



The AMASS Platform

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Work supported by the **EU and VINNOVA** via the **ECSEL JU project AMASS**
(Architecture-driven, Multi-concern, Seamless Assurance and
Certification of Cyber-Physical Systems)



Talk outline

- AMASS project overview
- AMASS platform core
- AMASS platform and ecosystem
- AMASS platform in action
- AMASS platform future development

AMASS project overview -Goals

Project Goals

Develop an holistic approach and tool support for

*Architecture-driven, Multi-concern, Seamless, Reuse-Oriented Assurance
& Certification*

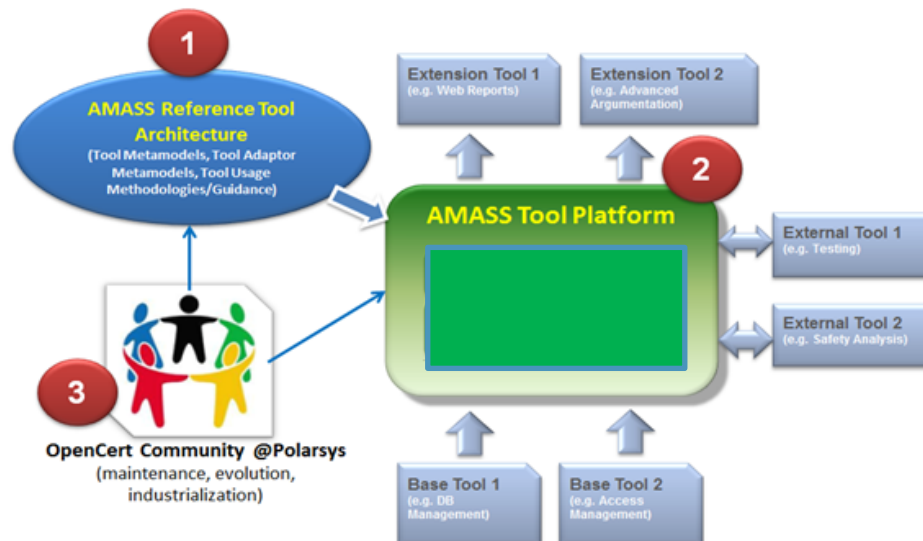
G1: Gain for Design Efficiency

G2: Reuse of assurance artefacts

G3: Raise of technology innovation

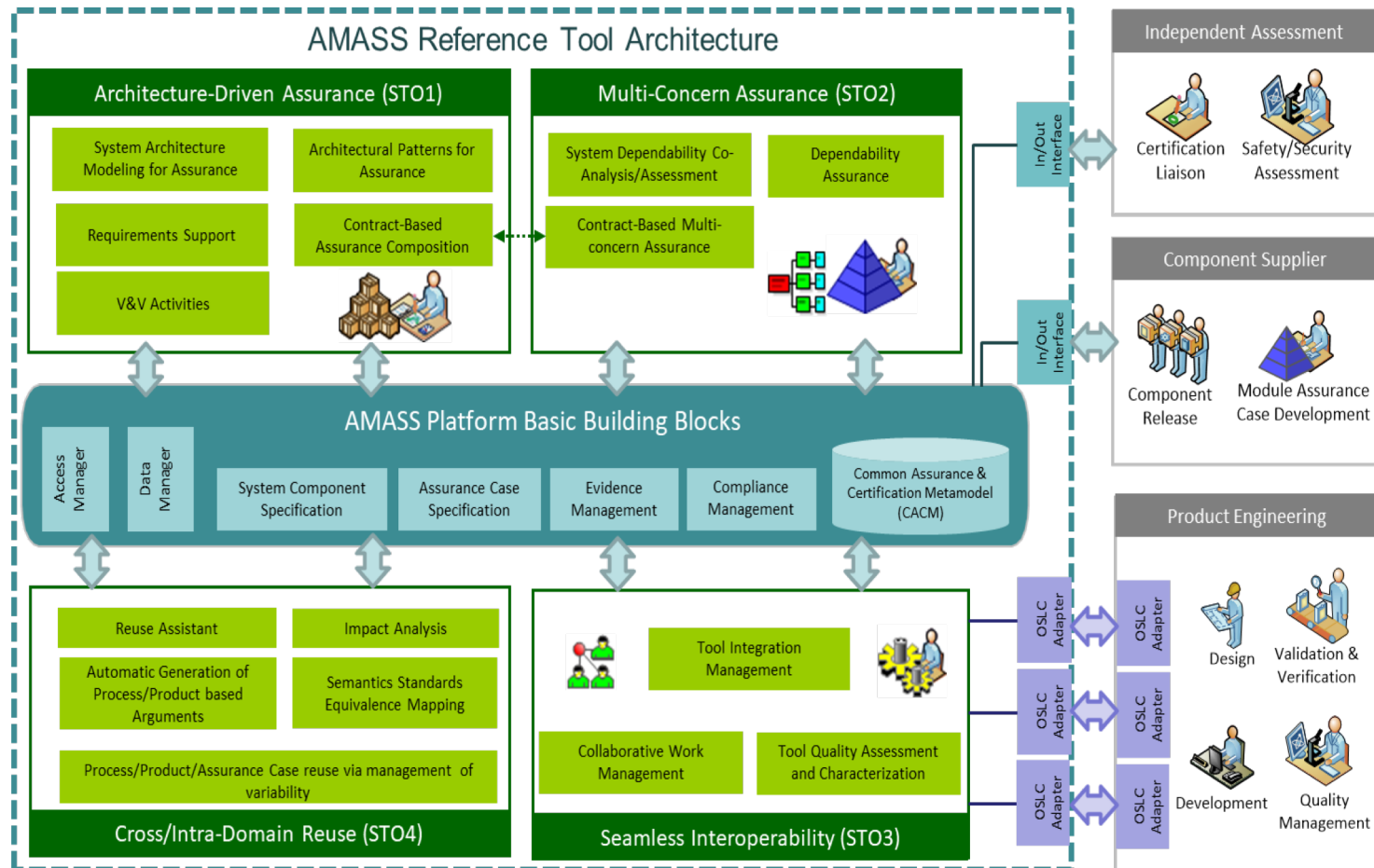
G4: Increase harmonisation and interoperability

Tangible Results

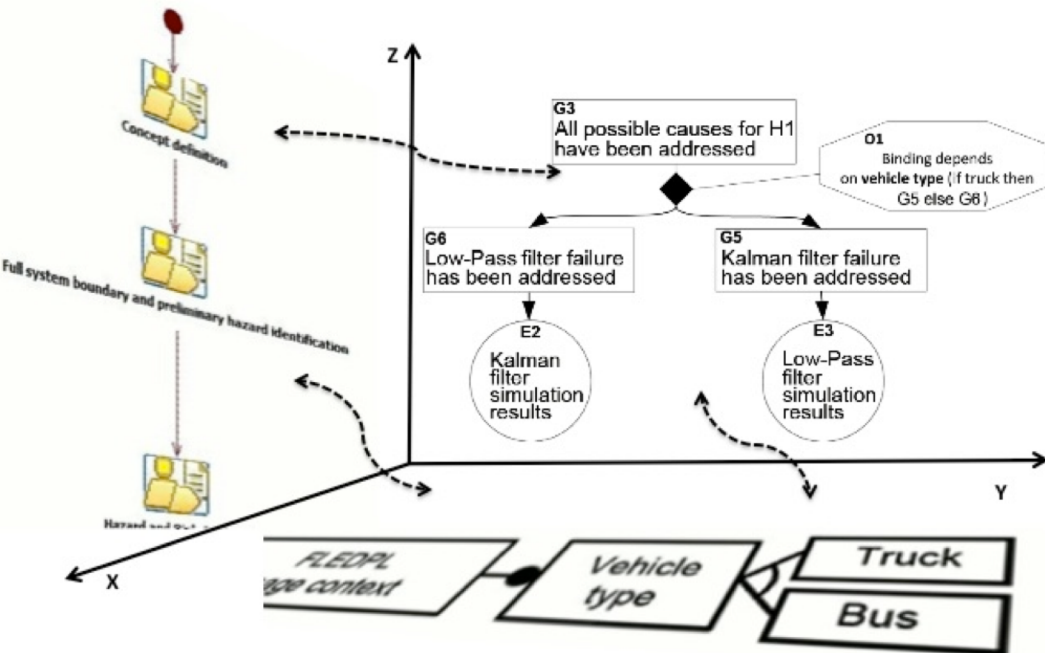


AMASS project overview

-Scientific Objectives-

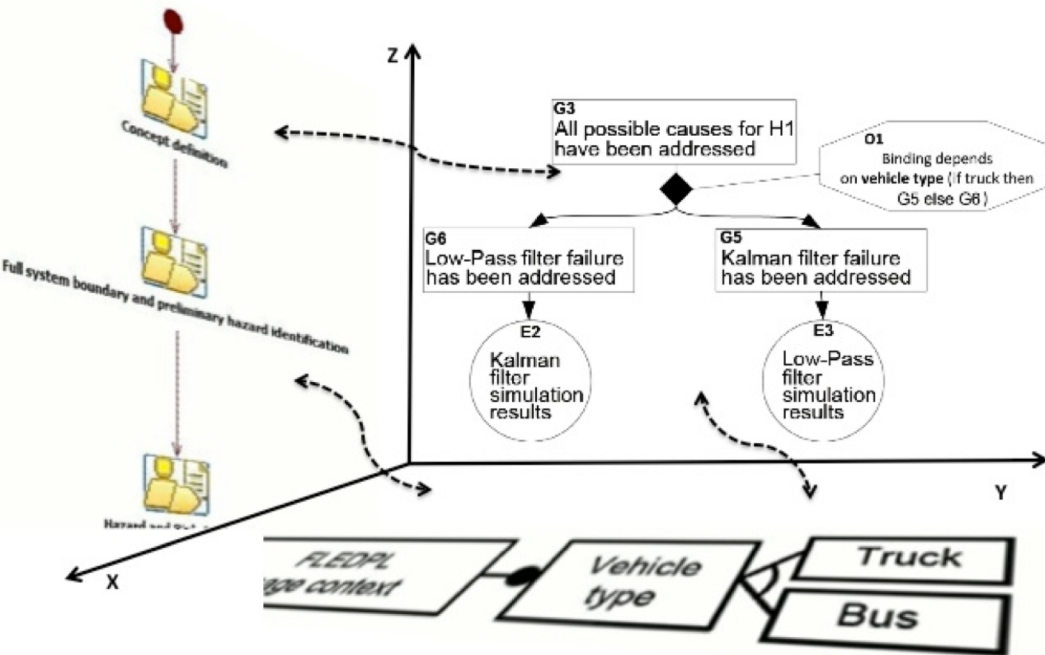


AMASS platform core



[Gallina, 2015]

AMASS platform core



• openCert

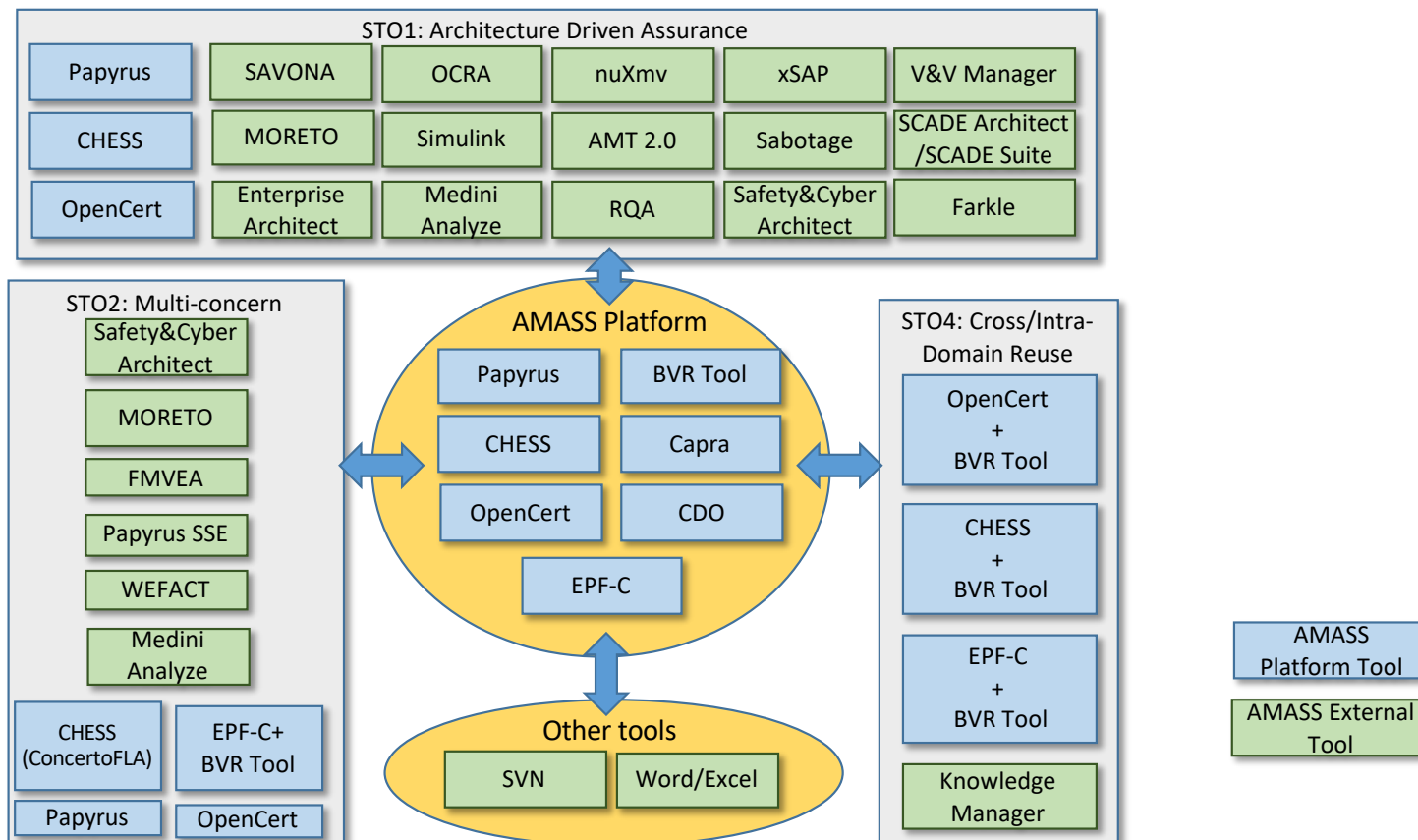
• PolarSys CHES

• eclipse
PROCESS FRAMEWORK

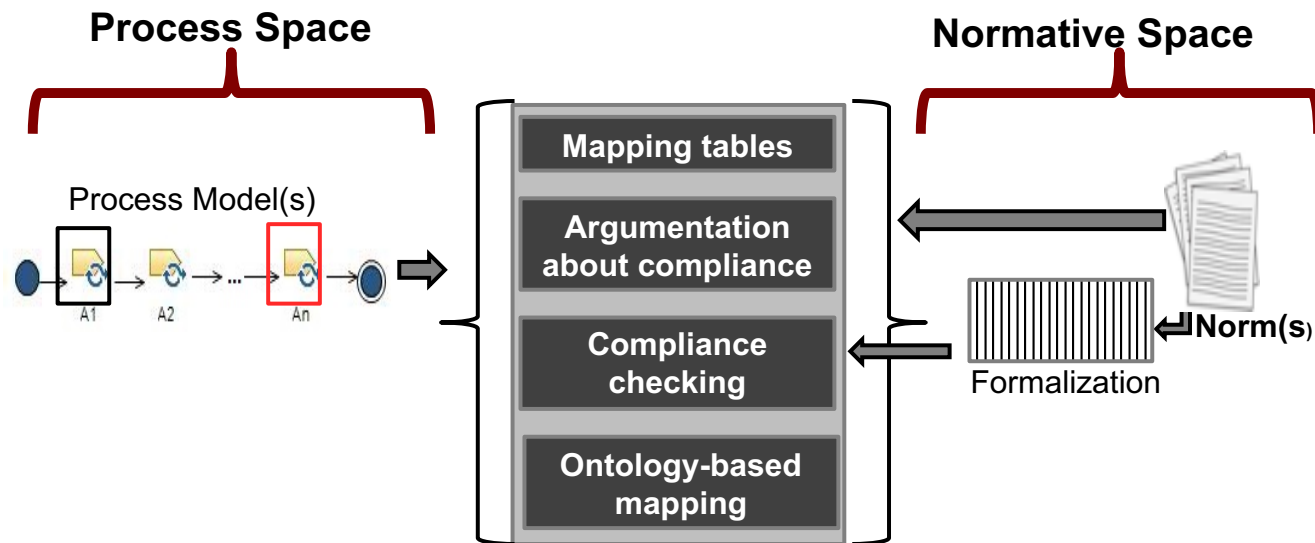
+ BVR Tool

[Gallina, 2015]

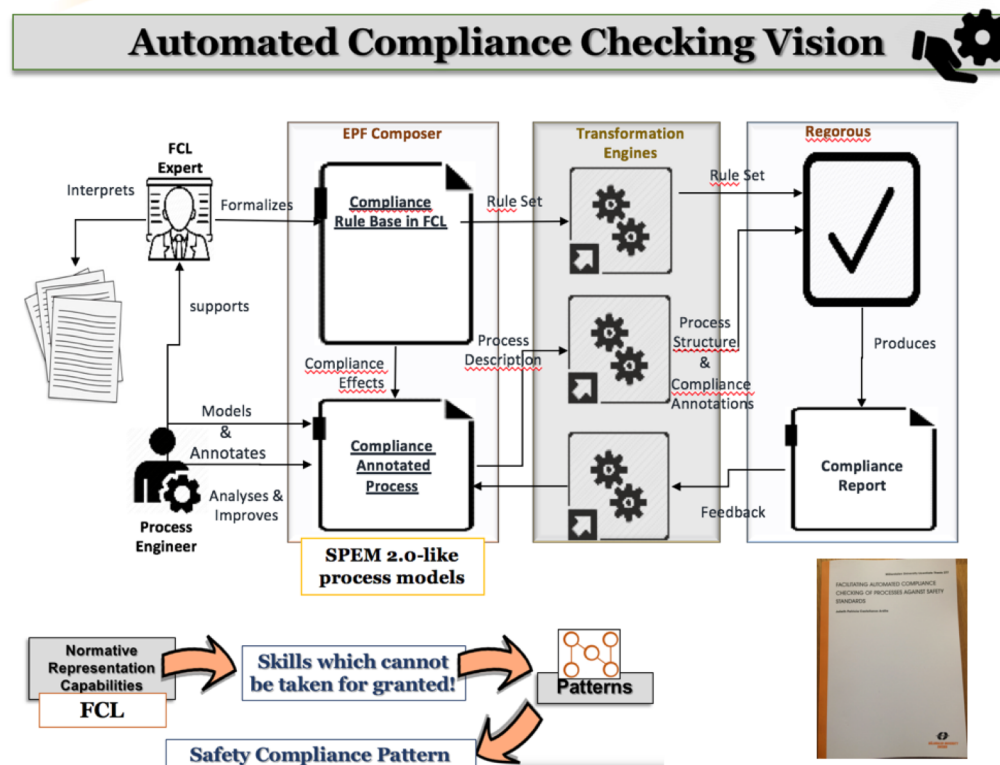
AMASS platform and ecosystem

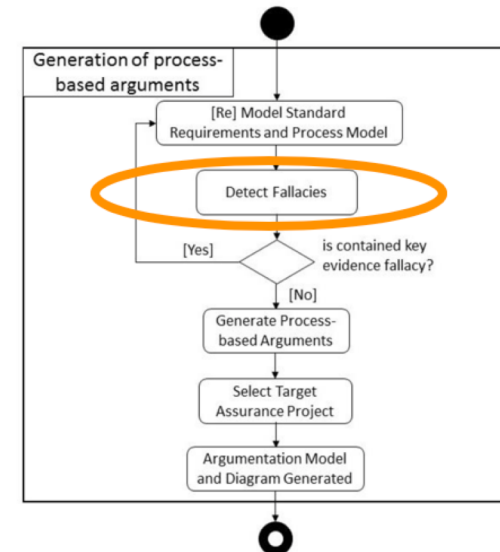
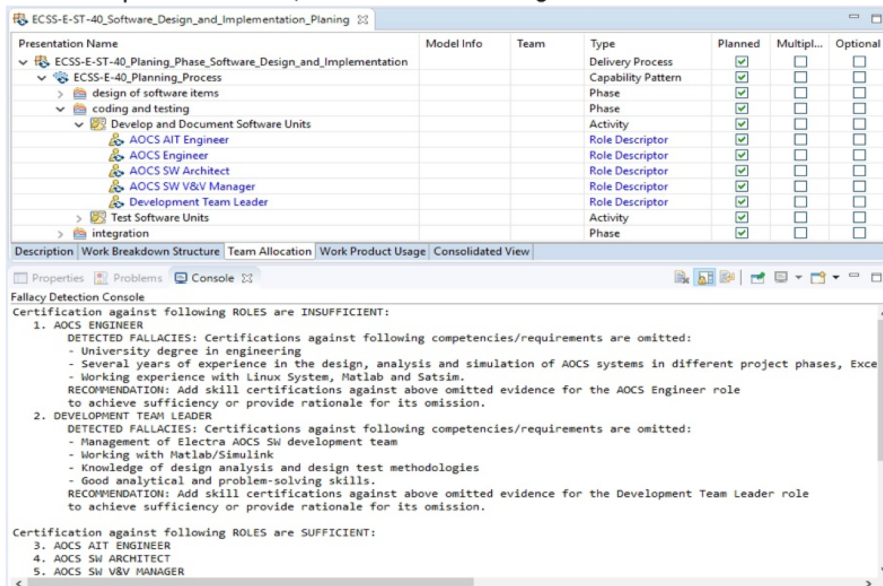
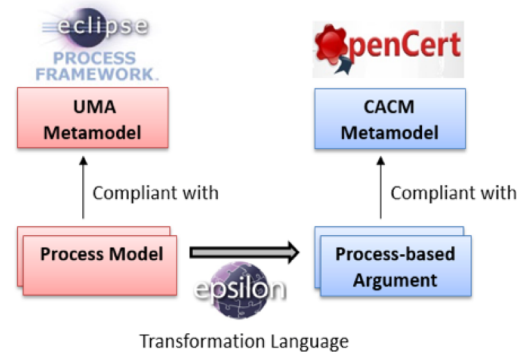


AMASS platform in action



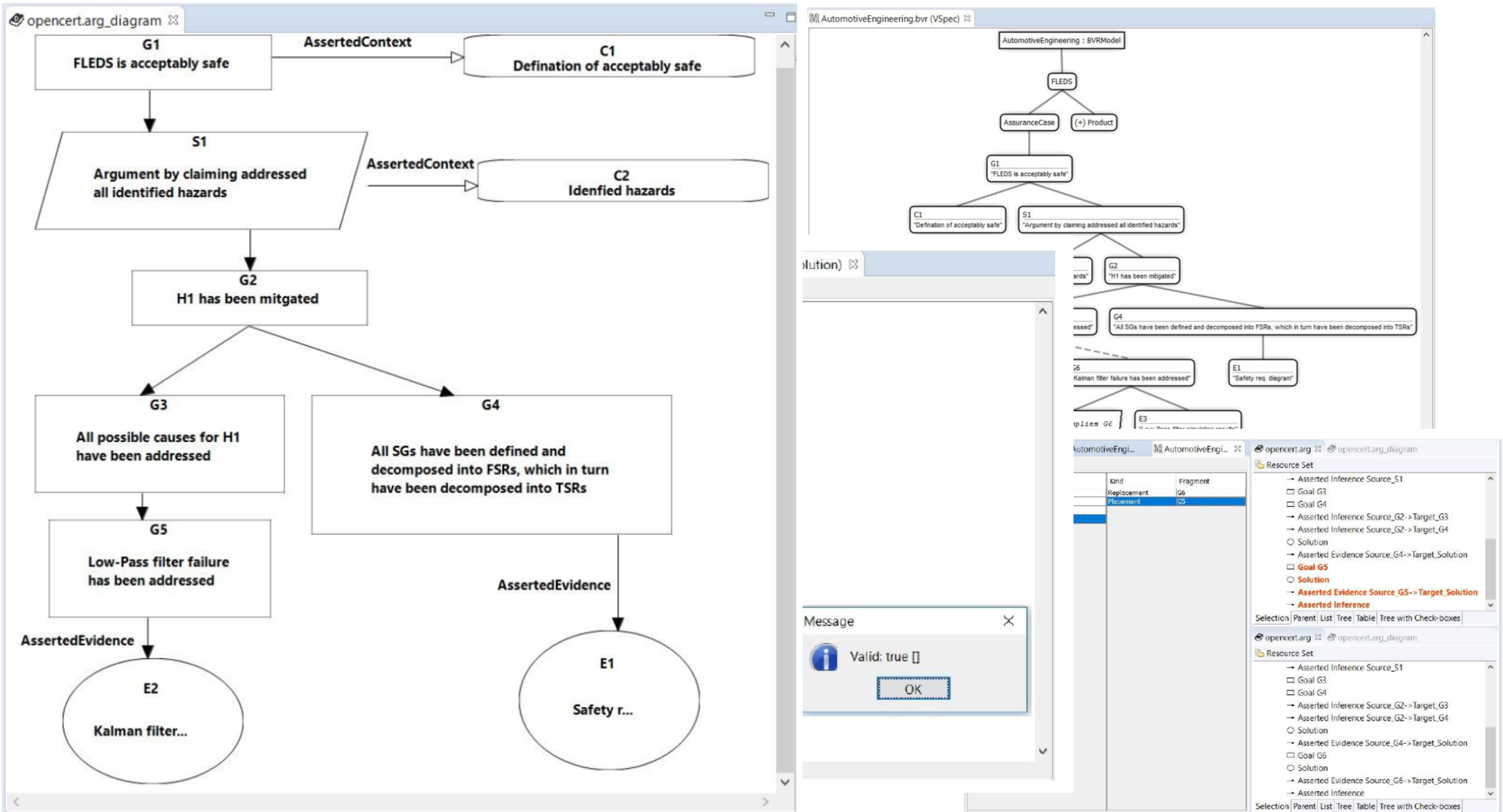
AMASS platform in action



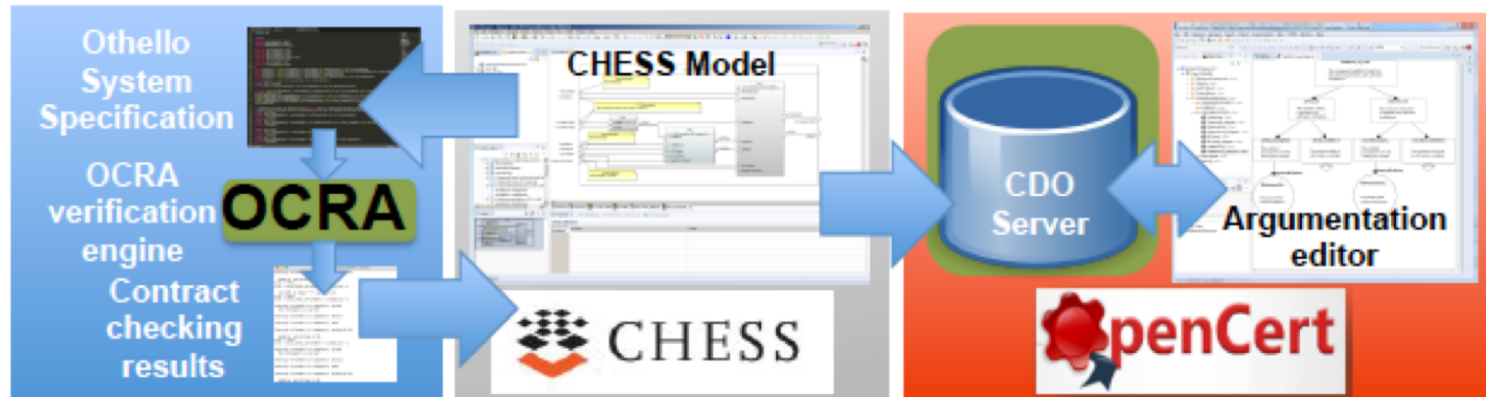


ASSURE workshop, Turku, Finland, 10th September 2019

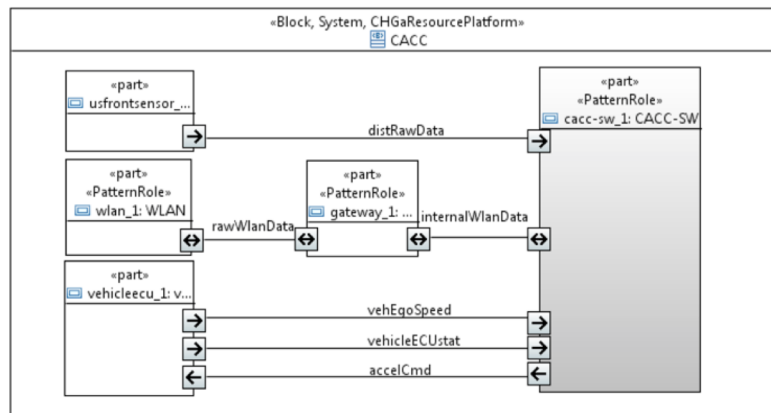
AMASS platform in action



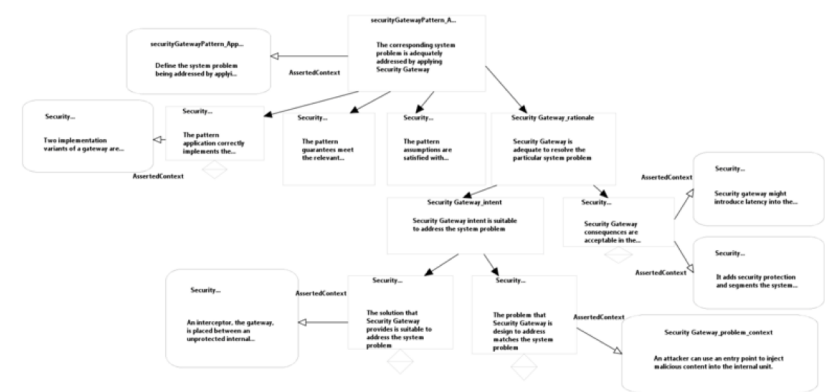
AMASS platform in action



[Sljivo, 2018]



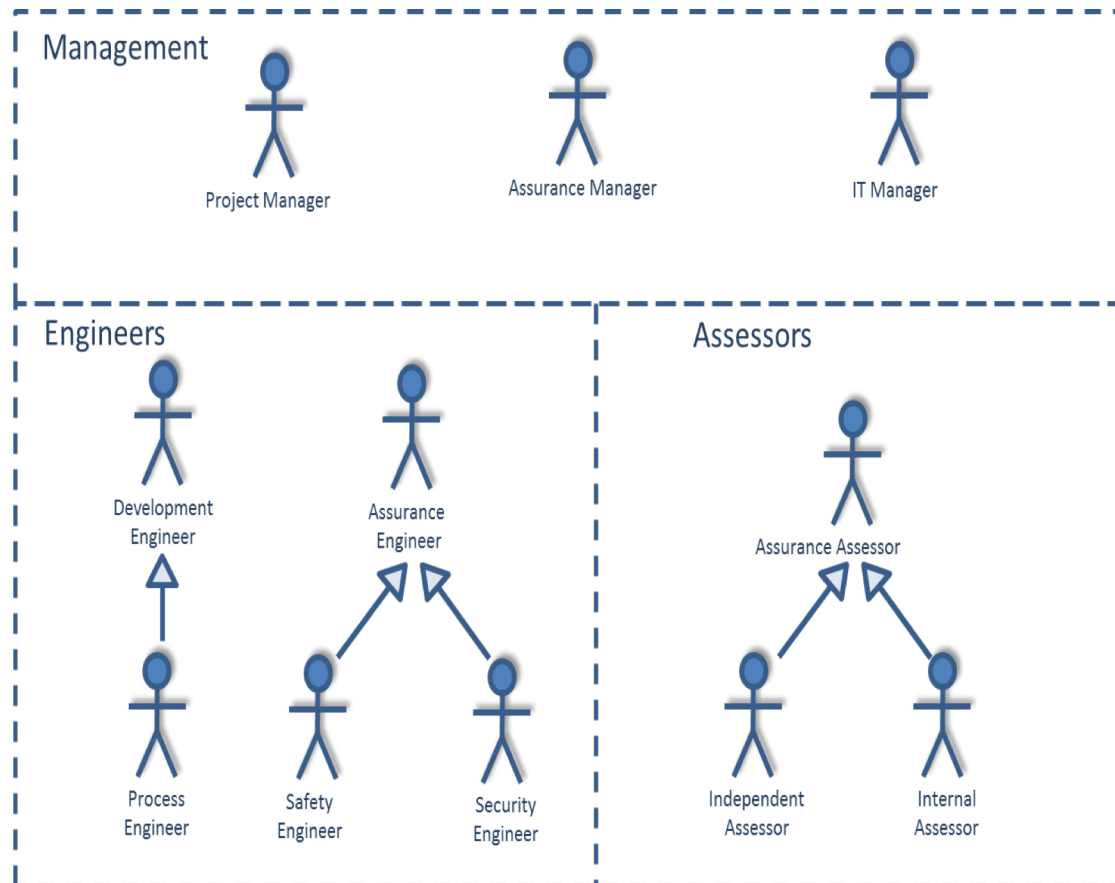
**[Pattern-based architectural specification:
CS3, Security Gateway Pattern]**



[Pattern-based argumentation generation]

AMASS platform future development

Call for Users and Contributors





References

- AMASS Project (online) <https://www.amass-ecsel.eu/>
- AMASS Project: Deliverables (online) <https://www.amass-ecsel.eu/content/deliverables>
- AMASS Project: Deliverable 1.6 - AMASS demonstrators (c) (2019)
- AMASS Project: Deliverable 1.7 - AMASS solution benchmarking (2019)
- AMASS Project: Deliverable 2.4 - AMASS reference architecture (c) (2018)
- AMASS Project: Deliverable 2.5 - AMASS user guidance and methodological fwk. (2018)
- AMASS Project: Deliverable D7.7 - AMASS open source platform (c) (2018)
- AMASS Project: Publications (online) <https://www.amass-ecsel.eu/content/publications>
- The AMASS Platform: <https://www.polarsys.org/opencert/>
- YouTube: Opencert (online) https://youtube.com/channel/UCw_Dol5sDgysEphi6tzzDyw
- Gallina, B., et al.: AMASS: Call for Users and Contributors. Eclipse Newsletter (2019)
- Espinoza, H., et al.: Meet the new Eclipse-based tools for Assurance and Certification of Cyber-Physical Systems. Eclipse Newsletter (2018)
- [Variability Management at Assurance Case Level (MDH)] <https://www.youtube.com/watch?v=movci8lZQxk>
- [Automate Compliance Checking (MDH)] https://www.youtube.com/watch?v=DY8kuyigv_4&feature=youtu.be
- [Basic Compliance in EPF (MDH)] <https://www.youtube.com/watch?v=stmoYPOK7iw&feature=youtu.be>
- [Product-based Multi-Concern Argument Fragment Generation (MDH)] <https://www.youtube.com/watch?v=NUS2GouUNvM>
- [System Dependability Functionality via concerto FLA (MDH)] https://www.youtube.com/watch?v=3XWn1VrL2_8



References

- B. Gallina. Towards Enabling Reuse in the Context of Safety-critical Product Lines. 5th International Workshop on Product Line Approaches in Software Engineering (PLEASE), joint event of ICSE, Florence, Italy, May 19th, 2015.
- M. A. Javed and B. Gallina. Safety-oriented Process Line Engineering via Seamless Integration between EPF Composer and BVR Tool. In 22nd International Systems and Software Product Line Conference (SPLC), Sept 10-14, Gothenburg, Sweden, ACM Digital Library, DOI: 10.1145/3236405.3236406, 2018.
- J. P. Castellanos Ardila and B. Gallina and F. Ul Muram. Enabling Compliance Checking against Safety Standards from SPEM 2.0 Process Models. 44th Euromicro Conference on Software Engineering and Advanced Applications (SEAA), Prague, Czech republic, 29-31 August, 2018.
- J. P. Castellanos Ardila and B. Gallina and F. Ul Muram. Transforming SPEM 2.0-compatible Process Models into Models Checkable for Compliance. 18th International SPICE Conference (SPICE), Thessaloniki, Greece, October 9-10, 2018.
- J. P. Castellanos Ardila, B. Gallina and G. Governatori. Lessons Learned while Formalizing ISO 26262 for Compliance Checking. 2nd Workshop on TeReCom - Technologies for Regulatory Compliance, CEUR Workshop Proceedings, Vol-2309, pp. 5-16, Gröningen, Netherlands, December 12, 2018.
- I. Sljivo, B. Gallina, J. Carlson, H. Hansson, S. Puri. Tool-Supported Safety-Relevant Component Reuse: From Specification to Argumentation. 23rd International Conference on Reliable Software Technologies (Ada-Europe), Lisbon, Portugal, June 18-22, 2018.
- I. Sljivo, Garazi Juez Uriagereka, Stefano Puri, and B. Gallina. Guiding Assurance of Architectural Design Patterns for Critical Applications. Ada Europe SI, accepted paper, 2019.
- B. Gallina. A Model-driven Safety Certification Method for Process Compliance. 2nd IEEE International Workshop on Assurance Cases for Software-intensive Systems (ASSURE), joint event of ISSRE, Naples, Italy, doi: 10.1109/ISSREW.2014.30, pp. 204-209, November 3-6, 2014.
- F. Ul Muram, B. Gallina, Laura Gomez Rodriguez. Preventing Omission of Key Evidence Fallacy in Process-based Argumentations. 11th International Conference on the Quality of Information and Communications Technology (QUATIC), IEEE, DOI: 10.1109/QUATIC.2018.00019, Coimbra, Portugal, September, 2018.



Thank you for your
attention!

Discussion time...