Second AMASS EAB Workshop

ECSEL Joint Undertaking

AMASS

European Commission

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

Västerås, September 17-18, 2018

Agenda (1/3)

The EAB meeting will be held on two different premises:

- **Day 1, EAB workshop:** Monday, September 17:
  Aros Congress Center, room **101**
  Munkgatan 7
  722 12 Västerås
  Sweden

- **Day 2, SASSUR workshop:** Tuesday, September 18 at the SafeComp venue:
  Aros Congress Center, room **110**
  Munkgatan 7
  722 12 Västerås
  Sweden

Agenda (2/3): Monday, September 17

2nd AMASS EAB Workshop

Start	End	Description	Speaker
9:00	9:30	Welcome and Project Outline	Garazi Juez (Tecnalia)
9:30	10:00	Technical Overview	Barbara Gallina (MDH)
10:00	10:30	2nd AMASS Platform Prototype: An Overview	Huascar Espinoza (CEA)
10:30	11:00	Coffee break	
11:00	11:45	AMASS Usage Scenario 1: Architecture Refinement by using Safety Assessment	Stefano Puri (INT)
11:45	12:30	AMASS Usage Scenario 2: Process & Product Configuration and Compliance Management	Barbara Gallina (MDH)
12:30	13:30	Lunch	
13:30	14:15	AMASS Usage Scenario 3: Toolchain for system specification and quality assessment	José de la Vara (UC3)
14:15	15:00	AMASS Usage Scenario 4: Safety and security co-assessment	Thomas Gruber (AIT)
15:00	15:30	Project Outreach and Community Building	Ran Bi (RPT) and Gaël Blondelle (ECL)
15.30	16:00	Coffee break	
16.00	17:00	EAB Feedback Brainstorming	Moderated by Huáscar Espinoza and Gaël Blondelle.
17:00	17:30	Wrap-up	Moderated by Huáscar Espinoza and Gaël Blondelle

The dinner will be at: https://www.kajplats9.se/ at 19:30

Agenda (3/3): Tuesday, September 12

7th International Workshop on Next Generation of System Assurance Approaches for Safety-Critical Systems - SASSUR 2018

9:30-9:35	*Welcome*
9:35-10:30	*Keynote* : Thor Myklebust (SINTEF, Norway) Title: **Evolutionary development and frequent releases of safety systems**
10:30-11:00	*Coffe break*
11:00-12:30	*Paper presentation & discussion (1)* - Tim Gonschorek, Marc Zeller, Frank Ortmeier, and Kai Höfig **Fault Trees vs. Component Fault Trees: An Empirical Study** - Hideaki Nishihara and Kenji Taguchi **Comparing Risk Identification in Hazard Analysis and Threat Analysis**
12:30-13:30	*Lunch break*
13:30-15:30	*Paper presentation & discussion (2)* - Leonardo Gonzalez, Enrique Martí, Isidro Calvo, Alejandra Ruiz, and Joshue Perez **Towards Risk Estimation in Automated Vehicles using a Fuzzy System** - Georg Macher, Markus Bachinger, Andreas Kager, Michael Stolz, and Christian Kreiner **Integration Analysis of a SEooC Transmission Unit for Automated Driving Vehicles** - Martin Skoglund, Fredrik Warg, and Behrooz Sangchoolie **In Search of Synergies in a Multi-Concern Development Lifecycle: Safety and Cybersecurity**
15:30-16:00	*Coffe break*
16:00-16:45	*Paper presentation & discussion (3)* - John Macgregor and Simon Burton **Challenges in Assuring Highly Complex, High Volume Safety-Critical Software**
16:45-17:45	*Indutrial Panel* **Trends and Needs for Future Assurance of Safety-Critical Systems** - Lauren Fabre (Critical Systems Labs, Canada) - Javier Ibañez-Guzmán (Renault, France) - Thor Myklebust (SINTEF, Norway)
17:45-18:00	*Closing*

Meeting Attendees: EAB members

- Timo Varkoi
- Anders Sandin
- Miren Illarramendi
- Laurent Fabre
- Markus Wallmyr
- Thor Myklebust
- Kurt Tschabuschnig (on-line)
- Antonio Priore (on-line)
- Marion Lepmets (on-line)
- Tim Kelly (on-line)

Meeting Attendees: AMASS partners

- **Garazi Juez** (Tecnalia, Project Management, WP2 Leader)
- **Huascar Espinoza** (CEA, External Advisory Board Coordinator)
- **Stefano Puri** (Intecs, WP3 Leader)
- **Thomas Gruber** (AIT Austrian Institute of Technology, WP4 Leader)
- **Jose Luis de la Vara** (Universidad Carlos III, Dissemination Manager, WP5 Leader)
- **Barbara Gallina** (Mälardalens Hoegskola, Technical Manager, WP6 Leader)
- **Gaël Blondelle** (Eclipse Foundation Europe, Innovation Manager, WP7 Leader)
- **Ran Bi** (Rapita Systems Limited, Exploitation Manager, WP8 Leader)

AMASS

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

Project Overview

2nd EAB Workshop
Västerås , 17th September 2018

Garazi Juez
Project Management

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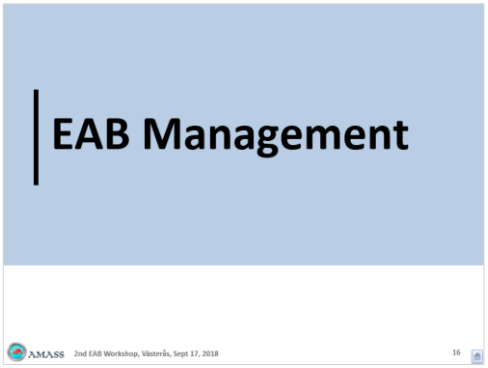
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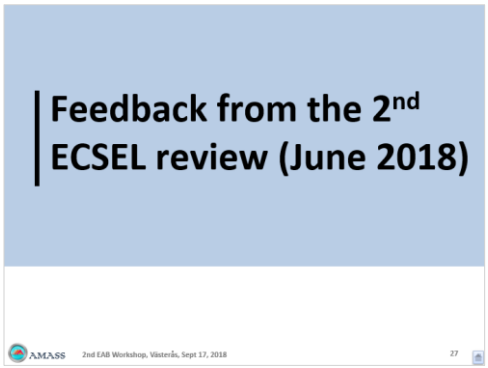
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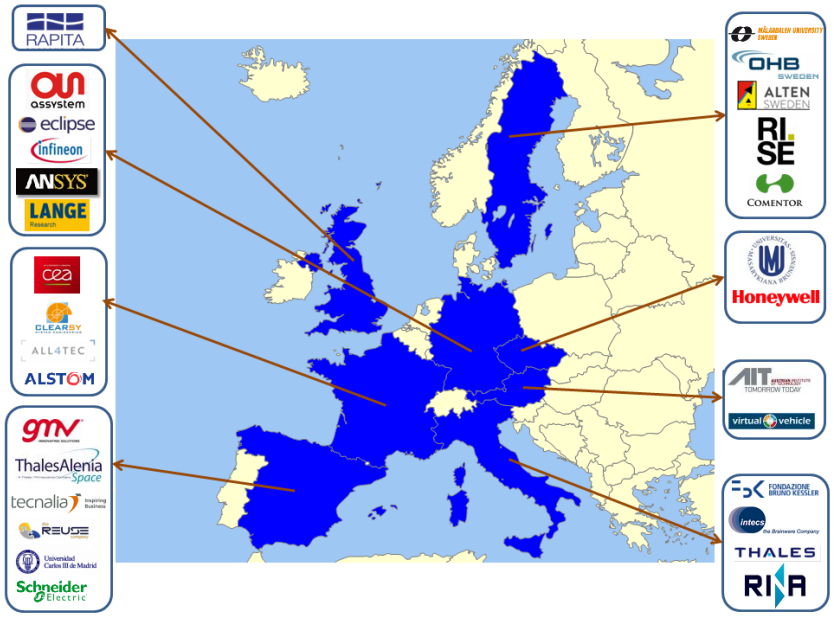
Project Status

AMASS in a Nutshell



- **20,5** Million € Total budget
- **2500** Person-Months Effort
- **36** Months Duration (April 16-Mar 19)
- **29** Partners
- **8** Countries
- **14** Advisory Board Members

No	Participant organisation name	Short	Country
1	Tecnalia Research & Innovation	TEC	ES
2	Honeywell Internacional	HON	CZ
3	Schneider Electric Spain	TLV	ES
4	ANSYS medini Technologies AG	KMT	DE
5	Mälardalen University	MDH	SE
6	Eclipse Foundation Europe	ECL	DE
7	Infineon Technologies	IFX	DE
8	AIT Austrian Institute of Technology GmbH	AIT	AT
9	Fondazione Bruno Kessler	FBK	IT
10	Intecs	INT	IT
11	Assystem Germany GmbH	B&M	DE
12	GMV Aerospace and Defence, S.A.U.	GMV	ES
13	RINA Services	RIN	IT
14	Thales Alenia Space España	TAS	ES
15	Universidad Carlos III de Madrid	UC3	ES
16	Rapita Systems	RPT	UK
17	Knowledge Centric Solutions	TRC	ES
18	OHB Sweden AB	OHB	SE
19	Masaryk University	UOM	CZ
20	Alstom Transport	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 Motivation: The Target Solution

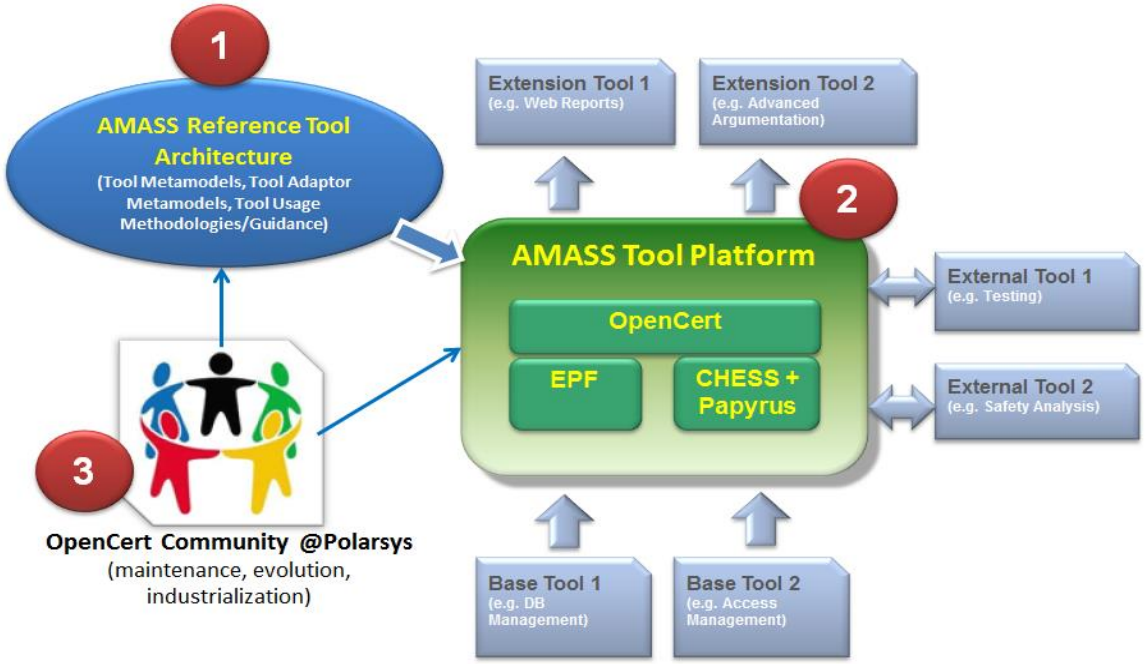
Project Goals

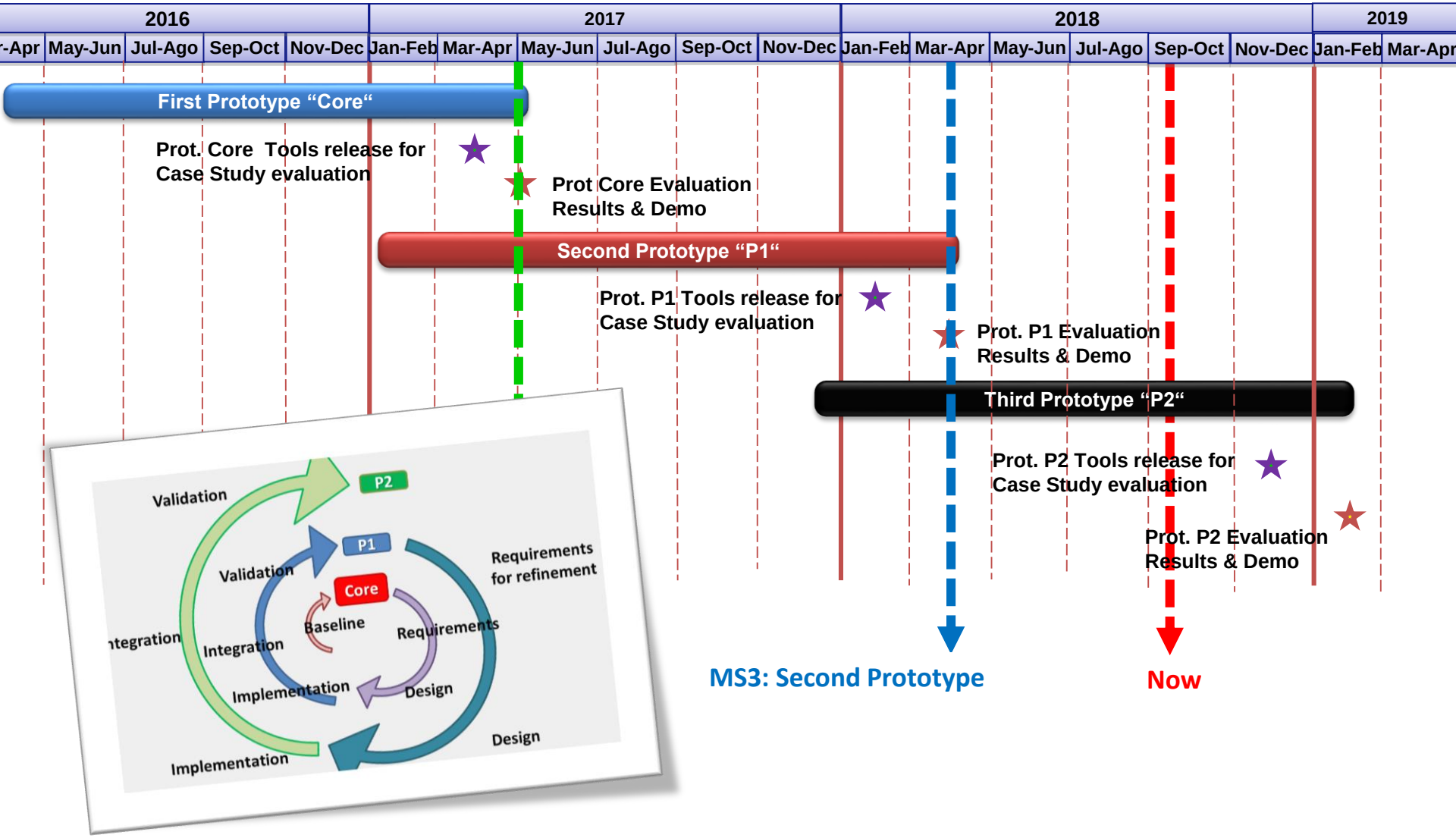
Develop an holistic approach and tool support for

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

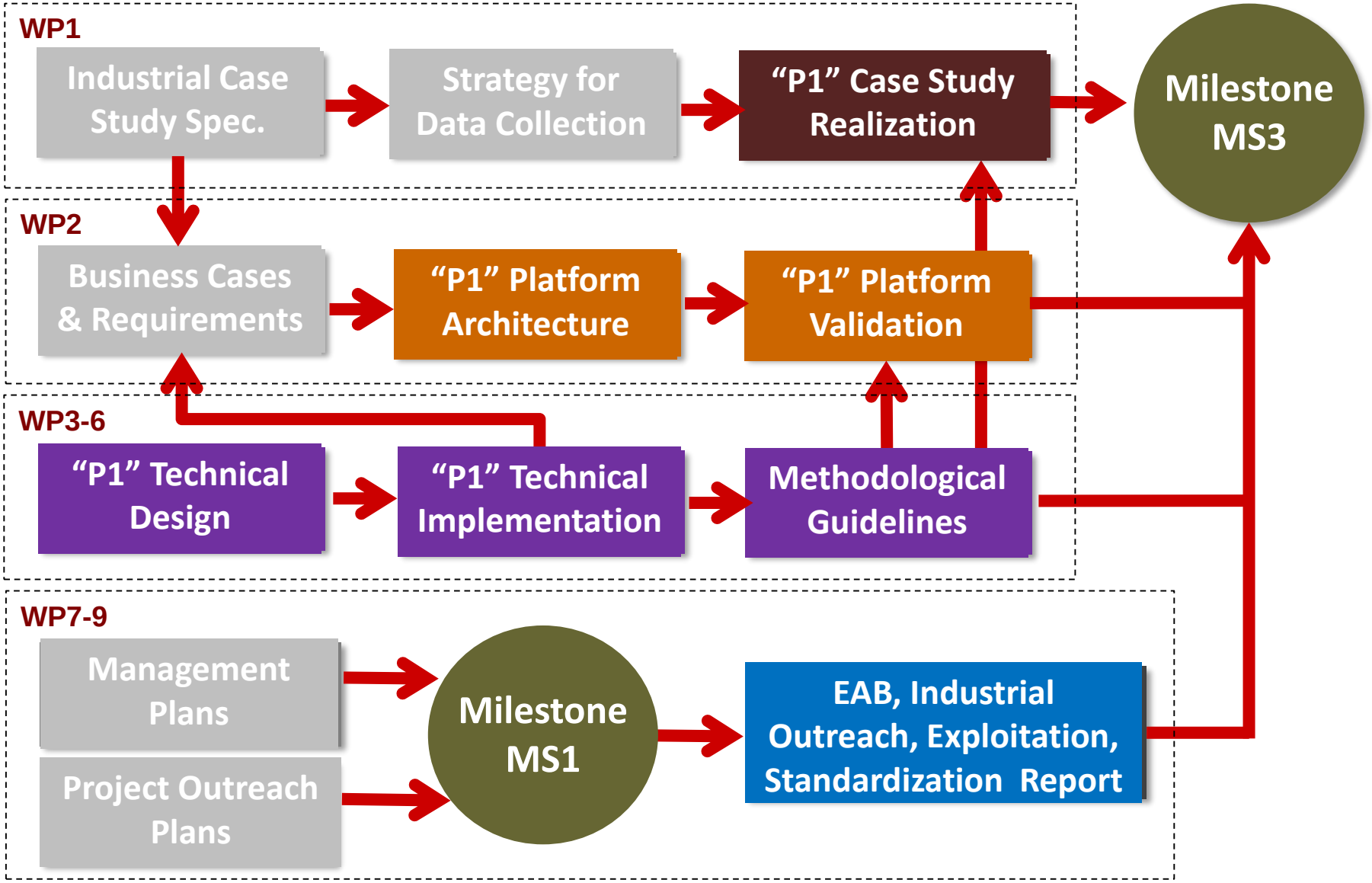
G1: Gain for Design Efficiency → Assurance Effort reduction
G2: Reuse of assurance artefacts → Assurance/Certification Cost Reduction
G3: Raise of technology innovation → Assurance/Certification Risks Reduction
G4: Increase harmonisation and interoperability → Sustainable industrial impact

Tangible Results

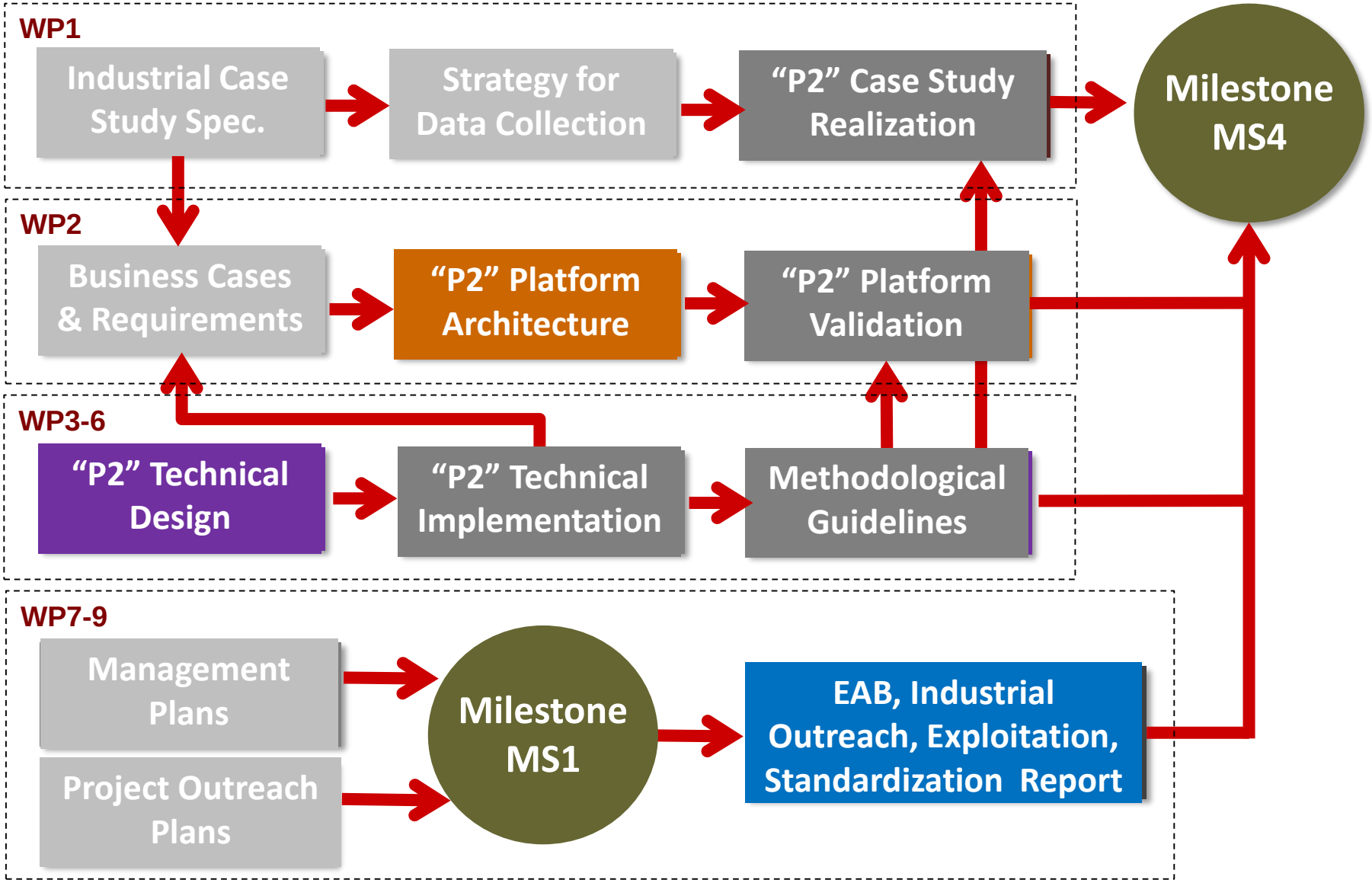



2016
2017
2018
2019
r-Apr
May-Jun
Jul-Ago
Sep-Oct
Nov-Dec
Jan-Feb
Mar-Apr
May-Jun
Jul-Ago
Sep-Oct
Nov-Dec
Jan-Feb
Mar-Apr
May-Jun
Jul-Ago
Sep-Oct
Nov-Dec
Jan-Feb
Mar-Apr
First Prototype "Core"
Prot. Core Tools release for Case Study evaluation
Prot Core Evaluation Results & Demo
Second Prototype "P1"
Prot. P1 Tools release for Case Study evaluation
Prot. P1 Evaluation Results & Demo
Third Prototype "P2"
Prot. P2 Tools release for Case Study evaluation
Prot. P2 Evaluation Results & Demo
MS3: Second Prototype
Now
Validation
P2
P1
Core
Validation
Requirements for refinement
Baseline
Requirements
Integration
Integration
Implementation
Design
Design
Implementation

Activities and Milestones related to P1

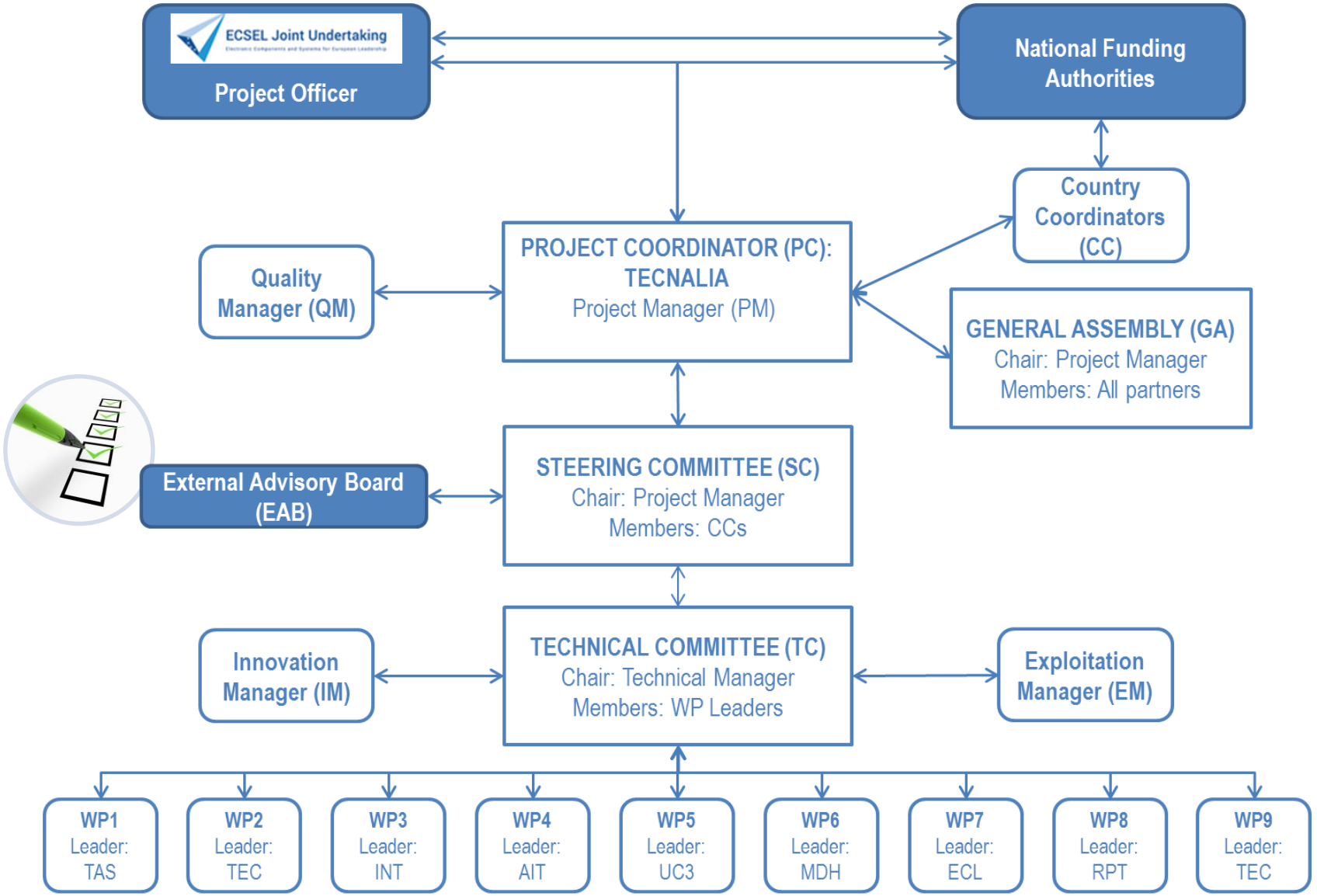


Activities and Milestones related to P2



EAB Management

Project Management Structure



EAB Members' role

- Review the project outcomes and identify its strong/weak points with respect to the objectives of the project and the application of its results.
- Provide unbiased insights and feedback from a third party point-of-view, because they are not involved in the project execution and the day-to-day business in the project.
- Comment and guide on the consortium' skills and the relevance of their proposals and actions.
- Promote the exposure of AMASS activities in industry.

EAB Coordinator Role

EABC role assigned to Huáscar Espinoza (CEA) and Gaël Blondelle (ECL)

- Updating frequently the progress of work, keeping alive on-going discussion.
- Organization of the EAB events (meetings, workshops, forums, etc.), including logistics.
- Collection of advice, comments and recommendations from the EAB members.
- Dissemination of information to EAB members.
- Reporting of EAB discussions (summary and recommendation from the EAB).

EAB Members

Name	Surname	Potentional Partner	Country
Antonio	Priore	ARM	UK
Javier	Ibanez-Guzman	Renault	France
Miren	Illarramendi	Mondragon Goi Eskola Polit. J.M.A. S.COOP	Spain
Tim	Kelly	U. York	UK
Johnny	Marques	Embraer	Brasil
Anders	Sandin	LFV	Sweden
Laurent	Fabre	Critical System Labs (CSL)	Canada
Markus	Wallmyr	CrossControl AB	Sweden
Timo	Varkoi	Spinet	Finland
Marion	Lepmets	SoftComply	Estonia
Kurt	Tschabuschnig	MAGNA STEYR Engineering AG & Co KG	Austria
Raquel	Arriba	CAF	Spain
Thor	Myklebust	SINTEF	Norway

First EAB Workshop (Trento, Sep. 2017)

First EAB Workshop

The first workshop with the members of the AMASS EAB (External Advisory Board) [illegible] in Trento, Italy, on September 11th, at FBK premises. Twenty-four people attended th[illegible] workshop, including 10 EAB members: Miren Illarramendi, Timo Varkoi, Johnny Marg[illegible] Marion Lepmets, Anders Sandin, Kurt Tschabuschnig, Laurent Fabre, and Tim Kelly.

Report

Report of the First EAB workshop

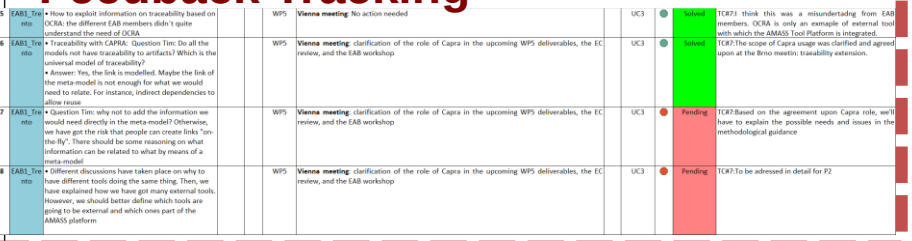
Report

Feedback Mindmap

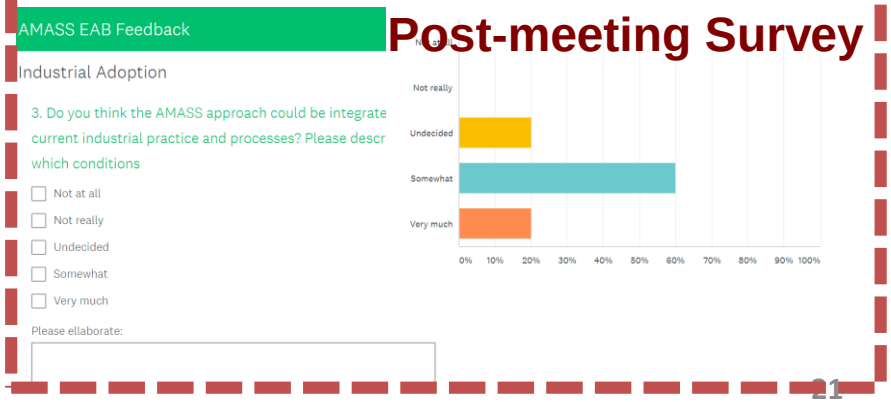
Agenda and Presentations

Start	End	Description	Speaker
09:00	09:30	Project Outline	Huáscar Espinoza
09:30	10:00	Technical Overview	Barbara Gallina
10:00	10:30	Selected Case Studies	Benito Caracuel, Helmut Martin and Thierr[illegible] Lecomte
10:30	11:00	Coffee Break	
11:00	11:50	Project Outreach and Community Building	Ran Bi and Gaël Blondelle
11:50	12:20	Intra and Cross-Domain Reuse	Barbara Gallina
12:30	13:30	Lunch	
13:30	14:00	Architecture-Driven Assurance	Stefano Puri
14:00	14:30	Multi-concern Assurance	Thomas Gruber
14:30	15:00	Seamless Interoperability	José Luis de la Vara
15:00	16:30	EAB Feedback Brainstorming	Moderated by Huáscar Espinoza
16:30	17:00	Coffee Break	
17:00	17:30	Wrap-up	Moderated by Huáscar Espinoza

Feedback Tracking



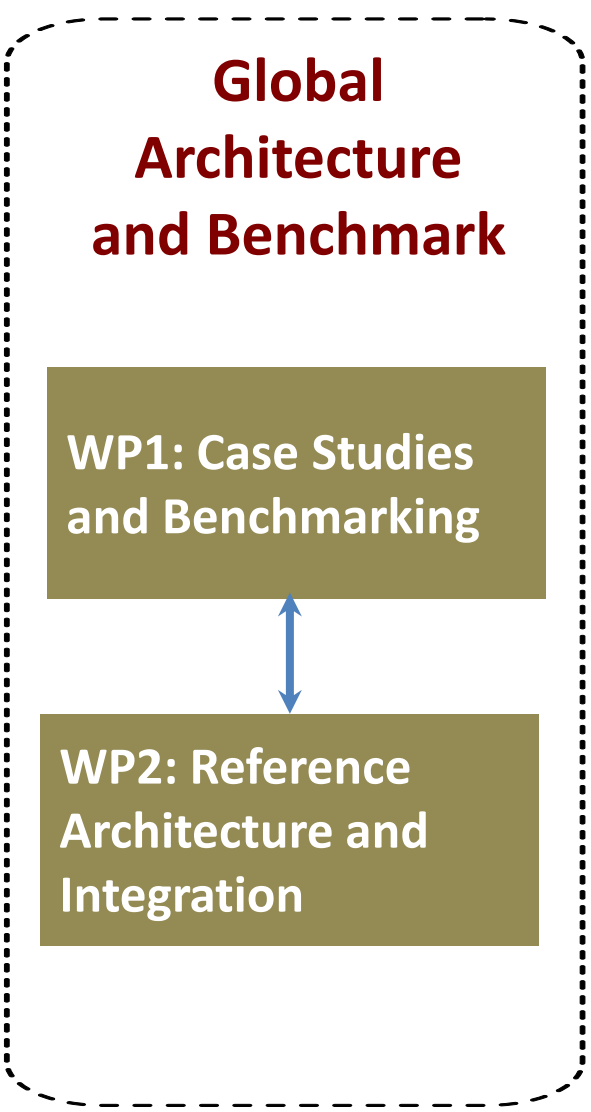
Post-meeting Survey



https://amass-ecsel.eu/content/external-advisory-board

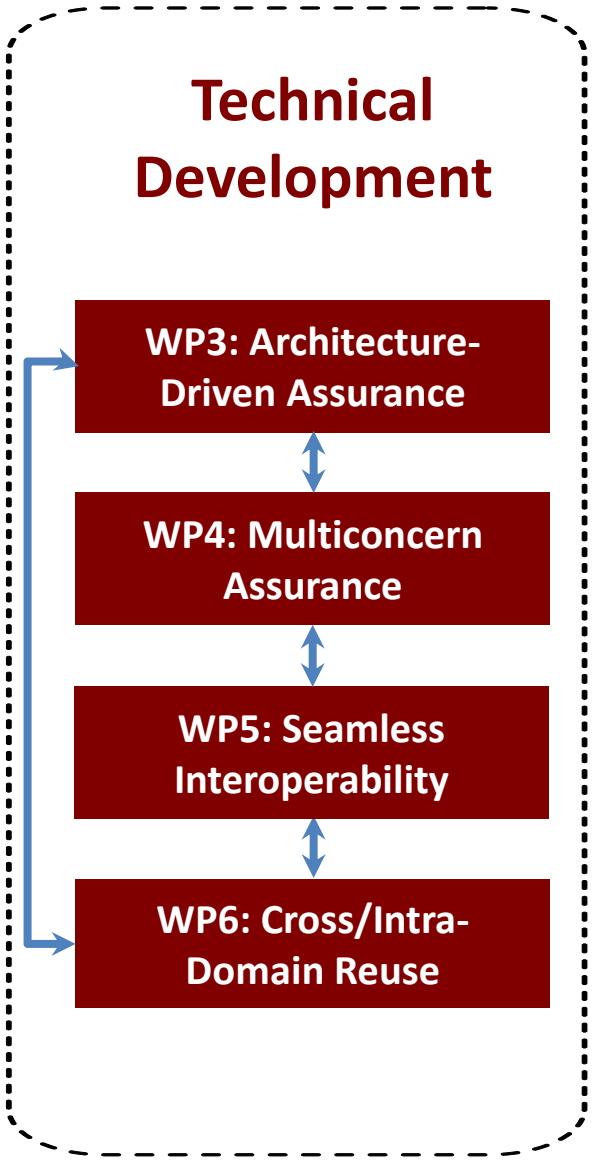
Main achievements of the period

Main Achievements: Cases, Architecture, Validation



- **Evaluation framework (D1.3)**
  - Common metrics
  - WP specific metrics
  - CS specific metrics
- **Case Studies for P1 (D1.5)**
  - Application of the "P1" platform on the CSs
- **High Level Architecture Design of P1 (D2.3) & P2 (D2.4)**
  - **ARTA:** Advanced functionalities
  - Logical, Structural and Interactional views
- **Integration & Validation of P1 (D2.7)**
  - Prototype P1 integrated
  - Tests, Integration, Validation

Main Achievements: Technical Development



- **Design of the AMASS tools for P1 (D5-6.2)**
- **Design of the AMASS tools for P2 (D3-6.3)**
- **Implementation of Prototype P1(D3-6.5) and P2 (D3-4.6)**
  - Eclipse-based solution
  - Tool support for the AMASS advanced functionalities
  - Integration with external tools
  - Web based: report generation
- **Methodological guidelines of P1 (D3-6.7)**
  - Guide the user on the Usage of the AMASS platform to support:
    - System architectural design, analysis and V&V
    - Co-analysis, co-assessment and contract-based multi-concern assurance
    - Seamless interoperability
    - Cross-intra domain reuse

Main Achievements: Project Governance & Outreach

Project Governance and Outreach

WP7: Industrial Impact and Community Building

↕

WP8: Exploitation, Dissemination, and Standardisation

↕

WP9: Project Management

➢ Community Creation (D7.6)

- ❖ AMASS open source platform website in Polarsys
- ❖ Community in Eclipse growing with EPF

➢ Update of Outreach Plans

- ❖ Exploitation plan (D8.3)
- ❖ Standardisation plan (D8.10)

➢ Dissemination and Training Report (D8.7)

- ❖ Annual report of dissemination and training activities (D8.7)

➢ Project Management reports

- ❖ Second intermediate annual progress report (m13-m18) (D9.3)
- ❖ Second Periodic Report (m13-m24)

Dissemination of project results

- Open Deliverables available at:
  http://www.amass-ecsel.eu/content/deliverables
- Dissemination Material:
  http://www.amass-ecsel.eu/content/dissemination
- Publications:
  http://www.amass-ecsel.eu/content/publications
- YouTube channel:
  https://www.youtube.com/channel/UCw_D0l5sDgysEphi6tzzDyw
- Open Source code and community:
  https://www.polarsys.org/opencert/

Feedback from the 2nd ECSEL review (June 2018)

General comments

- The project has achieved all objectives for the period under review.
- The review team really appreciates the quality of the technical report and deliverables and they are all approved.
- Partners commitment is perceived as satisfactory.
- The management of the project is excellent and resilient to changes in the project.
- Recommendations from previous reviews were all appropriate addressed. The review team appreciates the resubmission of deliverables approved from previous period including updates/recommendations.

Dissemination & Exploitation

- Dissemination activities continue to be very good during this period.
- The review team would like to emphasize the good work of the External Advisory Board.
- Exploitations intentions are promising.
- Clarification between the IP and the open source philosophy in the project would be appreciated.

Recommendations for the final review (I)

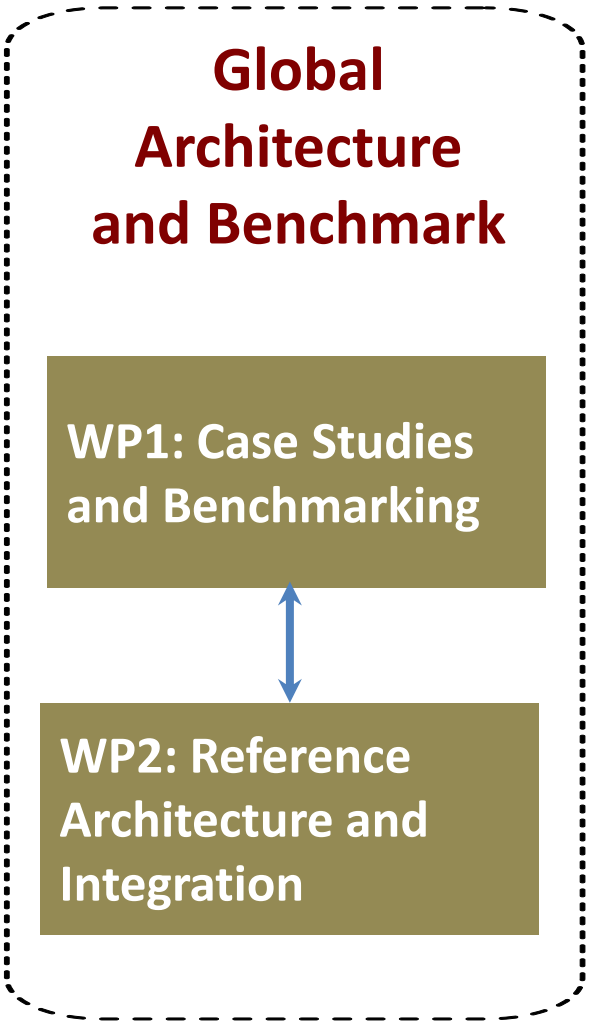
- Try to present the cases studies where security plays an important role in safety applications and where the cross-domain point is good as well.
- In addition to videos, ensure some end to end example to compare obtained/expected results, how easy perform tool configuration, adaptations for the last prototype, ability to tackle real word problems.
- Explore the possibility of having more realistic or genuine case studies including the policy makers.
- Highlight the cyber physical aspects of the case studies. For example, care in the boundaries of CPS and the limits of their tools for system analysis.

Recommendations for the final review (II)

- Reflect on how to ease the penetration of the AMASS tool platform by for example introducing roles and configuration management.
- Consider some tool evaluation criteria for inclusion in the AMASS toolset.
- Consider the release of the AMASS LITE version.
- Security aspect of the platform should be considered, along with the possibility to use open source tools for regulated systems development.
- Submission of joint academic/industrial papers is encouraged.
- Consider some project leaflet (5~6 pages maximum) for external audiences.

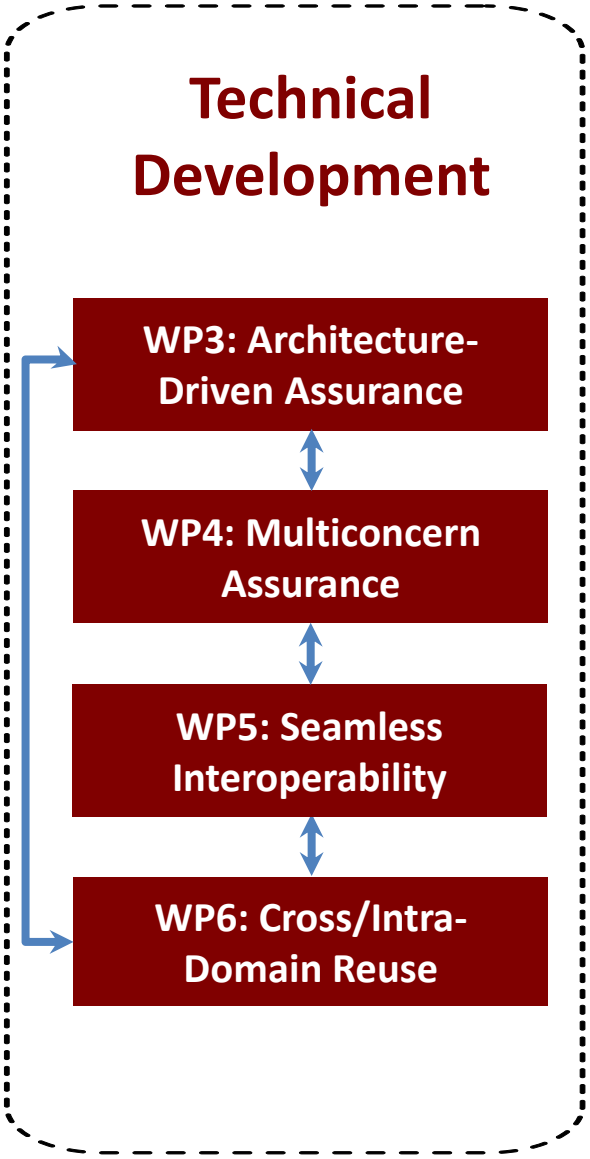
Next steps (P2)

Next steps: Case Studies, Architecture, Validation



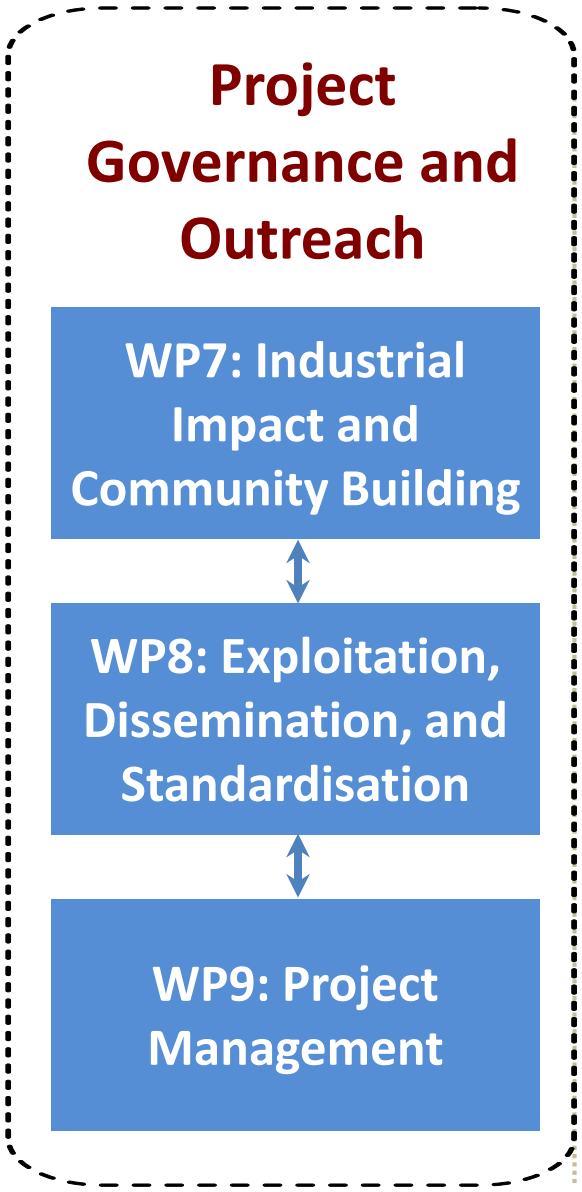
- **Case Studies for P2 (D1.6)**
  - Application of the "P2" platform on the CSs
- **AMASS solution benchmarking (D1.7)**
  - Common metrics
  - WP specific metrics
  - CS specific metrics
- **User guidance and methodological guidelines (D2.5)**
- **Integration & Validation of P2 (D2.8 & D2.9)**
  - Prototype P2 integrated
  - Tests, Integration, Validation

Next steps: Technical Development



- **Implementation of P2 (D5-6.6)**
  - Eclipse-based solution
  - Tool support for the AMASS advanced functionalities
  - Integration with external tools
  - Web based: report generation
- **Methodological guidelines of P2 (D3-6.8)**
  - Guide the user on the Usage of the AMASS platform to support:
    - System architectural design, analysis and V&V
    - Co-analysis, co-assessment and contract-based multi-concern assurance
    - Seamless interoperability
    - Cross-intra domain reuse

Next steps: Project Governance & Outreach



- **EAB and Industrial adoption**
  - Joined Community workshop: March 2019.
  - Final report (D7.2)
- **Community Creation (D7.7)**
  - AMASS open source platform website in Polarsys
  - Community in Eclipse growing with EPF
- **Final Outreach Plans**
  - Exploitation results (D8.4)
  - Standardisation report (D8.11)
- **Dissemination and Training Report**
  - Annual report of dissemination and training activities (D8.8)
- **Project Management reports**
  - Third intermediate progress report (m25-m30) (D9.4)
  - Third Periodic Report (m25-m36)

Thank you for your attention!

Any questions