AMASS

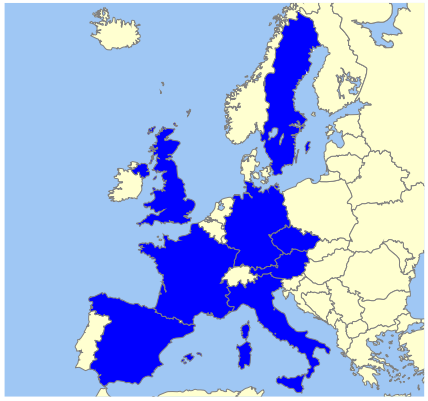
Architecture-driven, Multi-concern and Seamless Assurance and Certification of Cyber-Physical Systems

Short Presentation

H2020-JTI-ECSEL-2015 # 692474

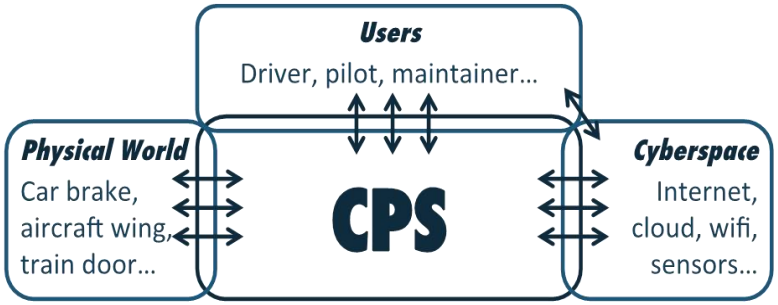
AMASS in a Nutshell

- **20,7** Million € Total budget
- **2500** Person-Months Effort
- **36** Months Duration
- **29** Partners
- **8** Countries



No	Participant organisation name	Short	Country
1	Tecnalia Research & Innovation	TEC	ES
2	Honeywell	HON	CZ
3	Schneider Electric España	TLV	ES
4	ANSYS medini Technologies AG	KMT	DE
5	Mälardalen University	MDH	SE
6	Eclipse Foundation Europe	ECL	DE
7	Infineon	IFX	DE
8	AIT Austrian Institute of Technology GmbH	AIT	AT
9	Fondazione Bruno Kessler	FBK	IT
10	Intecs	INT	IT
11	Assystems Germany Gmbh	B&M	DE
12	GMV Aerospace and Defence, S.A.U.	GMV	ES
13	RINA	RIN	IT
14	Thales Alenia Space	TAS	ES
15	Universidad Carlos III de Madrid	UC3	ES
16	Rapita Systems	RPT	UK
17	The REUSE company	TRC	ES
18	OHB Sweden AB	OHB	SE
19	Masaryk University	UOM	CZ
20	Alstom Transport S.A.	ALS	FR
21	Kompetenzzentrum – Das virtuelle Fahrzeug Forschungsgesellschaft mbH	VIF	AT
22	Alliance pour les technologies de l' Informatique	A4T	FR
23	COMMISARIAT A LENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES	CEA	FR
24	CLEARSY SAS	CLS	FR
25	ALTEN SVERIGE AKTIEBOLAG	ALT	SE
26	Lange Research Aircraft Gmbh	LAN	DE
27	Thales Italia SpA	THI	IT
28	RISE Research Institutes of Sweden	SPS	SE
29	Comentor AB	COM	SE

AMASS Project Objectives



Increase in ***product complexity***

Very high costs & effort

Lack of standardized & harmonized practices

New assurance & certification risks

Architecture-specific *assurance* ***needs***

Need for addressing new, ***multiple concerns***

Wider ***variety of tools and stakeholders***

Insufficient reuse support

Problem

CPS assurance & certification

Solution

- Integrated & holistic approach
- CPS-specific needs addressed
- Maintained tool support

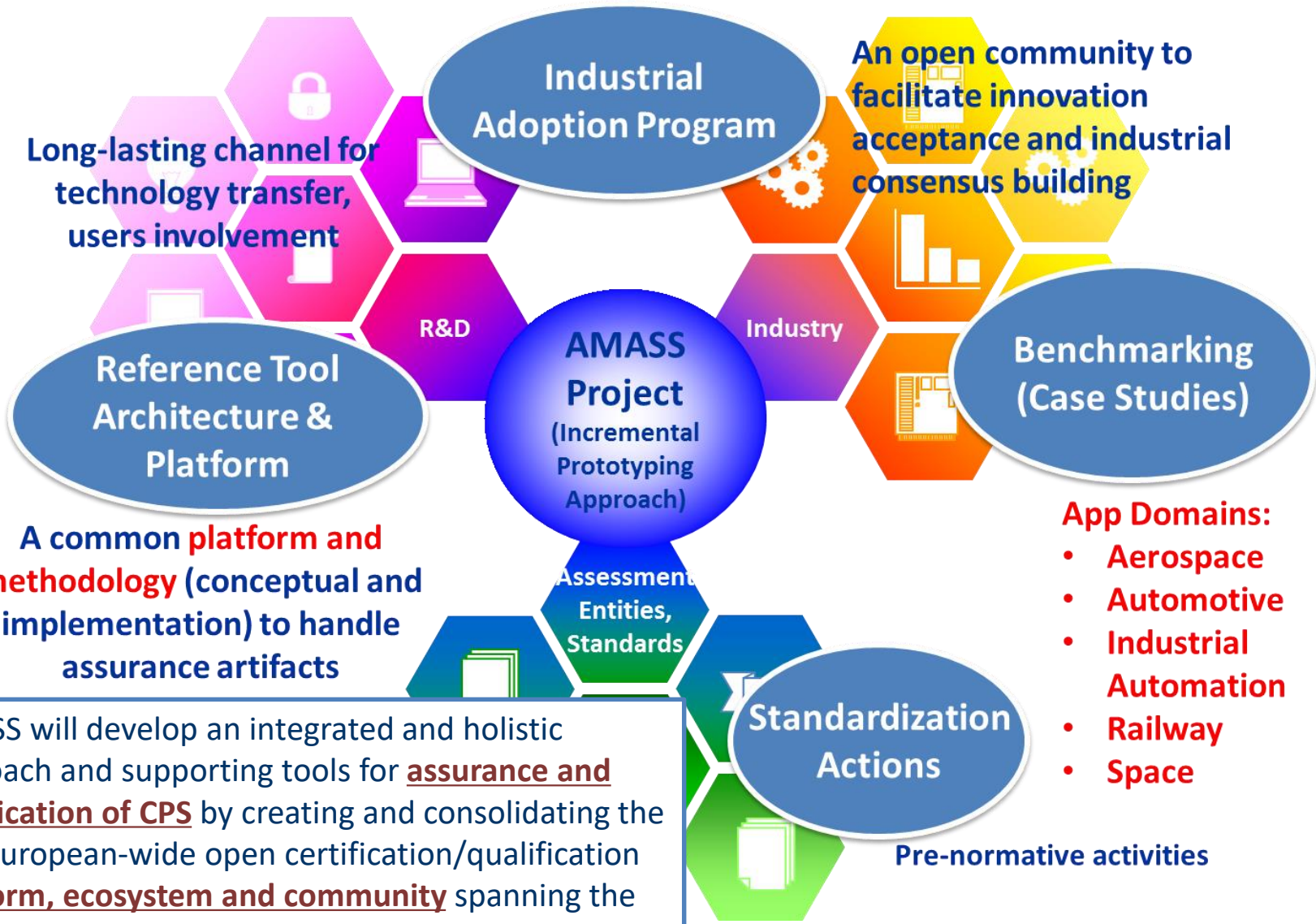
50% effort reduction
40% reuse cost reduction
35% assurance risks reduction
60% harmonization increase

✓ **Higher design efficiency**
✓ **Lower recurring costs**
✓ **Easier innovation**
✓ **Openness & interoperability**

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

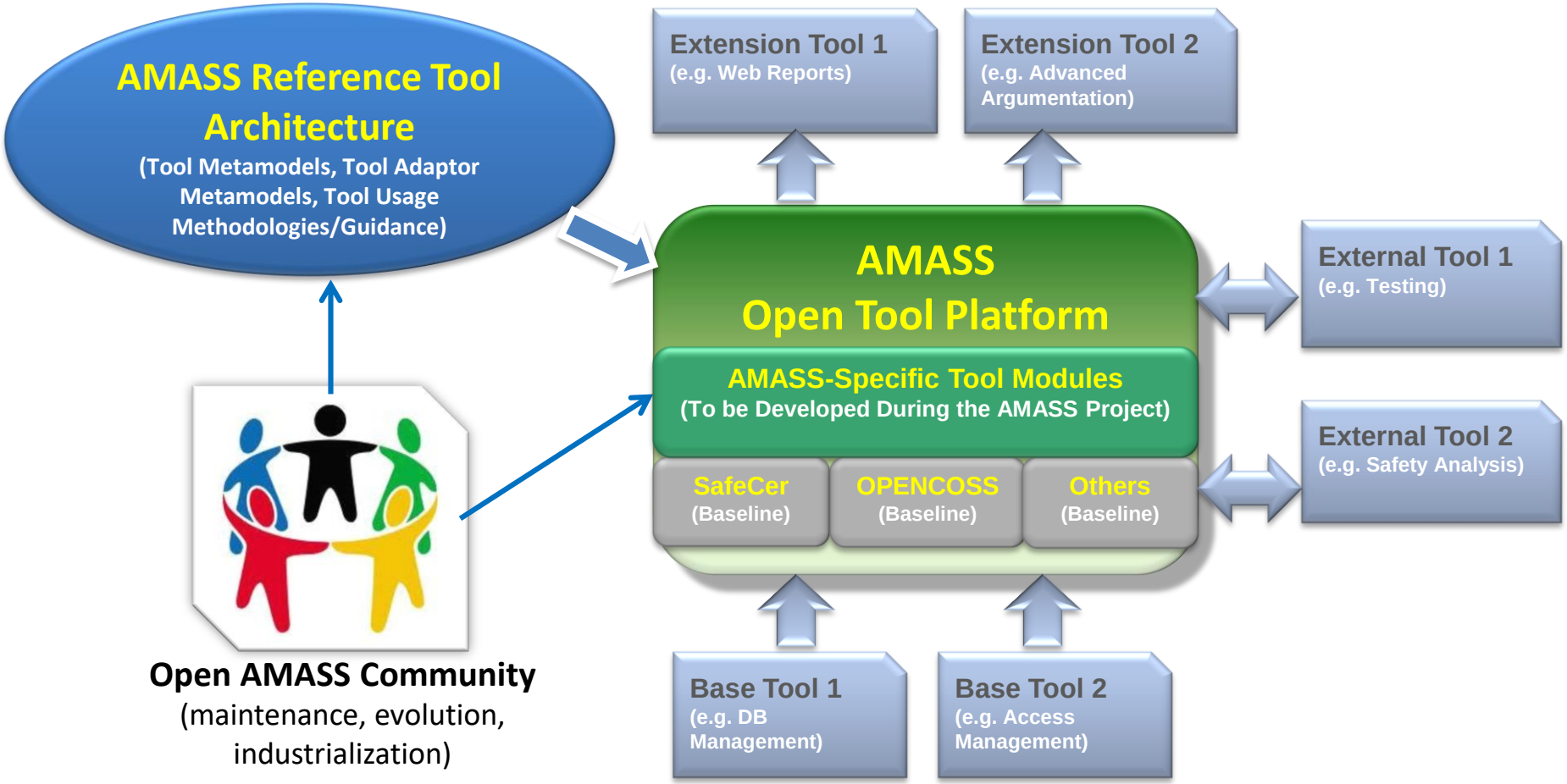
The AMASS approach will be driven by architectural decisions, including multiple assurance concerns such as **safety**, **security**, availability, robustness and reliability. The main goal is **to reduce time, costs and risks** for assurance and (re)certification.

AMASS Overall Strategy



AMASS will develop an integrated and holistic approach and supporting tools for **assurance and certification of CPS** by creating and consolidating the first European-wide open certification/qualification **platform, ecosystem and community** spanning the largest CPS vertical markets.

AMASS Tangible Outcomes



OPENCOSS Project Approach

OPENCOSS — Open Platform for EvolutioNary Certification Of Safety-critical Systems

An open and customizable safety assets tool platform to improve reliability, transparency, and to reduce cost/times of assurance/certification processes.

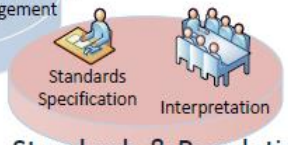
Compliance Management and Transparent Assurance

Product Engineering "Project"

Assurance "Project"

Supplier Chain

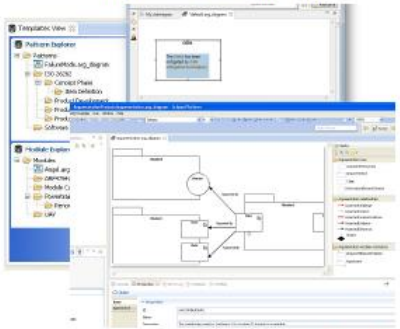
(Independent) Safety Assessment



Standards & Regulations Information Management

Evidence and Argumentation Confidence Assessment

Compliance-Aware Engineering Process

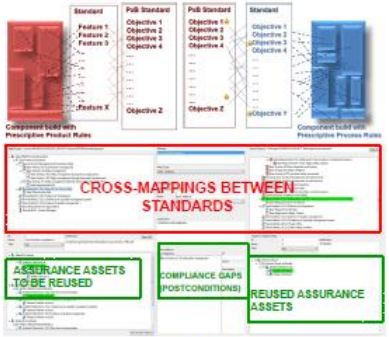


Safety Case-based Compositional Assurance

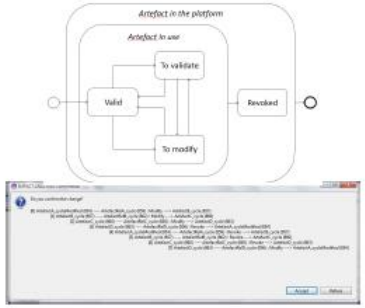
SEVENTH FRAMEWORK PROGRAMME

tecnalia Inspiring Business

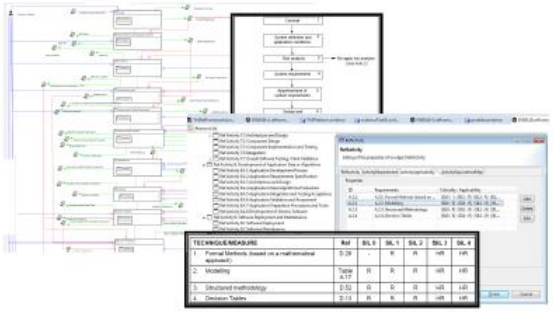
PolarSys Open Source Tools for Embedded Systems



Cross-Domain Reuse



Evidence Traceability and Impact Analysis

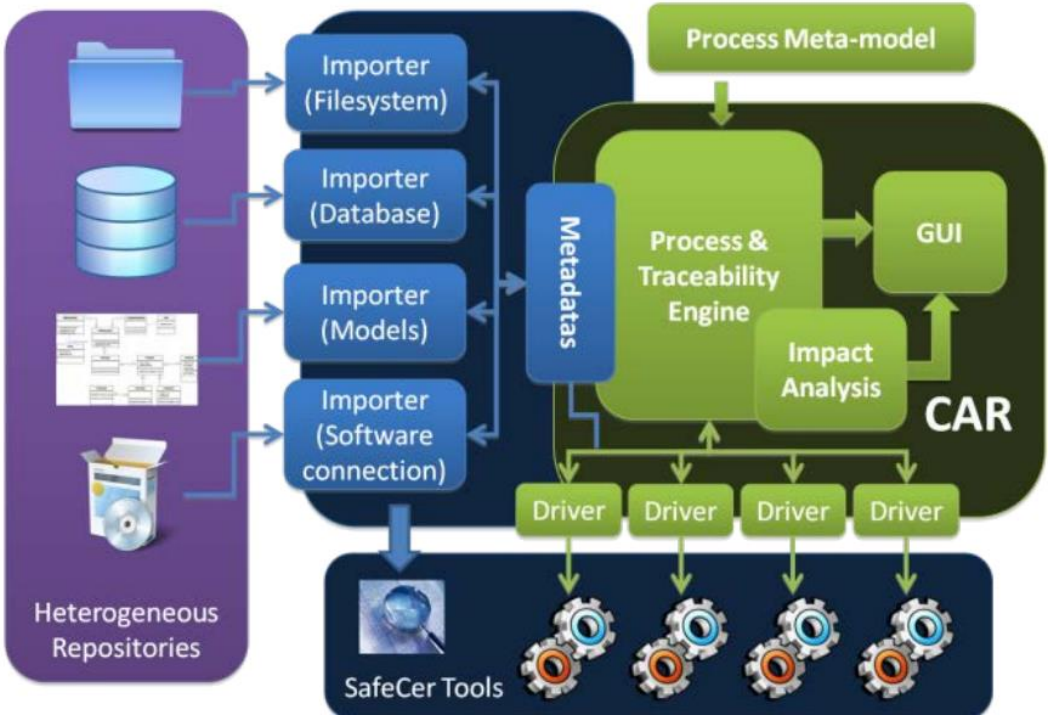


Specification of Standards, Rules and Regulations

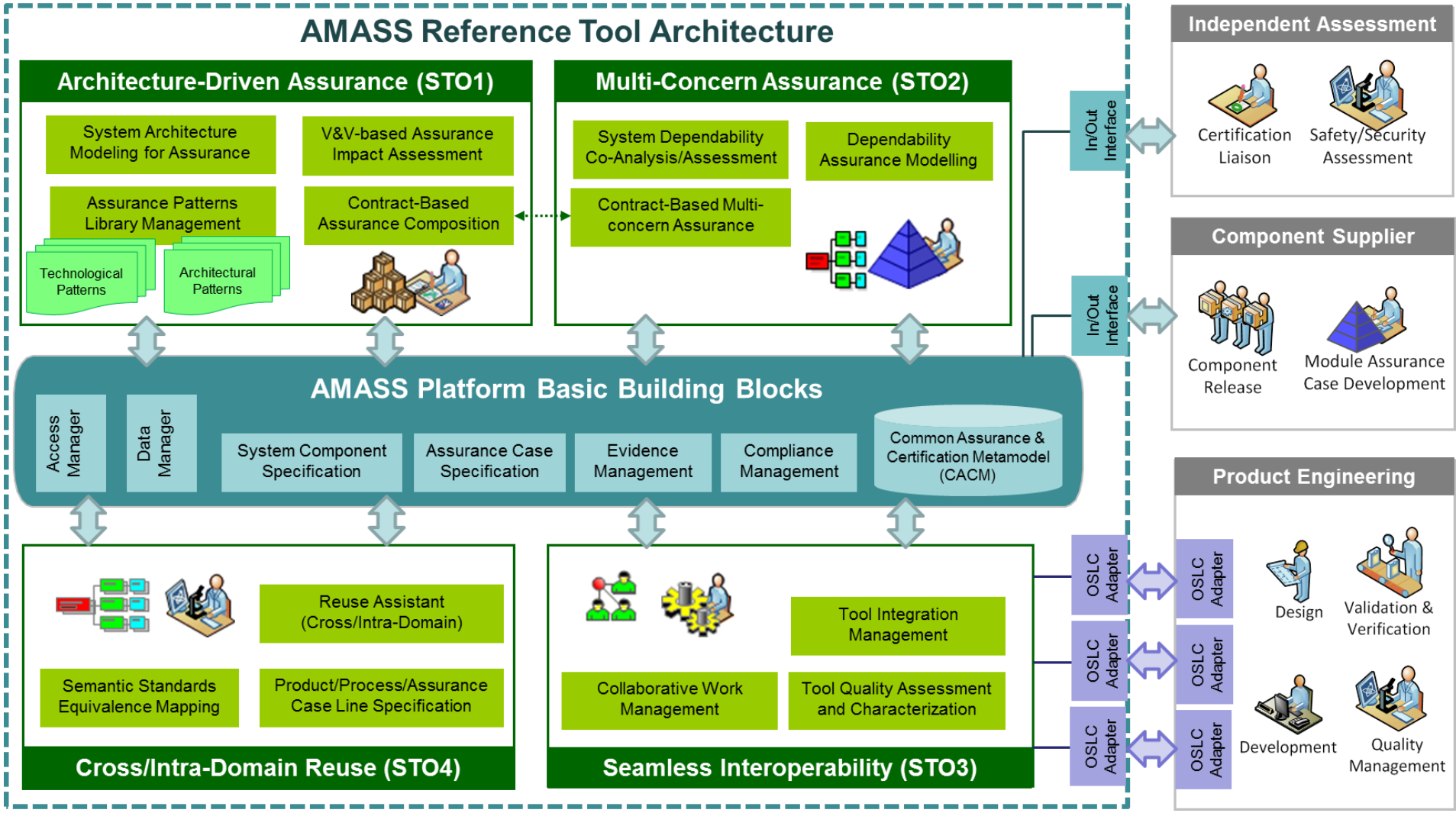
www.opencoss-project.eu

SafeCer Project Approach

- SafeCer component (meta) model
- Safety Cases complying to safety standards (e.g. ISO 26262)
- Derive the overall confirmation measures for verification and validation (Evidence gathered by analysis and testing)
- Development of a Certification Tool Framework
- Development of a Certification Artefact Repository



AMASS Reference Tool Architecture



Conclusion

- AMASS will create and consolidate the **de-facto European-wide open tool platform, ecosystem, and self-sustainable community for CPS assurance and certification** in the largest industrial vertical markets (automotive, railway, aerospace, space, energy…)
- A novel holistic and reuse-oriented approach for **architecture-driven assurance, multi-concern assurance, and seamless interoperability** between assurance and engineering activities will be defined
- AMASS results will lead to
  - **Increase in design efficiency and** in assurance and certification **harmonization**
  - **Reduction of** assurance and certification **costs and risks**