



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

AMASS will create and consolidate the **de-facto European-wide open tool platform, ecosystem, and self-sustainable community for assurance and certification of Cyber-Physical Systems (CPS)** in the largest industrial vertical markets including automotive, railway, aerospace, space, and energy.

The ultimate goal of AMASS is to **lower certification costs** for CPS in face of rapidly changing features and market needs. This will be achieved by establishing a **novel holistic and reuse-oriented approach for architecture-driven assurance** (fully compatible with standards such as AUTOSAR and IMA), **multi-concern assurance** (for co-analysis and co-assurance of e.g. security and safety aspects), and **seamless interoperability** between assurance and engineering activities along with third-party activities (e.g. external assessments and supplier assurance).

AMASS work will build on the **results from previous successful EU projects** such as OPENCROSS, SafeCer, CRYSTAL, CHESS, and SESAMO.

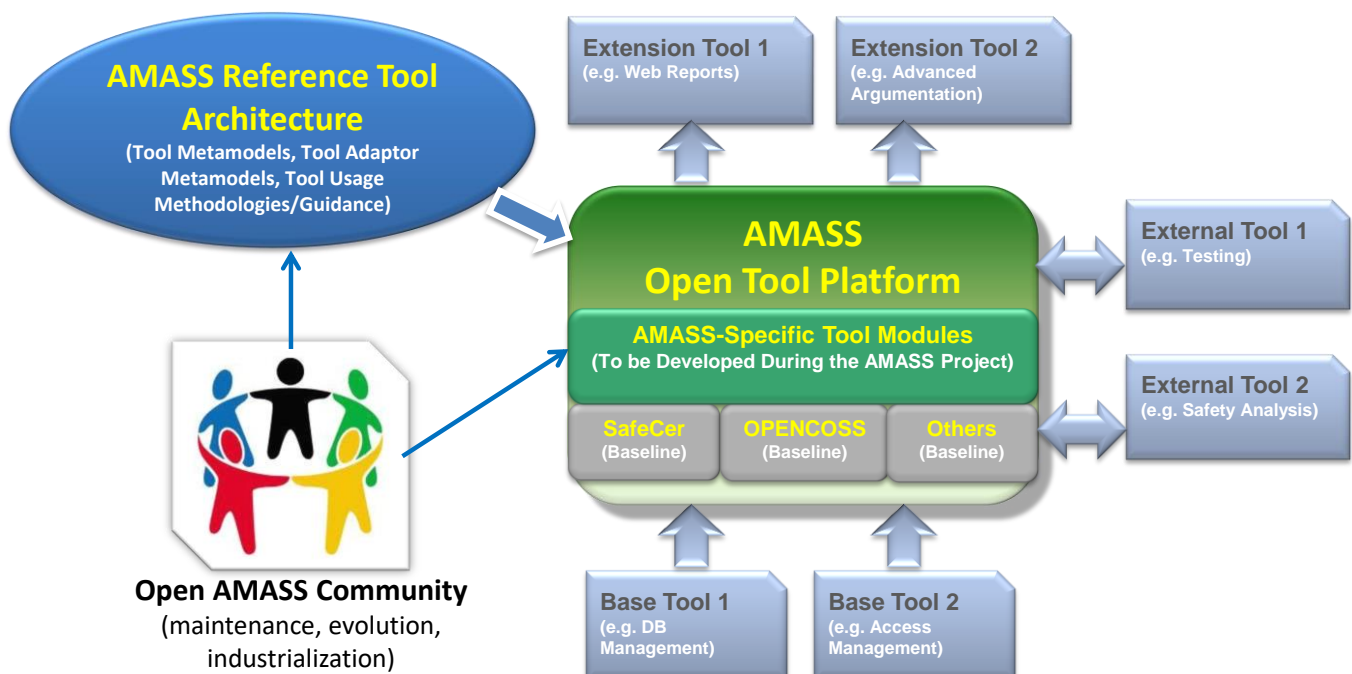
## Key data

Apr 2016 - Mar 2019  
29 partners from 8 countries  
EUR 20.5M budget  
EUR 6.2M EU funding  
EUR 4.2M national funding  
Approx. 2500 persons/month

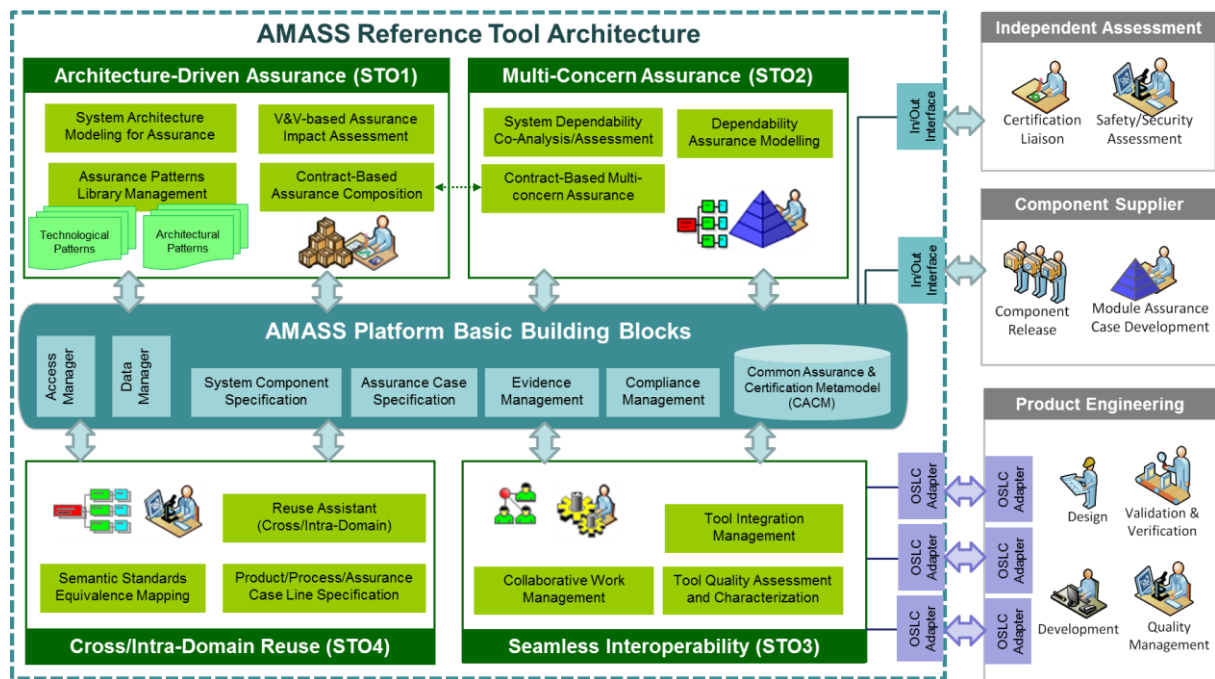
**Web:** <http://amass-ecsel.eu/>  
**Twitter:** @AMASSproject

## Coordination

Tecnalia Research & Innovation  
Dr. Huascar Espinoza  
[Huascar.Espinoza@tecnalia.com](mailto:Huascar.Espinoza@tecnalia.com)



## Envisioned Technological Solution



### Goals

1. A potential gain for **design efficiency** of complex CPS by reducing their assurance and certification/qualification effort by 50%;
2. A potential reuse of assurance results (qualified or certified before), leading to 40% of **cost reductions** for component/product (re)certification/qualification activities;
3. A potential raise of **technology innovation** led by 35% reduction of assurance and certification risks of new CPS products, and;
4. A potential sustainable impact in CPS industry by increasing the **harmonization and interoperability** of assurance and certification/qualification tool technologies by 60%.

AMASS results will be validated and their benefits will be evaluated in 11 case studies from Air Traffic Management, Automotive, Avionics, Industrial automation, Railway, and Space.

### Impact

- **OEMs** (including system integrators) and **Component suppliers** will use AMASS results in order to increase CPS design cost-effectiveness, ease innovation, and reduce the costs and risks of CPS assurance and certification
- **Assessors and Certification authorities** will be able to provide services that better fit CPS-specific needs
- **Tool vendors** will extend their products with new features and integrate them with the AMASS Open Tool Platform, further benefiting from the openness and interoperability that AMASS will enable
- **European society** will benefit from the use of CPS with a higher confidence in their dependability, for a wide range of applications in transport, manufacturing, healthcare, energy, defence, and communications.

### Project partners

Tecnalia R&I (ES)  
 Honeywell (CZ)  
 Schneider Electric (ES)  
 ANSYS medini Technologies (DE)  
 Mälardalen University (SE)  
 Eclipse Foundation Europe (DE)  
 Infineon (DE)  
 Austrian Inst. of Technology (AT)  
 Fondazione Bruno Kessler (IT)  
 Intecs (IT)  
 Assystem (DE)  
 GMV Aerospace & Defence (ES)  
 RINA (IT)  
 Thales Alenia Space (ES)  
 Univ. Carlos III de Madrid (ES)  
 Rapita Systems (UK)  
 The REUSE company (ES)  
 OHB (SE)  
 Masaryk University (CZ)  
 Alstom Transport (FR)  
 Virtual Vehicle (AT)  
 ALL4TEC (FR)  
 CEA List (FR)  
 ClearSy (FR)  
 Alten (SE)  
 Lange Research Aircraft (DE)  
 Thales (IT)  
 Research Insts. of Sweden (SE)  
 Comentor (SE)