliberation demanded → Concept Project → ◆ Consider towards Standard Development Project

Thank you for your attention

Looking forward to see you