

	D1.1		2020/11/03	Page 1/6
	EU project 101004291	AURORA	Place: Videoconference	
Kick-Off	Kick-Off Meeting MoMs			

Attendees	SENER AE	UPM	N7S	ESC	EC-REA	EEAB
	A. Rodríguez A. López V. Gómez	M. A. de Miguel J. Zamorano	M. Mosdorf M Kurowski K. Grochowski	R. Sysala P. Suchánek M. Furdová	D. Di Domizio	M. Perrotin (ESA) P. Gawkowski (Warsaw university)


ACTION			DESCRIPTION
Nº	Responsible	Date	
			1. Agenda
			<ul style="list-style-type: none"> 09:30 - 09:45 Presentation and Welcome (ALL) 09:45 - 10:15 EC-REA presentation and Project development guidelines 10:15 - 11:00 Project Objectives, Work Plan and Risks (SENER AE) 11:00 - 11:30 <i>Coffee break</i> 11:30 - 12:30 N7 Space (20') /Esc Aerospace (20') /UPM (20') Project expectations and resources 12:30 - 13:00 Project Methodology Overview (SENER AE) 13:00 - 14:15 <i>Lunch break</i> 14:15 - 15:00 Short-Term Planning (SENER AE) 15:00 - 15:30 Contractual and Financial Aspects (SENER AE) 15:30 - 16:00 Conclusions and AoB (ALL)
			2. Presentation and Welcome
			The entire consortium and the experts present themselves.
			Then SENER AE presents the agenda for the KO meeting.
			3. EC-REA presentation and Project development guidelines
			EC-REA starts its presentation. It starts greeting to the consortium for the kick response on launching the project.
			EC-REA explains its role in the project and their expectations for it. In 2021, Space Programme moves to a new Executive Agency, responsible for the implementation of Digital, Space and Health programs.
			EC-REA briefly summarizes the framework programmes (FP7, H2020, and Horizon Europe) in order to set some context of the project within the EC activities on research and development.
			EC-REA introduces the particular topic of non-dependence, object of AURORA Grant. The “non-dependence” in Space programme aims at improve the European Union competitiveness. The reference document for this topic is the European Strategic Non-Dependence Dossier, made by EC, ESA and EDA. The 7 topics under non-dependence actions in the 2020 Call have successfully been granted.

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ACTION			DESCRIPTION
Nº	Responsible	Date	
			In the dossier, there are particular actions to be tackled from 2020 (group C), where there is the call on SW tool Automatic Generation of Code that applies to AURORA. From there, EC-REA recaps the work programme requirements to be completed as part of the project, in particular (1) requirements on relevant available roadmaps, expected contribution of the technology and the commercial assessment, which are expected in the 1 st 6 months of the project.
#1	SENER AE	17/11/20	<p>SENER AE to prepare an alternative planning with intermediate deliverables:</p> <p>1) D2.2 Innovation Management Report at M6 , including</p> <ul style="list-style-type: none"> • Analysis of relevant available roadmaps, including roadmaps developed in the context of actions for Key Enabling Technologies supported by the Union; (Roadmaps to be possibly used as an input: Relevant Technical Dossier of the Harmonization process; RoCKETs- Roadmap for crosscutting KETs activities in Horizon 2020). • Analysis of how their selected critical space technologies can contribute to different space applications. <p>2) D2.4 Development roadmap, competitiveness and costs assessment Report at M6:</p> <ul style="list-style-type: none"> • Commercial assessment of the supply chain technology in the space or non-space domains and, if applicable, a business plan for commercialisation with a full range (preload) of recurring products
			EC-REA reviews the points that were risen to the proposal during its evaluation. These points have been already solved and clarified.
			Then, EC-REA continues with some guides on the project reporting. AURORA has two reporting periods. EC-REA explains in detail the way the reporting periods work and how the deliverables and results will be reviewed. EC-REA details how the periodic report will be carried out and what shall be included in the report. EC-REA also reminds that some of the deliverable, marked as "PUBLIC"
			<p>EC-REA continuous presenting the financial part and some guidelines linked to it. The remarks concern the H2020 specific rules for personnel cost (especially calculation of hourly rates and productive hours), timesheets requirements and direct/indirect costs calculation, further details can be found in the Annotated Model Grant Agreement article 6.2..</p> <p>It concludes with other financial remarks, like additional direct cost, audits, etcetera.</p> <p>Important to contact the PO in case of any cost not foreseen in GA or doubts about eligible costs.</p>

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	EU project 101004291	AURORA	Place: Videoconference	
Kick-Off	Kick-Off Meeting MoMs			


ACTION			DESCRIPTION
Nº	Responsible	Date	
			EC-REA explains some guides on the communication and dissemination part of the Project. In particular it is reminded the obligation for the beneficiaries of EU funding to use the EU emblem, composed of the EU flag together with the name of the programme, in their communication, to acknowledge the EU support received. (General guidelines for beneficiaries and specific guidance on the Funding & Tenders Portal). If the dissemination level of deliverables needs changing, EC-REA will be promptly informed.
			4. Project objectives, work plan and risks
			SENER AE presents the challenges, goal and the objectives of the project.
			SENER AE remarks the innovative potential in AURORA. It introduces
			EC-REA asks how the ESA group is going to be involved and informed about AURORA progresses and results.
			ESA asks about the use of SDL models, as QGEN also provide capabilities to generate code from SDL. SENER AE clarify that the scope of the qualification for QGEN in AURORA is limited to AOCs/GNC models in Simulink.
			SENER AE gets back to the presentation, explaining the work packages, the project planning, the management structures and the risks and mitigation actions.
			5. Consortium presentations
			N7S starts presenting the company and the activities it is focused on. Then, N7S presents their contribution to the project.
			EC-REA asks about the participation of N7S and the inputs they expect from the remaining consortium. N7S answers they will need the outcomes of WP5, in particular those concerning the requirements.
			ESC continues with its presentation. It begins with the presentation of the company and its activities in the space industry ESC has not prepared a dedicated slide for the project dedication. They will prepare their contribution to the project in a couple of weeks.
			EC-REA agrees, as WP3 is intended to start in M3.
			UPM presents its contribution as STRAST group. UC3M team consists of four professors and three students for the activity. UC3M presents its recent activity, which is focused on the SW development and applications. UC3M presents their contribution to AURORA by work package
			EC-REA asks about the selection of the platforms to be used in the activities of HIPATIA. UC3M answers about the platforms they are considering to develop their activity. They will wait for the requirements to select the platform.

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	EU project 101004291	AURORA	Place: Videoconference	
Kick-Off	Kick-Off Meeting MoMs			

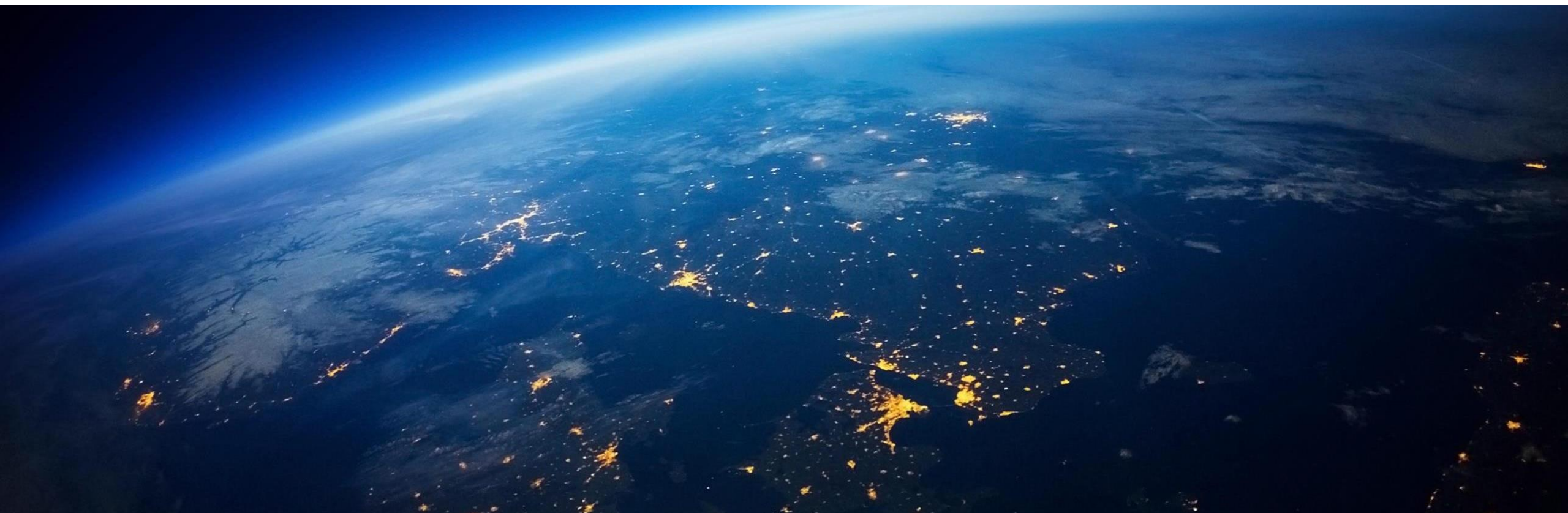
ACTION			DESCRIPTION
Nº	Responsible	Date	
			<p>ESA asks about a clarification of the contribution of UC3M as part of the project logic. ESA asks how the solution would be integrated within TASTE. UPM answers that currently are performing some research on open source frameworks.</p> <p>SENER comments on what is planned to be integrated as result from AURORA within the TASTE framework.</p> <p>ESA asks for further clarification. It does not understand what is missing in TASTE right now and how the proposed solution will contribute to its completeness.</p> <p>SENER AE clarifies that AURORA approach is compatible with it and we want to elaborate standardised interfaces for functional components and the some infrastructure providing services to manage that API.</p>
			6. Project Methodology Overview
			SENER AE presents the project methodology prepared to carry out the study and explains it in detail through the whole project duration.
			After SENER's presentation, the meeting stops for lunch.
			7. Short-Term Planning
			<p>SENER AE summarizes the meeting by introducing the plan for the first activities of the project.</p> <p>The initial activities imply WP1 (management & QA), WP2 (Technical coordination & innovation) and WP7 (communication & dissemination).</p> <p>SENER AE briefly presents an overview of these WPs.</p>
			SENER AE comments that the following step in the project will be to hold the first General Assembly and the Executive Board meeting.
			EC-REA comments on the iteration of the roadmap to be done offline.
			8. Contractual and Financial Aspects
			SENER AE goes on with the project status, which at this stage only concerns the Grant Agreement Preparation. SENER AE will be in charge of coordinating any legal aspect concerning the project or the consortium.
			SENER AE will distribute individual NDAs in the next week
			9. Conclusions and AoB
			EC-REA recaps the contents and contribution of each member of the consortium to the KO.
			EC-REA comments that it is not expected to have any additional review in addition to those included in the GA.
			EC-REA recommends how to complete the progress report, including information not only of the project status but also for the planned roadmap and the interaction among other stakeholders of the project.

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	EU project 101004291	AURORA	Place: Videoconference	
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ACTION			DESCRIPTION
Nº	Responsible	Date	
			EC-REA suggest to quickly interact with him, in case of some issues will appear due to COVID-19.
			SENER AE adds that the QA plan will foresee to allocate all the configuration control and tools that will be available to remotely collaborate and mitigate any possible issue that might appear from COVID Outbreak situation.
			N7S comments that they are open to contribute to the requirement activity, supporting it if needed.
			EC-REA will send their contribution in slides and their roadmap indications.
			ESA ends by desiring good luck and to aware the consortium to avoid trying to deviate from the focus of the project and to build something that has been already covered.
<p>Before the KO, the Grant Agreement has been successfully signed by the Agency, the Project coordinator and the other beneficiaries. The consortium agreement has been also agreed and duly signed. The CA has stated the internal arrangements ensuring the AURORA action is properly operated and coordinated.</p> <p>The consortium agrees on closing the KO successfully.</p>			

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	EU project 101004291	AURORA	Place: Videoconference	
Kick-Off	Kick-Off Meeting MoMs			

Annex 1: Kick-Off Meeting Slides



AURORA - EU project 101004291
Kick-Off Meeting

AURORA

Kick-Off Meeting (KOM)

1. 09:30 - 09:45 Presentation and Welcome (ALL)
2. 09:45 - 10:15 EC-REA presentation and Project development guidelines
3. 10:15 - 11:00 Project Objectives, Work Plan and Risks (SENER AE)
11:00 - 11:30 Coffee break
4. 11:30 - 12:30 N7 Space (20') /Esc Aerospace (20') /UPM (20')
Project expectations and resources
5. 12:30 - 13:00 Project Methodology Overview (SENER AE)
13:00 - 14:15 Lunch break
6. 14:15 - 15:00 Short-Term Planning (SENER AE)
7. 15:00 - 15:30 Contractual and Financial Aspects (SENER AE)
8. 15:30 - 16:00 Conclusions and AoB (ALL)



AURORA

Kick-Off Meeting

1. Presentation and Welcome (ALL)



AURORA

Kick-Off Meeting

2. EC-REA presentation and Project development guidelines



AURORA

Kick-Off Meeting

3. Project Objectives, Work Plan and Risks (SENER AE)



AURORA Kick-off

Challenges

Project Objectives

AURORA - Tool suite AUTomatic code generation and validation of model-based critical inteROpeRAble components

Goal of the activity:

- The AURORA project aims to provide a European tool suite for the process of development and validation of a critical Auto-coded Flight software product in the Space domain.

Response to H2020 Work Programme 2018-2020 (SPACE-10-TEC-2020) “**Technologies for European Non-Dependence and Competitiveness**” topic JTF-2018/20-23 - SW tool: automatic generation of code [N64]”. Challenges:

1. European Technology:

- European solution of Software Tool suite for "Automatic Generation of Code"
- Technology demonstration of QGEN (from previous European projects), improving the concept of “model compilers”, essential elements to a more and more expanding model based engineering.

2. Initial estimated TRL: 4; Target TRL 6/7 for an operational certified tool.

3. Product solution is applicable to Space Missions.



AURORA Kick-off

Objectives

Project Objectives

AURORA - Tool suite AUTomatic code generation and validation of model-based critical inteROpeRable components

Technical Objectives

- European Technology:
 - Demonstration of European Autocoding technology based on QGEN in an industrially relevant environment
- TRL:
 - Development Plan for a target TRL-6
- Space Mission Product solution:
 - Autocoded Flight Software Life-cycle process and methodology
 - Interoperability capability of SW components
 - Tool-chain integration into the TASTE framework

Ambition, Impact & Management Objectives

- Effective and coordinated Management of the project
 - Project Management and Quality Assurance
 - Specific Technical Management
- Overall Return On Inversion:
 - Divulgate and disseminate generated knowledge and innovation
 - Communication of results
 - Market exploitation of results



AURORA Kick-off

Innovation potential

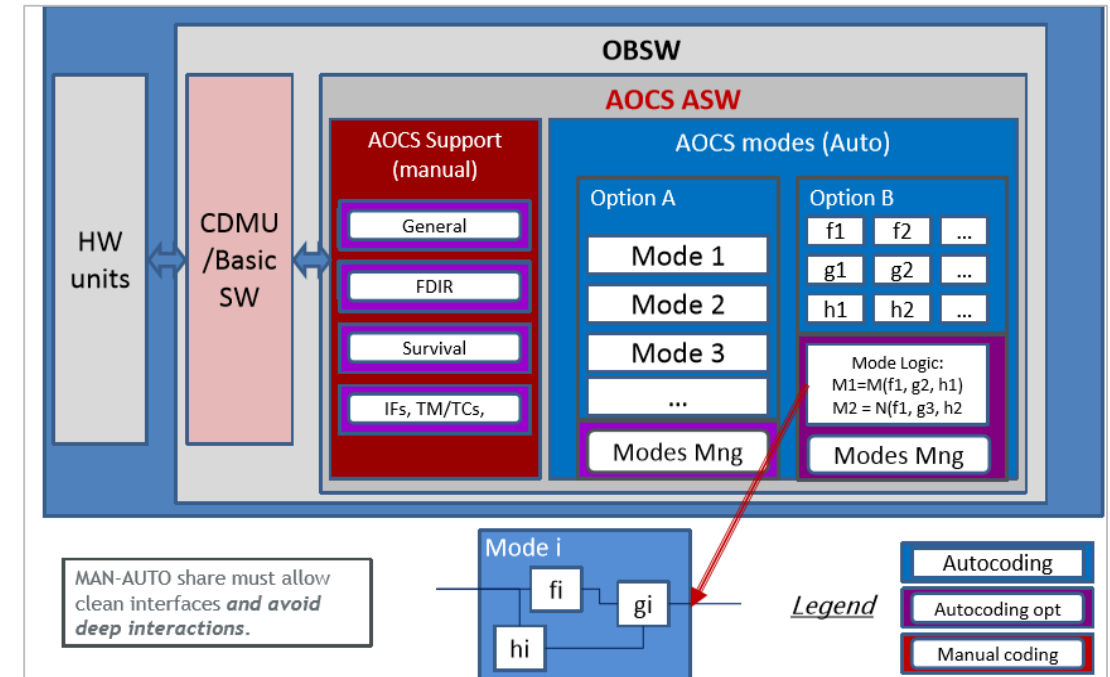
Industry have agreed that the **Autocoding advantages require some challenges** in processes, and alleviation in conventional SW practices:

- Early application of rules & processes to exploit the potential advantages.
- Phasing adaptation: Intense initial effort in models AOCs development.
- Simplification of SW documents (specification, design description: do models replace some of those?).
- ECSS adaptation to those Autocoding conditions (not just tailoring).

AURORA goals through **Demonstration of Autocoding technology** and the **definition of the Autocoded Flight Software Life cycle** supported by the **certified tool-suite** and a software architecture and interfaces for functional components interoperability:

- + Direct generation of SW test involvement of design team in the SW production.
- + Minimisation of manual intervention and coding mistake.
- + Agility in modifications, and iterations. Much shorter SW cycle & cost reduction.
- + Simplification in documentation and specification process.
- + Flexibility in the data and SW test cases.

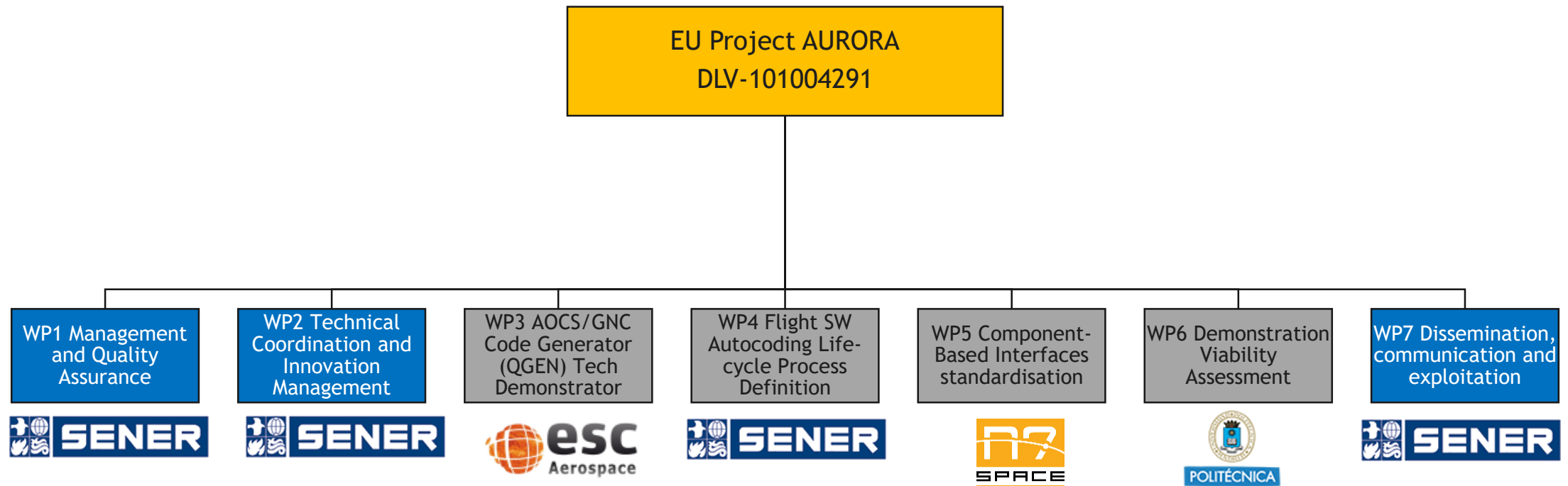
Project Objectives



AURORA Kick-off

Work Break-down Structure

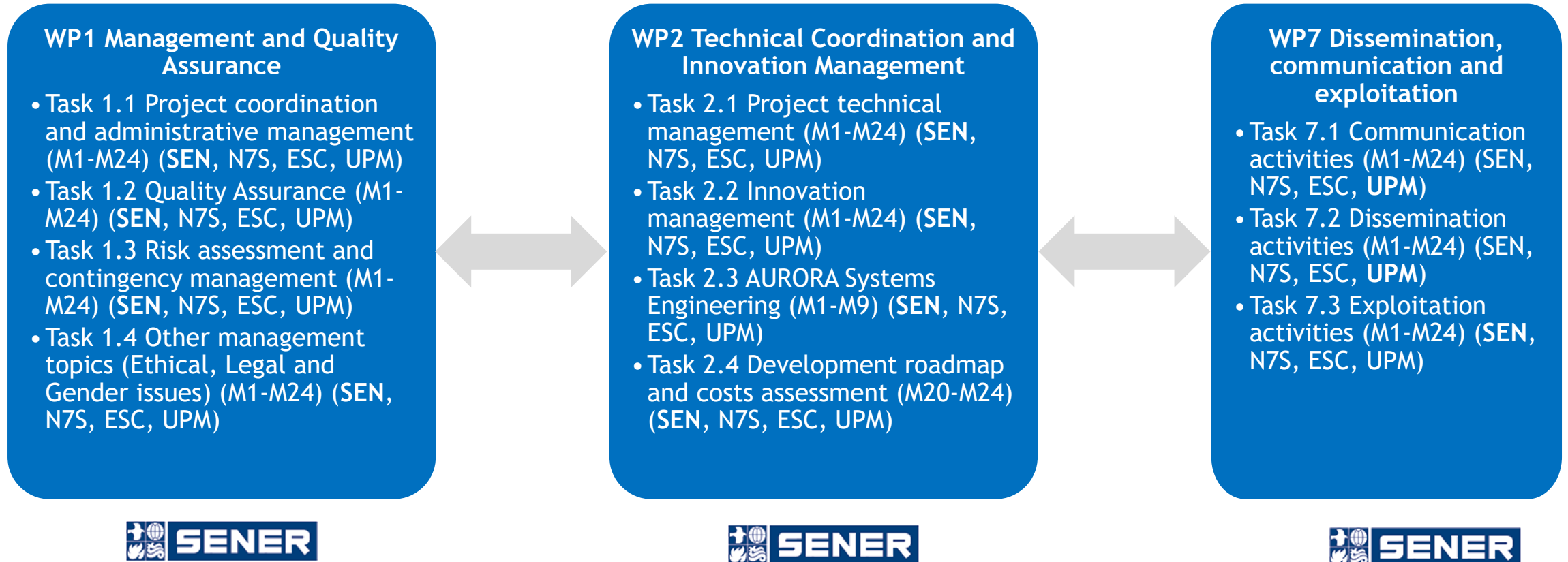
Work Plan



AURORA Kick-off

Work Packages Tasks

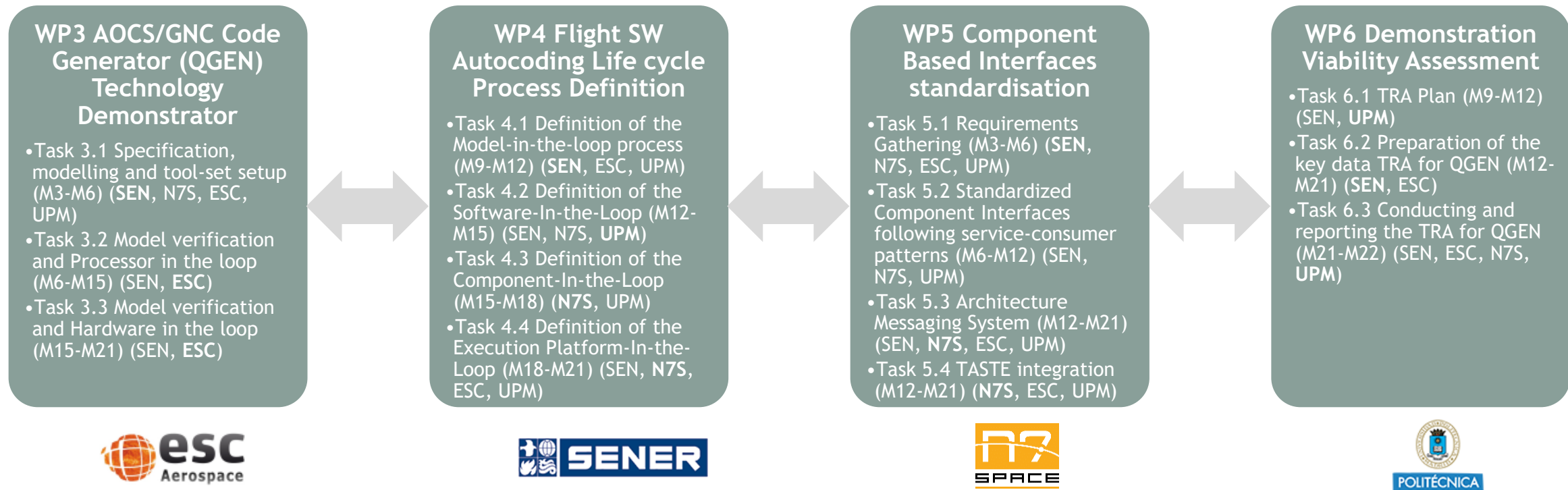
Work Plan



AURORA Kick-off

Work Packages tasks

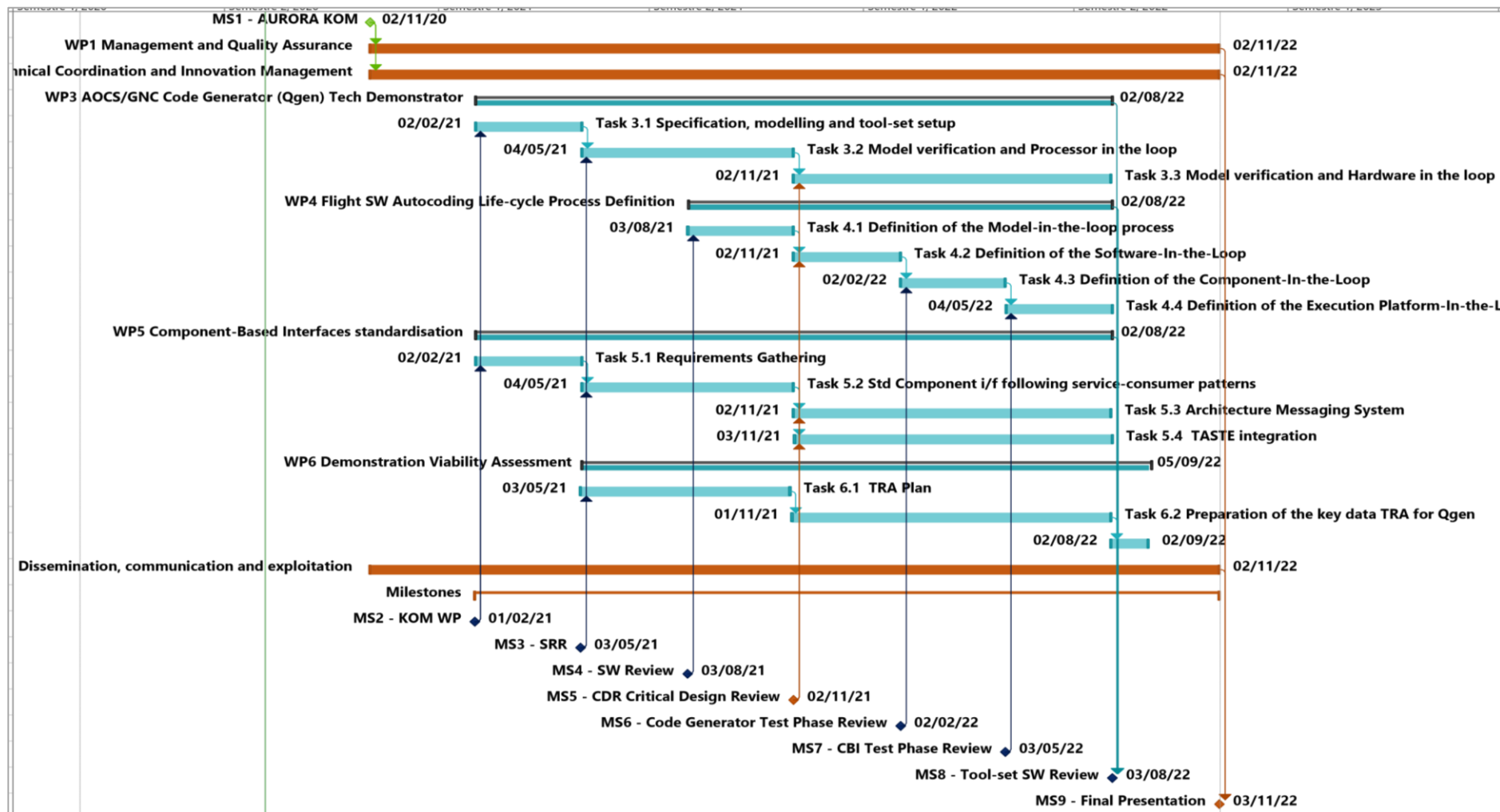
Work Plan



AURORA Kick-off

Planning and Milestones

Work Plan



AURORA Kick-off

Planning and Milestones

Work Plan

Milestone number	Milestone Title	Lead	Due date	WPs	Means of verification
MS1	KOM - Kick-Off Meeting	SENER AE	M1	WP1	Review and signature of GA, and CA collaboration agreement. Appointment of different decision bodies Members and Coordinators. KOM MoM (D1.1)
MS2	WP Kick-Off	SENER AE	M3	WP1 WP2 WP3 WP5	Review the plans, actions, short-term actions, needed assets, risks and opportunities. Review, plan and start WP3 and WP5.
MS3	System Requirements Review	SENER AE	M6	WP2 WP3 WP5 WP6	Review the specification of requirements in line with activity objectives, agree actions, intermediate technical points and address difficulties and opportunities: Review, plan and start WP6.
MS4	SW Review	esc Aerospace	M9	WP2 WP3 WP5	Review the SW environment and processes in line with activity objectives, agree actions, intermediate technical points and address difficulties and opportunities Review, plan and start WP4.
MS5	CDR Critical Design Review	N7 Space	M12	WP1 WP2 WP3 WP4 WP5 WP6	Review the specification of design in line with activity objectives, agree actions, intermediate technical points and address difficulties and opportunities

AURORA Kick-off

Planning and Milestones

Work Plan

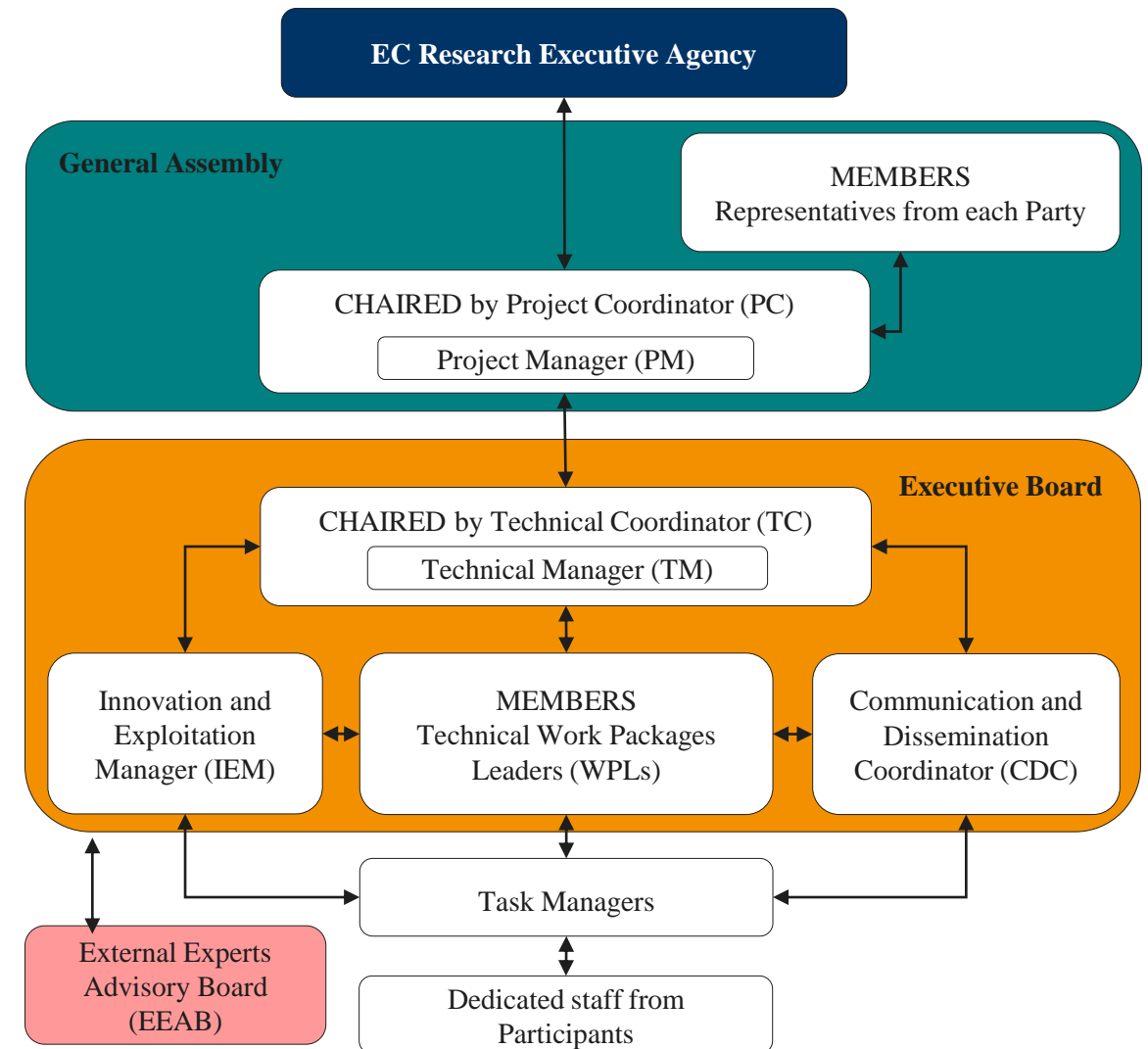
Milestone number	Milestone title	Lead	Due date	WPs	Means of verification
MS6	Code Generator Test Phase Review	esc Aerospace	M15	WP2 WP3 WP4	Review the SW environment and processes in line with activity objectives, agree actions, intermediate technical points and address difficulties and opportunities
MS7	CBI Test Phase Review	UPM	M18	WP2 WP4 WP5	Review the SW environment and processes in line with activity objectives, agree actions, intermediate technical points and address difficulties and opportunities
MS8	Tool-set SW Review	SENER AE	M21	WP2 WP3 WP4 WP5 WP6	Review the Tool-suite environment and processes in line with activity objectives, agree actions, intermediate technical points and address difficulties and opportunities
MS9	FP - Final Presentation	SENER AE	M24	WP1 WP2 WP6 WP7	Review all final deliverables, especially D2.4, D2.5 and D6.3. Acceptance of Project outcomes.

AURORA Kick-off

Management Structures

- The risk management process in WP1 will make sure that the Consortium successes in fulfilling the Project goals on time and budget.
- The WP Leaders are responsible for identifying new **risk in technical areas** that will be reported to the Executive Board (EBd) and the General Assembly (GeA) board.
- The GeA may identify and consider any **management associated risk** and to conduct or delegate any agreed actions.
- The General Assembly (GeA) board is responsible for maintaining **record and track of identified risks in risk management reports (D1.2.x)** and for ensuring that associated risk management actions are completed on time and recorded.

Risks Management



AURORA Kick-off

WT5 Critical Implementation risks and mitigation actions

Risks Management

Risk number	Description of risk	WPs
1	Conflicts among partners	WP1 WP2
2	Quality of deliverable not met	WP3 WP4 WP5
3	Schedule risk. Delays in the activities schedule that may affect other activities development.	WP1 WP2
4	IPR issues to integrate models developed by a Partner in the AURORA tool	WP3 WP4 WP5
5	Integration issues	WP3 WP5
6	Compliance to specifications not achieved for the proposed designs.	WP3 WP5
7	Consensus in the APIs for the integration of components and models	WP3 WP5
8	Open source issues to integrate SW developed by a Partner in the AURORA tool	WP3 WP4 WP5
9	Schedule risk for AURORA tool Assembly & Integration	WP3 WP4 WP5 WP6

AURORA

Kick-Off Meeting

4. N7 Space/Esc Aerospace/UPM Project expectations and resources



AURORA

Kick-Off Meeting

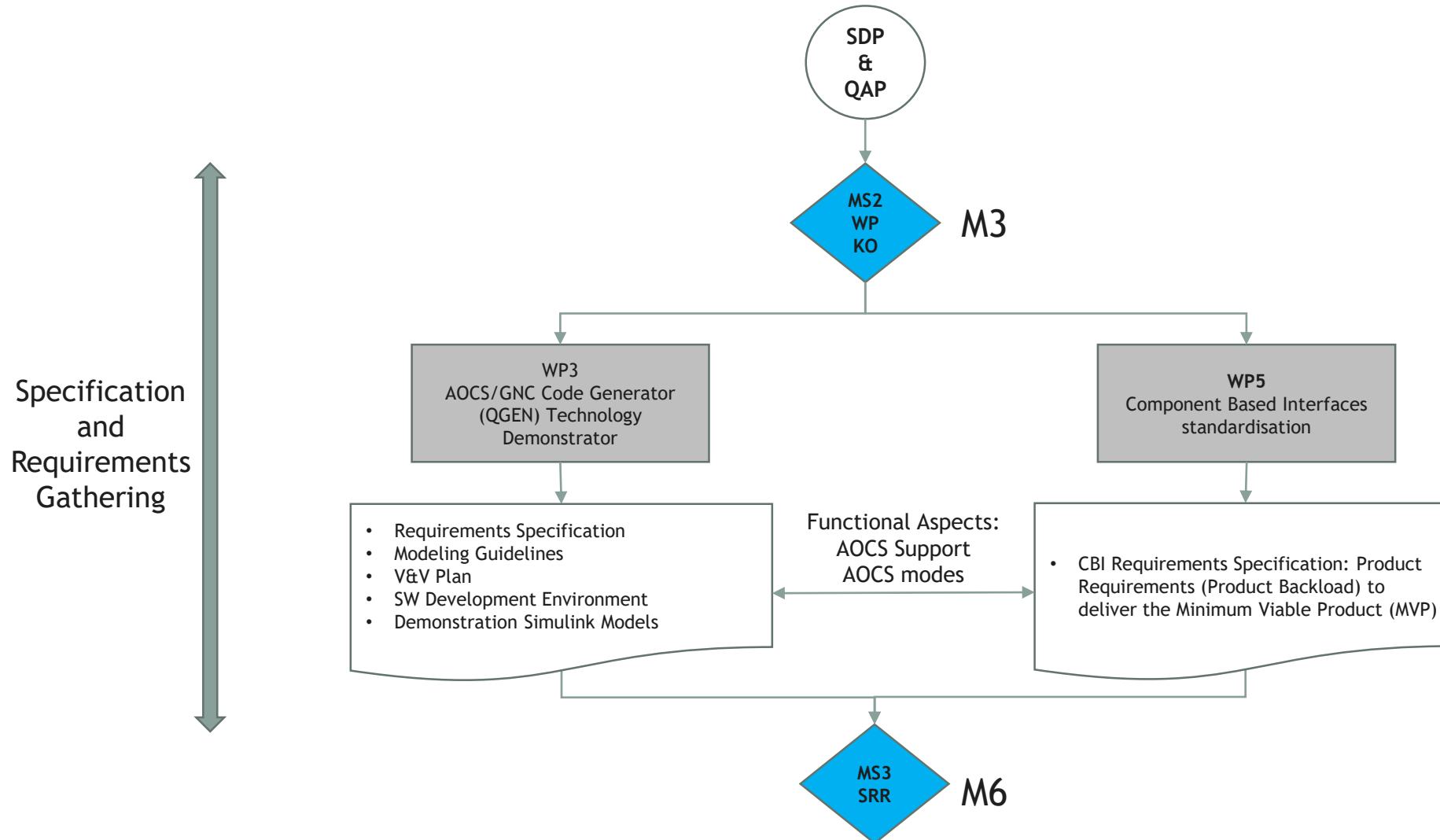
5. Project Methodology Overview (SENER AE)



AURORA Kick-off

Flow-Chart WP3,WP4, WP5, WP6

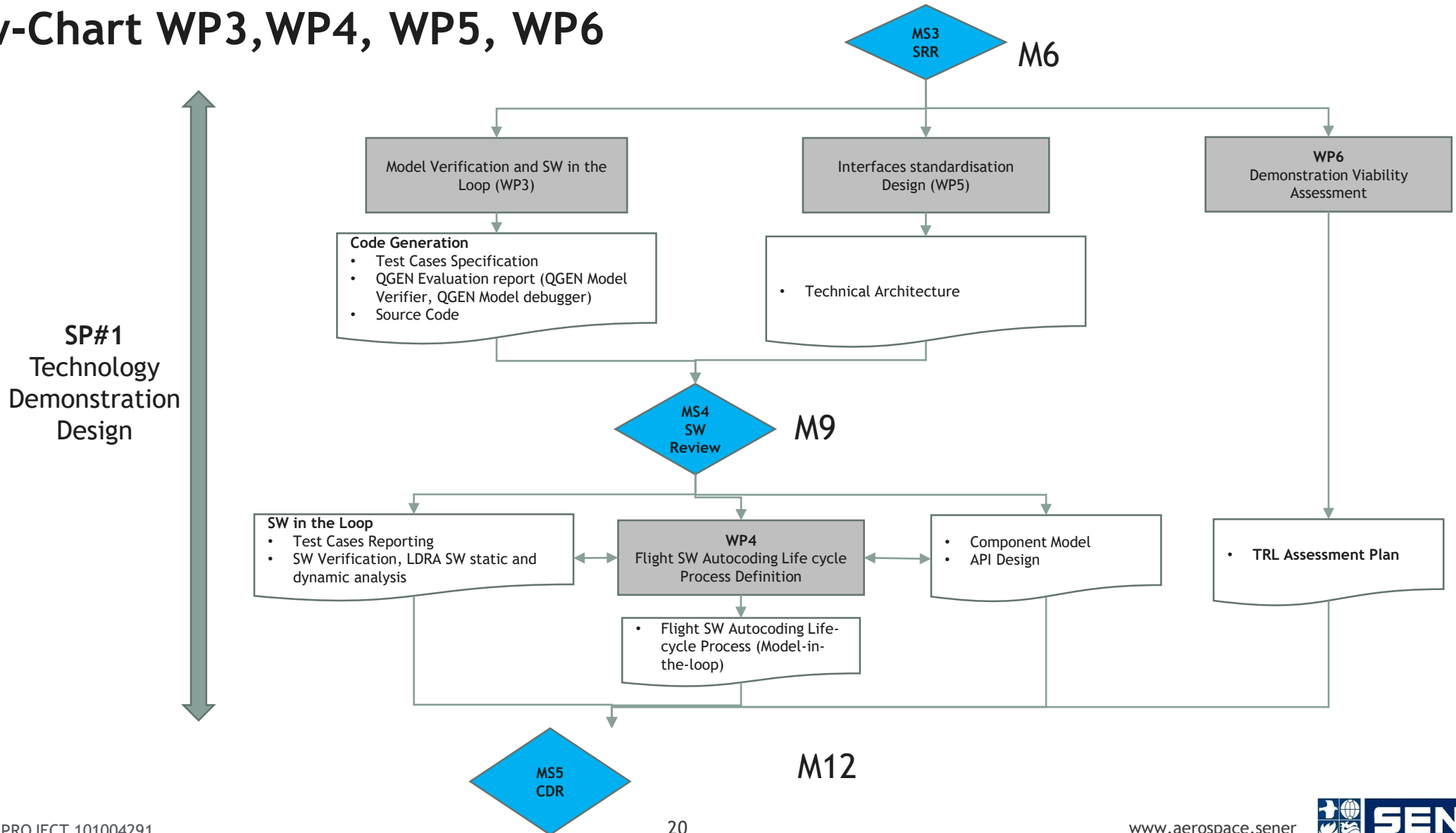
Methodology Overview



AURORA Kick-off

Flow-Chart WP3,WP4, WP5, WP6

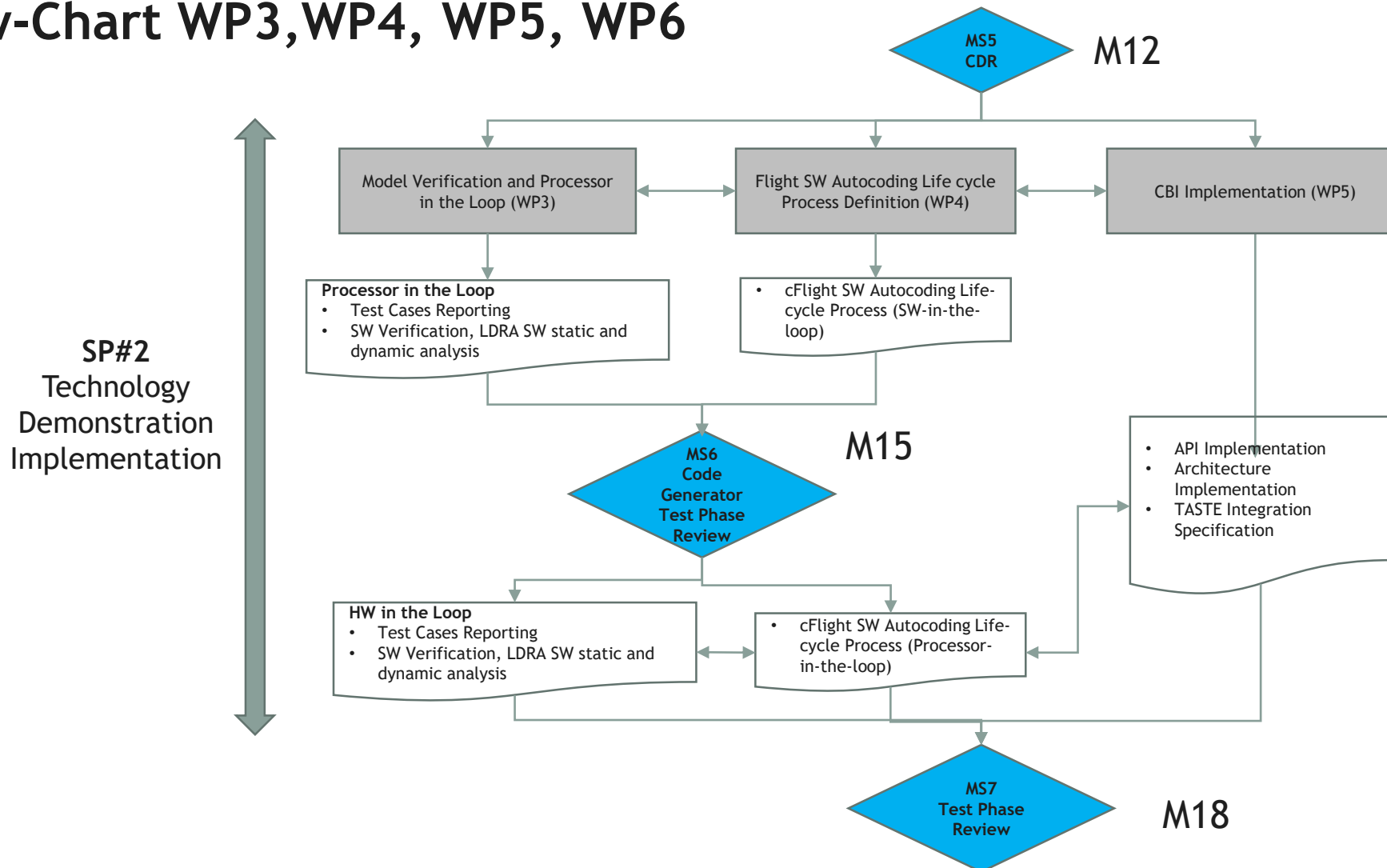
Methodology Overview



AURORA Kick-off

Flow-Chart WP3,WP4, WP5, WP6

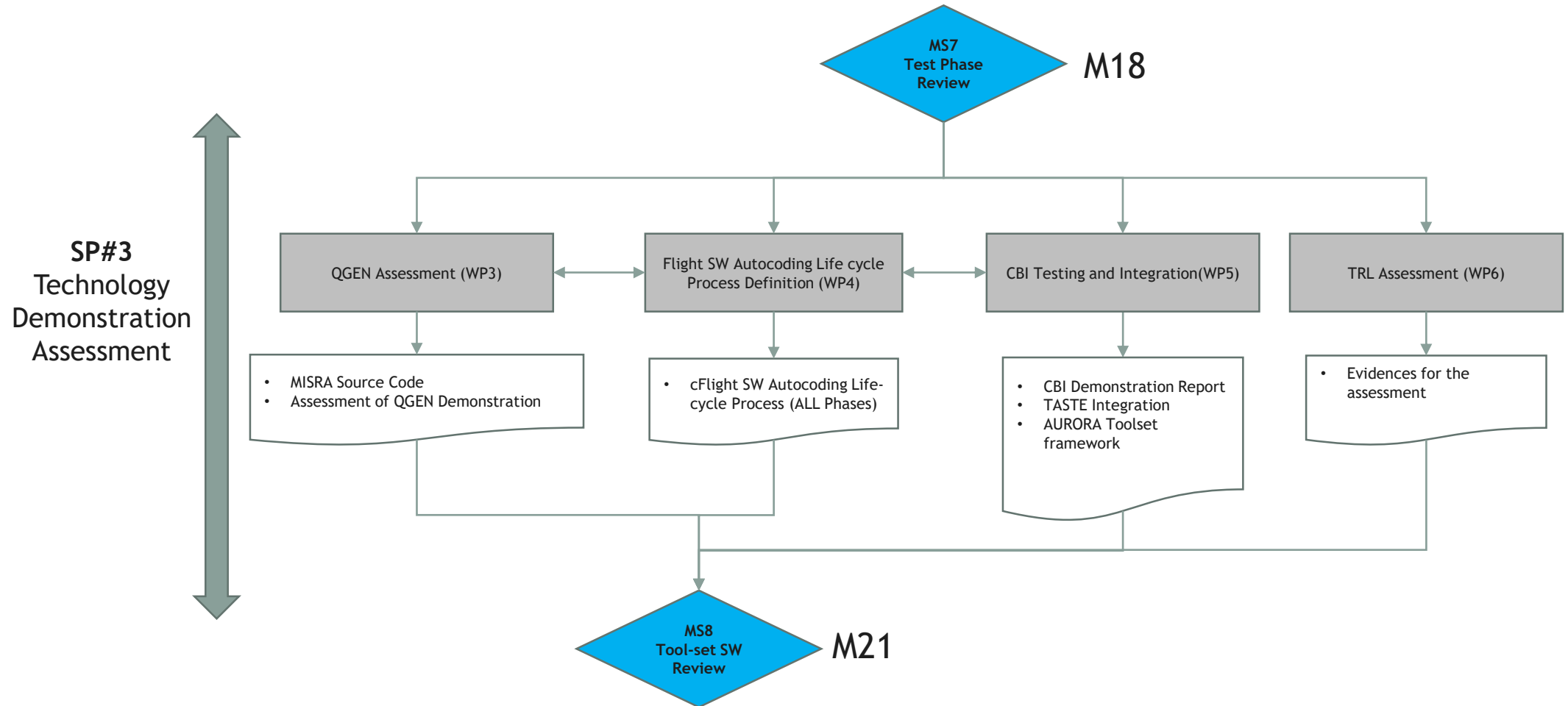
Methodology Overview



AURORA Kick-off

Flow-Chart WP3,WP4, WP5, WP6

Methodology Overview



AURORA

Kick-Off Meeting

6. Short-Term Planning (SENER AE)



AURORA Kick-off

WP1, WP2 and WP7

Short-Term Planning

WP1 Management and Quality Assurance

- **M1: D1.1 Kick-off Minutes of Meeting**
- **M3: Preparation of the D1.4 Quality Assurance Management Plan** to support the different development activities and to ensure the deliverable Tool suite is consistent with requirements and the procedures for test and safety.

Issued by SENER AE and agreed by all the Partners.

Each Partner is responsible for the Plan application to development, integration and test activities under their responsibility, reporting the status for overall evaluation and coordination to the designated Project Assurance Manager.

- **M6: D1.2.x Management Reports** (including KPIs analysis and ethical issues, Risk Assessment, Contingency and Mitigation reporting) Report Every 6 months.



AURORA Kick-off

WP1, WP2 and WP7

Short-Term Planning

WP2 - Technical Coordination and Innovation Management

- Day-to-day technical management of WPs, tasks and activities, supervising and coordinating associated scientific and/or technical responsibilities and evaluation of technical Key Performances Indicators (KPIs) (inputs to **D1.2.x**).
- Innovation management:
 - Continuous monitoring of the state-of-the-art within the Flight SW sector, as well as in other transversal areas throughout the Project.
 - Coordination of all innovation activities.
 - M12 - Innovation Management Report (D2.2.x).**
- Systems Engineering related actions and supporting development and verification actions
 - M3 D2.3 SW Development Plan** to define objective in the way to TRL-6 for the tool certification. First version of SDP delivered at MS2 and revisited at MS4 if needed reflecting WP3, 4 & 5.



AURORA Kick-off

WP1, WP2 and WP7

Short-Term Planning

WP7 - Dissemination, communication and exploitation

- Management of the communication activities tasks together with Dissemination task.
- **M3: D7.1** AURORA website and social media profiles.
- **M3: D7.2** AURORA Communication Plan.
- Dissemination activities:
 - Preparation of papers and presentations for specialized congresses workshops (D7.3) and communication material, Videos, leaflets, etc. (D7.4).
 - M6:** 1st version of Plan for the Exploitation and Dissemination of Results Report.



AURORA

Kick-Off Meeting

7. Contractual and Financial Aspects (SENER AE)



AURORA Kick-off

Progress Status

Contractual and Financial Aspects

- **Grant Agreement (GA) & Consortium Agreement (CA)**
 - Contractual Obligations and description of work to be performed.
 - SENER AE is responsible for managing the legal aspects of the Project. Any legal issues arise during the Project is documented in the Management Reports (D1.2.x).
 - Decisions are taken by the management boards in accordance with the procedures set in the Consortium Agreement.
- **Unilateral confidentiality agreement Advisory Group Independent Experts**
- The action is divided into 2 **Reporting Periods**:
 - D1.5 AURORA Interim Period Report (from month 1 to month 12)
 - D1.5 AURORA Period Report (from month 12 to month 24)
- **Payments**
 - The **pre-financing payment** of AURORA has been made to SENER AE. On-going: payments from SENER AE to the beneficiaries
 - one **interim payments** (GA Article 20)
 - one **payment of the balance** (GA Article 20).



AURORA

Kick-Off Meeting

8. Conclusions and AoB (ALL)



THANK YOU

 www.aerospace.sener

 www.linkedin.com/company/sener

 www.youtube.com/user/senerengineering



AURORA KO MEETING

H2020 context & project implementation guidelines

Davide Di Domizio
Research Executive Agency (REA)
B1 – Space Research Unit

AURORA Kick-off meeting
3rd November 2020

1. **Introduction**
2. TEC-10-2020:
Technologies for
European non-
dependence and
competitiveness
3. Reporting and reviews
4. Avoiding financial
errors
5. Dissemination &
communication





REA's Space Research Unit is responsible for the implementation of part of the Horizon 2020 Space work programme and of the FP7-SPACE work programme legacy.

In 2021, Space Programme moves to a new Executive Agency.

The REA is in charge of:

- Organising the evaluation of proposals
- Grant agreement preparation
- Technical, legal and financial monitoring of projects

EU Space policy: **European Commission** (DG DEFIS: Defence Industry and Space) – including the H2020 work programmes.



Space in Union FPs

FP7

2007-2013

€ 53,3 billion



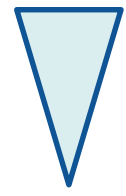
€ 1,90 billion

Space shared with Transport theme – Cooperation Specific Programme

H2020

2014-2020

€ 79 billion



€ 1,48 billion

Leadership in Enabling Industrial Technologies (LEIT) – Space only

Horizon Europe

2021-2027

Currently €80.9 billion (reduced from €100 billion)

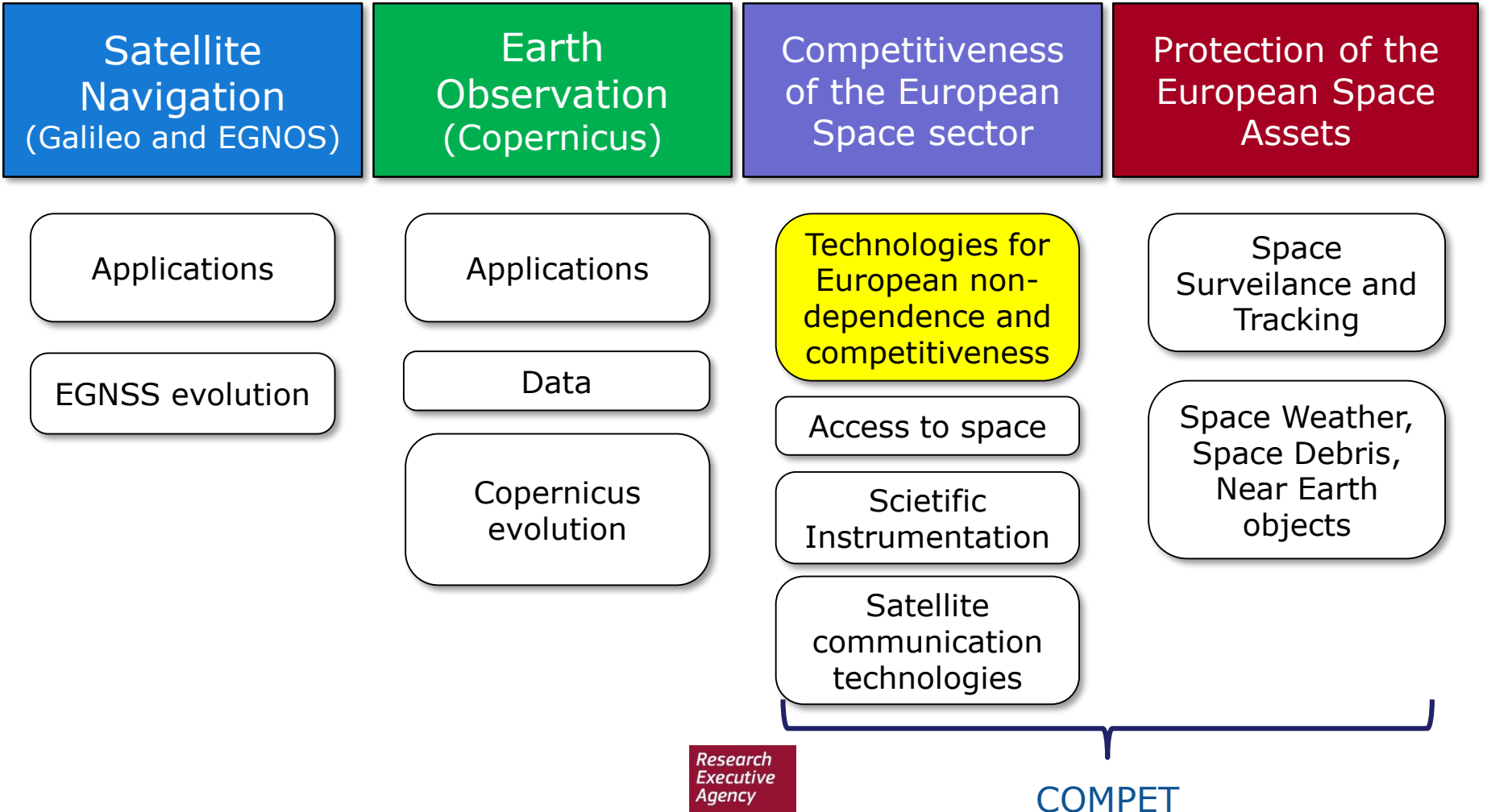


Currently being discussed by the European Parliament and the Council.

Starting date: 1 January 2021



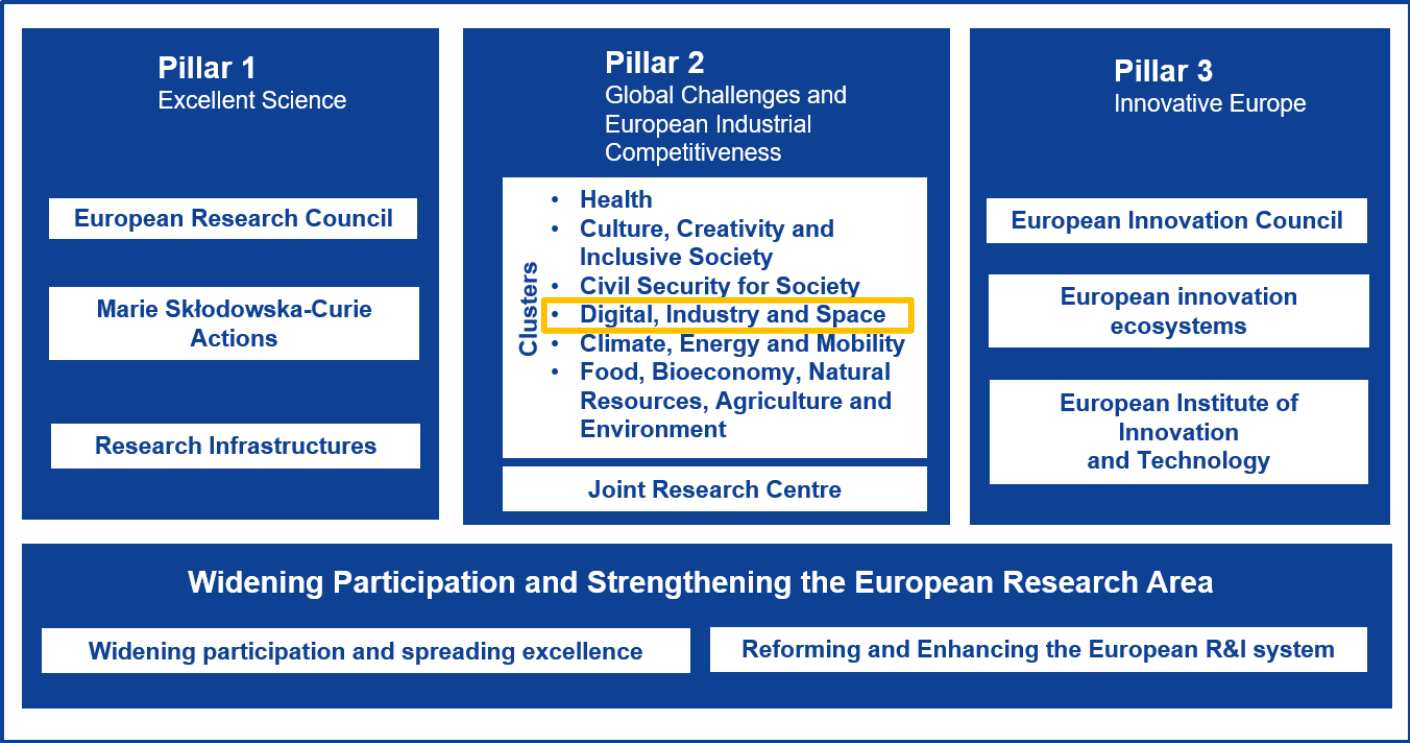
Horizon 2020 space building blocks





Horizon Europe

- Next EU research and innovation investment programme
- Covers period 2021–2027
- Starts 1st January 2021



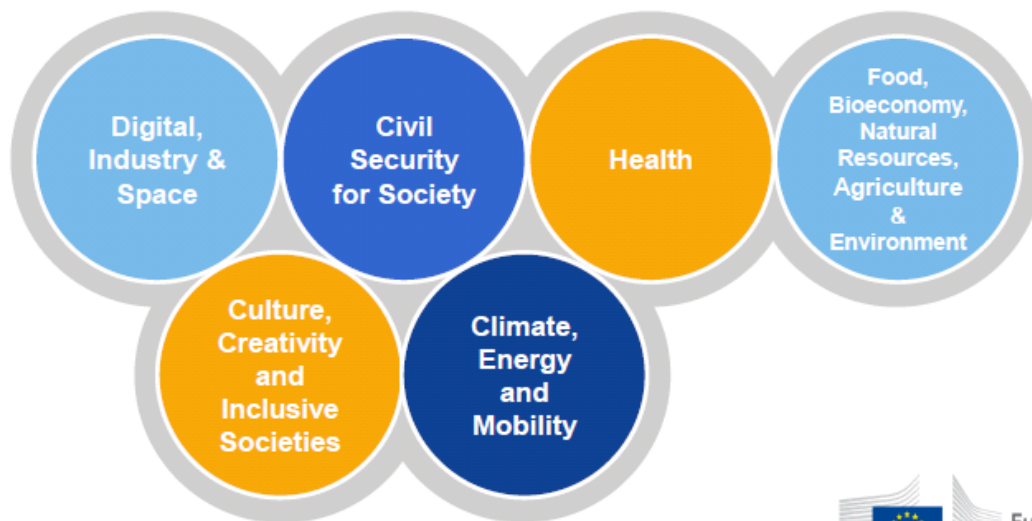
Horizon Europe – Pillar 2

Pillar 2 - Clusters

Global Challenges & European Industrial

Competitiveness: boosting key technologies and solutions underpinning EU policies & Sustainable Development Goals

Commission proposal for budget: € 52.7 billion



May 2019 | Version 25

1. Introduction
2. **TEC-10-2020:
Technologies for
European non-
dependence and
competitiveness**
3. Reporting and reviews
4. Avoiding financial
errors
5. Dissemination &
communication



"Non-dependence" in Space

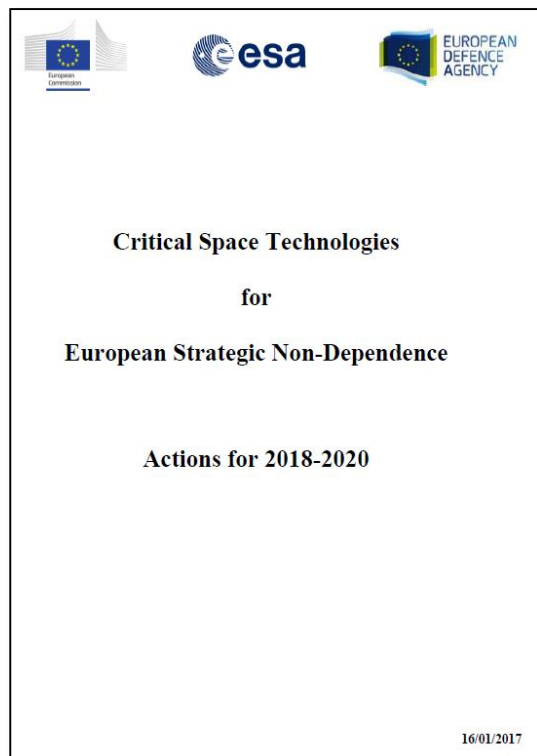
- Space technology "non-dependence" means to have free, unrestricted access to any technology required to implement Europe's Space missions.
- Non-dependence does not mean producing everything in house i.e. Europe.
- It is not just an ITAR/EAR problem, non-export-restricted products come with limitations that create undesirable dependence.
- It is not only an issue for EEE parts, but affects other technologies and products.



TEC-10-2020: Technologies for European non-dependence and competitiveness



ESA, European Commission and EDA are jointly running the European Non-Dependence process through a Joint Task Force (JTF) since 2009, with the objective to map the situation and identify actions, to be implemented by the institutions and industry in the coming years.



4 NON-DEPENDENCE ACTIONS

4.1 *Microelectronics and On-board Data Systems*

- 4.1.1 JTF-2018/20-2 - ASICS for mixed signal processing [U11]
- 4.1.2 JTF-2018/20-3 - High Capacity FPGAs [U12]
- 4.1.3 JTF-2018/20-5 - Very high performance microprocessors [U20]
- 4.1.4 JTF-2018/20-8 - ASICS: 28nm Deep Sub-Micron (DSM) [U22b]
- 4.1.5 JTF-2018/20-9 - Design and prototype of ultra-reprogrammable SoCs [N50]
- 4.1.6 JTF-2018/20-11 - Design and Qualification of uController for Space application [N52]
- 4.1.7 JTF-2018/20-12 - Design and prototype of nvRAM for SPACE with Serial interface ((quad)-SP [N53] 18

4.2 *Space System Control*

- 4.2.1 JTF-2018/20-14 - Fiber optic or photonics integrated technology Gyro based inertial measurement unit (IMU) [U6]

4.3 *Power*

- 4.3.1 JTF-2018/20-16 - Active discrete power components [U14]

4.4 *RF Payload System*

- 4.4.1 JTF-2018/20-17 - Power amplification: Travelling Wave Tube (TWT) materials [U7]
- 4.4.2 JTF-2018/20-18- RF components [N27]

4.5 *EEE components*

- 4.5.1 JTF-2018/20-19- Passive components [U13]
- 4.5.2 JTF-2018/20-21 - High density (1000 pins and beyond) packaging assembly capabilities and PCBs [U17]
- 4.5.3 JTF-2018/20-22 – High Temperature Packaging [N49]

4.6 *Software*

- 4.6.1 JTF-2018/20-23 - SW tool: Automatic Generation of code [N64]

4.7 *Optics and Optoelectronics*

- 4.7.1 JTF-2018/20-28 - Photonics components [U15]
- 4.7.2 JTF-2018/20-31 - Advanced Laser Crystals for High Power Space applications [N63]

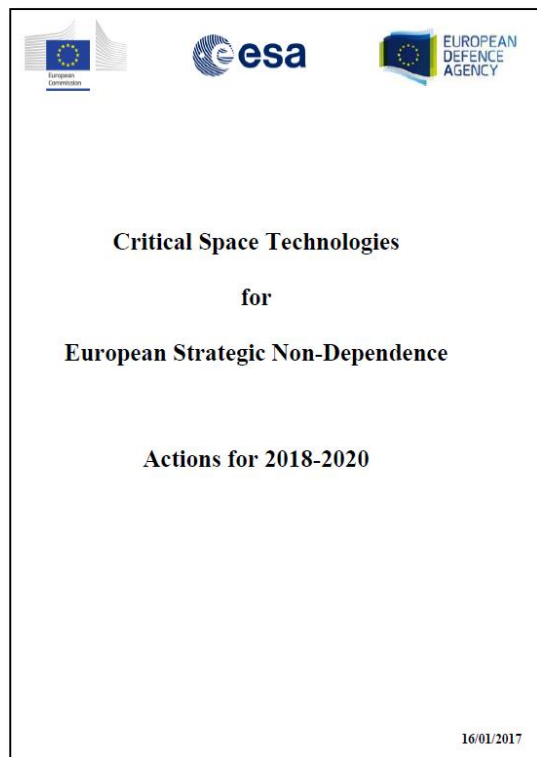
4.8 *Propulsion*

- 4.8.1 JTF-2018/20-33 - Advanced materials and material technology for combustion chambers [U4]

TEC-10-2020: Technologies for European non-dependence and competitiveness



ESA, European Commission and EDA are jointly running the European Non-Dependence process through a Joint Task Force (JTF) since 2009, with the objective to map the situation and identify actions, to be implemented by the institutions and industry in the coming years.



Group C (2020):

- JTF-2018/20-5 – Very high performance microprocessors [U20]
- JTF-2018/20-9 – Design and prototype of ultra-reprogrammable SoCs [N50]
- JTF-2018/20-14 – Fiber optic or photonic integrated technology gyro-based inertial measurement unit (IMU) [U6]
- JTF-2018/20-16 – Active discrete power components [U14]
- JTF-2018/20-17 – Power amplification: travelling wave tube materials [U7]
- JTF-2018/20-23 – SW tool: automatic generation of code [N64]
- JTF-2018/20-33 – Advanced materials and material technology for combustion chambers [U4]

TEC-10-2020: Technologies for European non-dependence and competitiveness



JTF: SW tool: Automatic Generation of code [N64]

Description and needed Action	Develop an European solution of Software Tool suite (including environment tool: model editor, simulator, model verification tool) for "Automatic Generation of Code" from existing non-European mathematical and simulation tools "MathWorks - Matlab and Simulink", and if possible in addition compatible with the European tool.
Estimated Initial TRL:	4
Target TRL	6/7 for an operational certified tool
Applicable Mission Class(es)	Earth Observations, Space Science, Exploration, Telecom, Navigation, Human Space Flight, Launchers and Operations
Industrial Non-Dependence Concern	Industry consensus confirmed at the JTF convergence meeting (26 October 2016). Most of codes generated automatically from these tools are critical SW.
Delegations/Agencies voicing non-dependence concern on the item	Action approved by consensus at the Final Meeting of 28 November 2016
Reference(s):	
Remarks / Justifications	Two qualities are important for automatic code generation of critical embedded software: 1) the knowledge of how the code is generated, and therefore the visibility within the code generator 2) the possibility to qualify the code generator to save the cost of validation of the generated code. These qualities are more difficult to achieve with non-European commercial tools than e.g. open source European tools. As an example, previous European projects have allowed the development of a prototype open source code generator (QGen) that needs to be pushed to a qualified product that would support significantly the autonomy of European stakeholders industry and agencies. It would allow European companies to establish themselves at the centre of a new ecosystem created around a new generation of tools called "model compilers", which are essential elements to the more and more expanding model based engineering.
Date of Entry / Last Date of Change	30-November-2016



Action Description and technological Need



Expected Initial and Final TRL



Remarks and Justifications



Recap of the work programme requirement (1/2)

- **Analysis of relevant available roadmaps**, including roadmaps developed in the context of actions for Key Enabling Technologies supported by the Union;
Roadmaps to be used as an input:
 - Relevant Technical Dossier of the Harmonization process
 - Ro-cKETs - Roadmap for cross-cutting KETs activities in Horizon 2020
- Analysis of **how their selected critical space technologies can contribute to different space applications** or, where applicable, to **non-space sectors** (such as through technology transfer or spin off);
- **Commercial assessment of the supply chain** technology in the space or non-space domains and, if applicable, a business plan for commercialisation with a full range (preload) of recurring products.



**Expected to be performed in the
first 6 months of the project**



Recap of the work programme requirement (2/2)

With a view to achieving the non-dependence objective, applicants must:

- Describe the technologies and/or technology processes to be used and show that they are **free of any legal export restrictions or limitations**, such as those established in the International Traffic in Arms Regulations (ITAR) or equivalent instruments applicable in other jurisdictions;
- Set up a suitable **technology development** process aiming at **avoiding export restrictions** of non-EU states.



What was discussed during the GAP

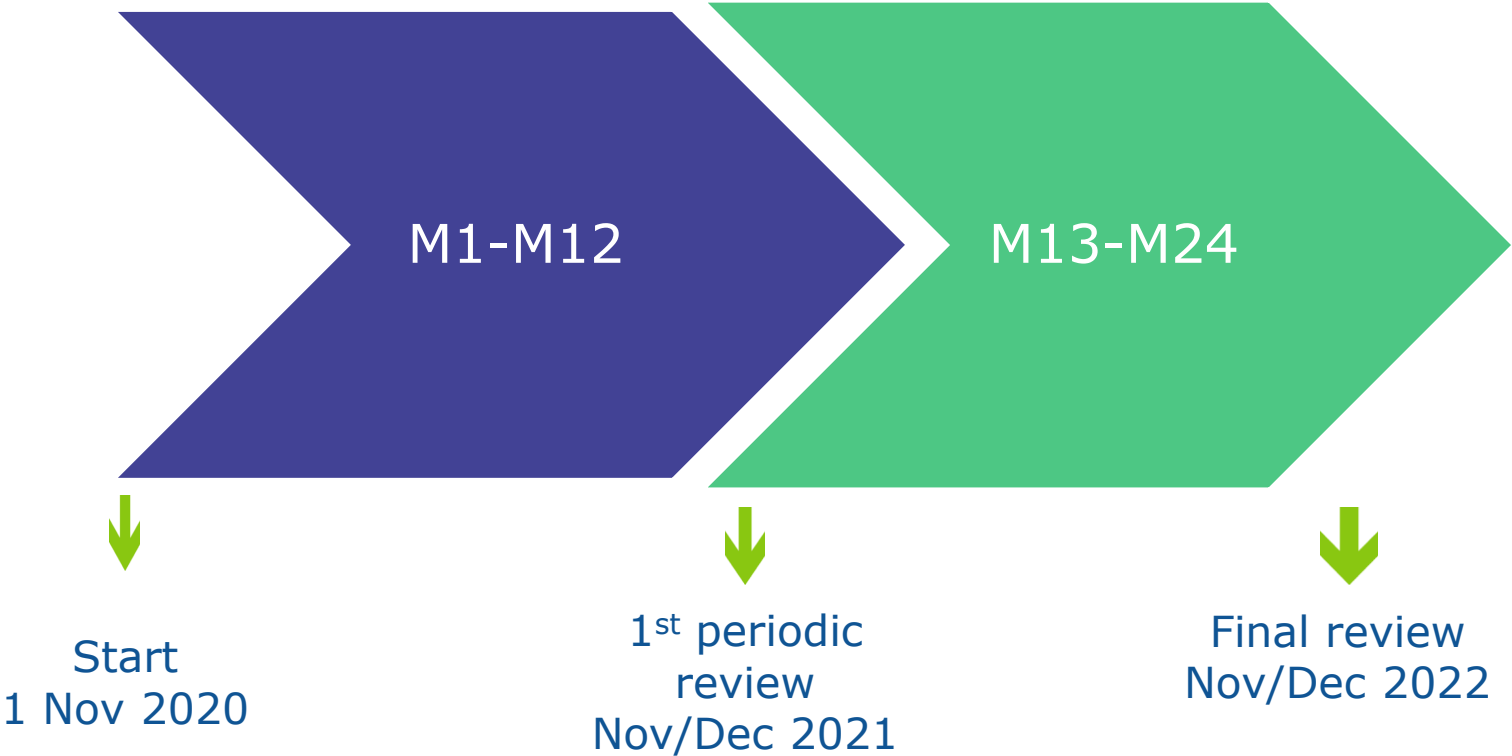
- list of milestones and deliverables optimised in order to improve the logic behind the interdependency of the work packages;
- project risk table updated to include the additional technical risks proposed in the evaluation report;
- inclusion of the members of the External Expert Advisory Board;
- other clarifications concerning the software quality assurance and the use of key performance indicators for the project objectives.

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dependence and
competitiveness
3. **Reporting and reviews**
4. Avoiding financial
errors
5. Dissemination &
communication





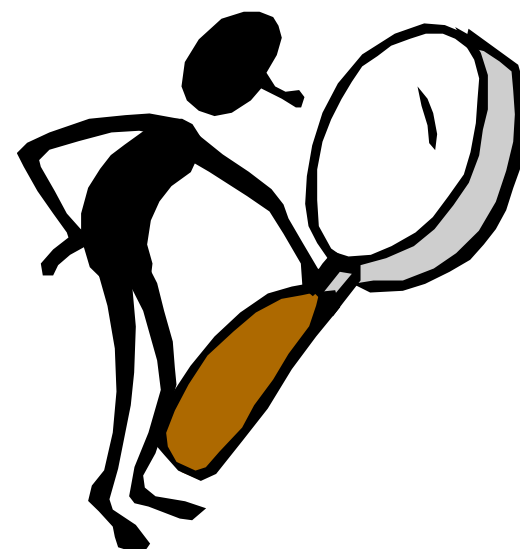
Review planning



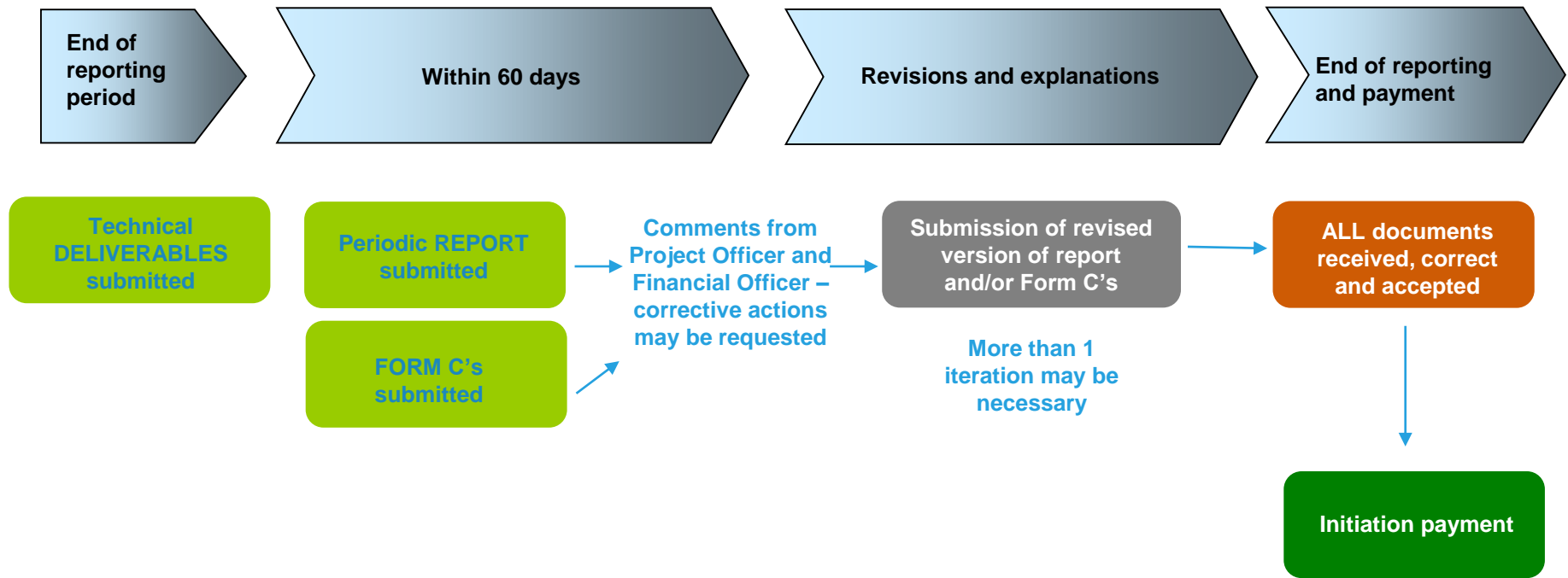
Reporting and reviews



- Planned at the end of each period
 - Combined with a project meeting, when possible
- Presentation of the work carried out, the main achievements and the use of the resources
 - Participation of the coordinator and usually the WP leaders (to be discussed on a case-by-case basis)
- Project Officer is assisted by 1 external reviewer
 - The reviewers need the relevant report and deliverables 2-3 weeks prior to the meeting



Reporting and reviews



Project Periodic Report													
Summary for publication	Deliverables Ethics, DMP, Other Reports	Milestones	Critical Risks	Publications	Dissemination Communication	Patents (IPR)	Innovation	SME Impact	Open Data	Gender	Tech. Report (Part B)	Financial Statements	Documents
✓	i	i	✓	✓	✓	✓	✓	✓	i	✓	i	i	i

Technical report:

■ Part A structured via tabs

- Cover page
- Summary for publication
- Deliverables (pre-filled based on submission data)
- Achievement of milestones
- Update of critical risks and mitigation measures
- Publications and Dissemination and communication activities
- Patents, Innovation, SME Impact
- Open research data
- Gender



The EU Framework Programme
for Research and Innovation

HORIZON 2020



H2020 Programme

Periodic Report Template
(RIA, IA, CSA, SME instrument, MSCA)

Periodic Technical Report (parts A and B)
Periodic Financial Report

Version 2.1
19 December 2017

Technical report:

■ Part B – to upload

- Work performed (by work package)
- Progress beyond the state of the art, expected results and potential impact
- Deviations: person-months
- Ethics issues



▪ **Periodic financial report:**

- individual financial statements for each beneficiary
- an explanation of the use of resources
- Periodic summary financial statement



1) Completing your Financial Statement

All beneficiaries must fill in their own financial statement, electronically sign it and submit it to the coordinator.

NB. Only the PFSIGN can electronically sign & submit the statement

2) Approving partners' reports

Coordinator - reviews and approves the periodic report. If needed, s/he can send it back to a partner for further changes, or unlock the technical part of the report for editing.

3) Submitting the report to REA

Coordinator - submit all parts of the report together, in a single transaction:

4) REA will either:

- accept the report and start preparing the interim payment or
- ask for changes to it - the process described above starts again.



Publication of project deliverables

We will publish on your project page in CORDIS your project deliverables which are flagged with the dissemination level 'PUBLIC'.

In practical terms, once a public deliverable is approved by the Project Officer, the deliverable will be automatically sent to CORDIS for publication.

Notify your Project Officer if the dissemination level needs changing.

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errors**
5. Dissemination &
communication





Direct costs for the action

Direct costs are costs that are directly linked to the project's implementation and can be attributed to it directly.

- They must be justified by sufficient persuasive evidence showing the direct link to the project.
- They must be properly recorded in order to allow direct measurement of the use for the project and to ensure auditability.
- They must be measurable and measured.

In Horizon 2020: Accounting documentation is necessary for direct costs only. Indirect costs do not need supporting evidence because they are declared using a flat rate.

Hours worked



Hours declared must be supported by reliable records and documentation

Only the hours actually worked on the project can be charged

Calculation of hourly rate must be in line with the grant agreement rules

You cannot declare:

- Budgeted time (what you indicated for the budget)
- Estimated time (e.g. person 'guessing' at the end of the year)
- Time allocation (e.g. x % of the contractual time of the person)

ACTUAL personnel costs: hourly rate

Calculation of the hourly rate:

- Annual personnel costs / Annual productive hours
- OR
- Monthly personnel costs/ Monthly productive hours

What are eligible personnel costs?

How to calculate productive hours?

➤ **See Article 6.2a**

The Annotated Grant Agreement provides detailed information on this. Please ensure that you read it carefully.

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Any deviations in the number of person months used compared with the GA have to be explained in the technical periodic report.



OTHER DIRECT COSTS

Explanation of major cost items is needed if the amount exceeds 15% of personnel costs

- If costs were foreseen in the Annex 1, a short description is needed but a detailed explanation is not needed.
- If costs were not foreseen in Annex 1, a description and detailed explanations are needed (*start with the most expensive items*).

If costs declared under "other direct costs" are equal or less than 15% of claimed personnel costs for the beneficiary in each reporting period, there is no need to give any detail.



OTHER – Travel Expenses

List of travels including for each event:

- conference or meeting **title**,
- **location** (city and country),
- **Date** (Day/Month/Year)
- **Purpose** of travel,
- Number of **attendees** from the beneficiary

Ex.

ESWW5, Bruges (BE), 29.11.2009, kick-off meeting, 1 person
Meeting at partner 4, Brussels (BE), 09.03.2011, to discuss
model development under WP4, 2 persons



Costs not foreseen in GA

If you plan to have costs for subcontracting, equipment, travel which were not foreseen in GA (especially travel outside EU), please get prior PO approval or request an amendment if needed.

A travel cost not foreseen should be linked to the project and needs to be supported by a proof of participation in the meeting, conference (slides or publications with project name and EU funding acknowledgement and emblem).

If there is any doubt about whether a cost is eligible or an amendment is needed the Coordinator should contact the PO.



Currency for financial statements and conversion into euro

Beneficiaries (and linked third parties) must always use EUR to report costs in their financial statements.

The rules on conversion (of costs incurred in other currencies into EUR) are explained in the annotated grant agreement.



A Certificate on the Financial Statement (CFS) or audit report:

- must be submitted at the final reporting period
- only when the requested EU contribution for direct costs is **EUR 325,000 or more***
- the cost should be declared under the management activity as **Other direct costs**
- using the template in ANNEX 5 of the GA, **(do not change the wording!)** issued on the Auditor's letterhead.

Costs for a CFS submitted for an amount below the threshold will be **rejected.*

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Why communicate?

- Promote your project activities and results
- Engage stakeholders
- Share best practice with other projects
- Generate market demand
- Expand your network
- Raise citizen's awareness of how their money is spent



**Article 38.1.1 of the grant agreement :
Obligation to promote the action
and its results**

The beneficiaries must promote the action and its results, by providing targeted information to multiple audiences (including the media and the public) in a strategic and effective manner

Communication strategy

A comprehensive communication strategy is crucial in promoting your project and its results. Your plan should define clear objectives adapted to a range of target audiences. It should be proportionate to the scale of your project.

Let us know about any communication activity with media impact.

Acknowledge the EU funding

38.1.2 Information on EU funding — Obligation and right to use the EU emblem

Display the EU emblem

+

write:



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No [number].

Download the EU emblem and read guidelines: <https://europa.eu/!Qg69gK>

Display the emblem and text correctly

- ① When displayed together with another logo, the EU emblem must have appropriate prominence.
- ② You can display the text to the right, left, up or down, depending on your needs.
- ③ Use one of the following fonts: Arial, Calibri, Garamond, Trebuchet, Tahoma, Verdana. **Do not use *Italic*, underlined variations or font effects.**
- ④ The colour of the font should be reflex blue (same as the EU flag), black or white depending on the background.



Yes



This project has received funding from the Horizon 2020 research and innovation programme under grant agreement No [number]



No



This project has received funding from the Horizon 2020 research and innovation programme under grant agreement No [number]

Read the full guide on Horizon 2020 project communication: <https://europa.eu/!Qf94Pu>

Publications



You must **ensure open access** (free of charge, online access for any user) to all peer-reviewed scientific publications.

Publications

This project does not currently have any scientific publication

Project publications (44 publications)

No.	Type	Title	Authors	Title of the Journal/Proc./Book	Number, date or freq. of the Journal/Proc./Book	Is Peer-reviewed?	Is Open Access?	DOI	Repository Link
1	Article in J	Spatial anomaly detection in sensor networks using neigh	Hedde HWJ Bosman, Giovanni Iacc	Information Fusion	33	Yes	Gold	10.1016/j.inffus.2016.04.007	Link
2	Publication	Gaining Insight into Quality Diversity	Joshua E. Auerbach, Giovanni Iacc	Proceedings of the 2016 on Genetic and Evolu		Yes	Gold	10.1145/2908961.2931675	Link
3	Thesis/Diss	Anomaly detection in networked embedded sensor syste	H.H.W.J. Bosman			Yes	Gold		Link
4	Publication	Instinct-driven dynamic hardware reconfiguration: evol	Hallawa, A., De Roose, J., Andrau	Proceedings of the Genetic and Evolutionary (Yes	Green		Link
5	Publication	Presenting the ECO: Evolutionary Computation Ontology	Yaman, A., Hallawa, A., Coler, M.,	European Conference on the Applications of E	2017, April	Yes	Green		Link
6	Publication	A framework for knowledge integrated evolutionary algo	Hallawa, A., Yaman, A., Iacca, G.,	European Conference on the Applications of E	2017, April	Yes	Green		Link
7	Publication	Multi-strategy differential evolution	Yaman, A., Iacca, G., Coler, M., Fl	International Conference on the Applications	2018, April	Yes	Green		Link

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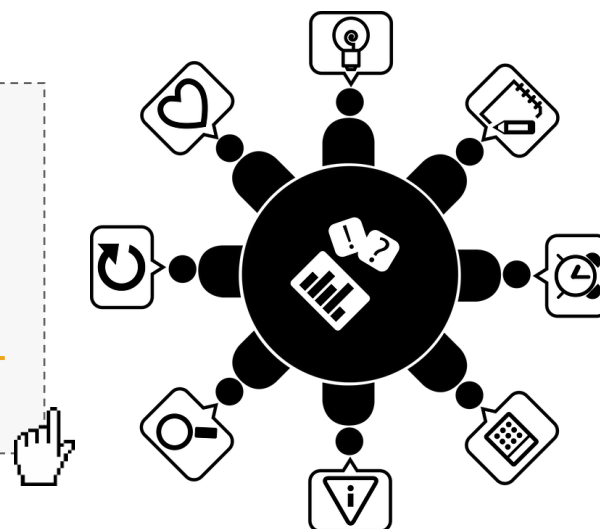
Each beneficiary must 'disseminate' its results.

Open access to data

if opting-in to the Open Research Data Pilot

Open access to publications

each beneficiary must ensure open access to all peer-reviewed scientific publications



Dissemination means sharing research results with potential users, contributing to the progress of science in general.

Additional info

Funding and Tenders Portal

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home>

Find out more:



Horizon 2020 Annotated Grant Agreement

http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf



Horizon 2020 On-line Manual

https://ec.europa.eu/research/participants/docs/h2020-funding-guide/index_en.htm



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N7 SPACE

Space Systems Software Development

Michał Mosdorf

2020

N7 Space

- Joint venture between SPACEBEL and N7 Mobile located in Poland
 - Company founded in 2017
 - Started operation with projects previously executed by N7 Mobile that were transferred to N7 Space
 - Software engineering team located in Warsaw office with space experience since 2014
 - Focus on software development for upstream segment
 - Embedded and on-board software
 - Leon3, Cortex-M7, Zynq
 - MBSE
 - TASTE, Capella, ASN.1, SDL, AADL, MSC

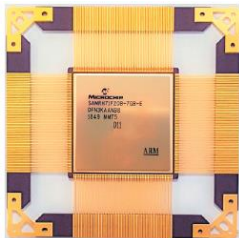


Selected activities

- ESA missions
 - CBK's subcontractor in PROBA3 mission responsible for on-board software
 - SPACEBEL's subcontractor in HERA mission
- Software development for ARM ecosystem
 - Board Support Package and Boot Loader development for Microchip Cortex-M7 processor line
 - CANopen library and RTEMS 5 demo applications
 - CoreSight usage for multi-core software tracing on ARM Cortex-A53 Zynq
 - Qualification of open-source CANopen library to criticality B

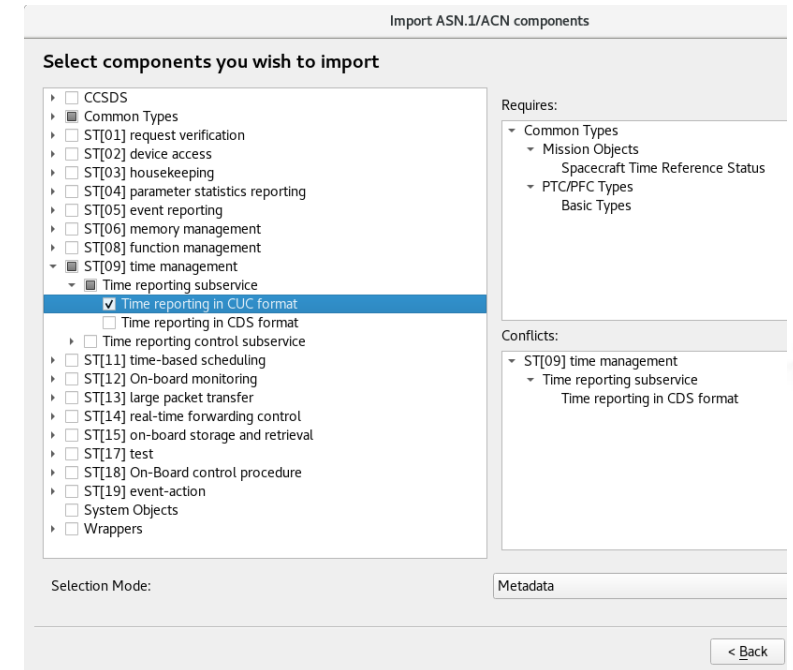


©ESA-P. Carril



Selected activities

- MBSE tools development
 - Qt based IDE for ASN.1 modelling with PUS-C template library
 - PUS-C deployment with automatic generation toolset
 - Database software, document generation ASN.1 modelling and generation
 - Capella plugins development
 - ASN.1 and AADL generator from Capella models
 - Providing TASTE support to target platform by implementing a new runtime and integrating a new compiler toolchain
 - Test and operations languages
 - Language Server Protocol Based IDE for ECSS languages
 - Member of TASTE Steering Committee



Major N7S responsibilities and schedule

- Technical leadership for WP 5 Component-Based Interfaces standardisation
 - Task 5.3 Architecture Messaging System
 - Task objective is to design message exchange system between service providers. System will take into account interoperability between different environments.
 - Task 5.4 TASTE integration
 - Development of the toolchain integrating TASTE and QGen for code generation from Simulink.
Development of TASTE GUI to provide support for Component Model.
- Other tasks
 - Task 4.2 Definition of the Software-In-the-Loop
 - Task objective is to define details of the software in the loop process.

Schedule and key personnel

- N7 Space tasks schedule
 - WP5: M3 – M21
 - Task 5.3: M12 - M21
 - Task 5.4: M12 - M21
 - WP4: M9 – M21
 - Task 4.2: M12 - M15
- Key personnel
 - Michał Mosdorf – General Assembly, management support
 - Michał Kurowski – Technical leadership WP5
 - Konrad Grochowski - Task 4.2, technical support to other activities

AURORA as part of N7 Space strategy

- N7 Space has been active developer and user of MBSE technologies since company creation.
- We strongly believe in the future MBSE based software development lifecycle that will improve reliability and reduce development costs.
- By our participation in AURORA project, we want to further extend ESA TASTE toolchain.
 - Improvement of interoperability and reuse.
 - Increasing toolchain maturity and optimization for low-resource use-cases.

Thank you for your attention

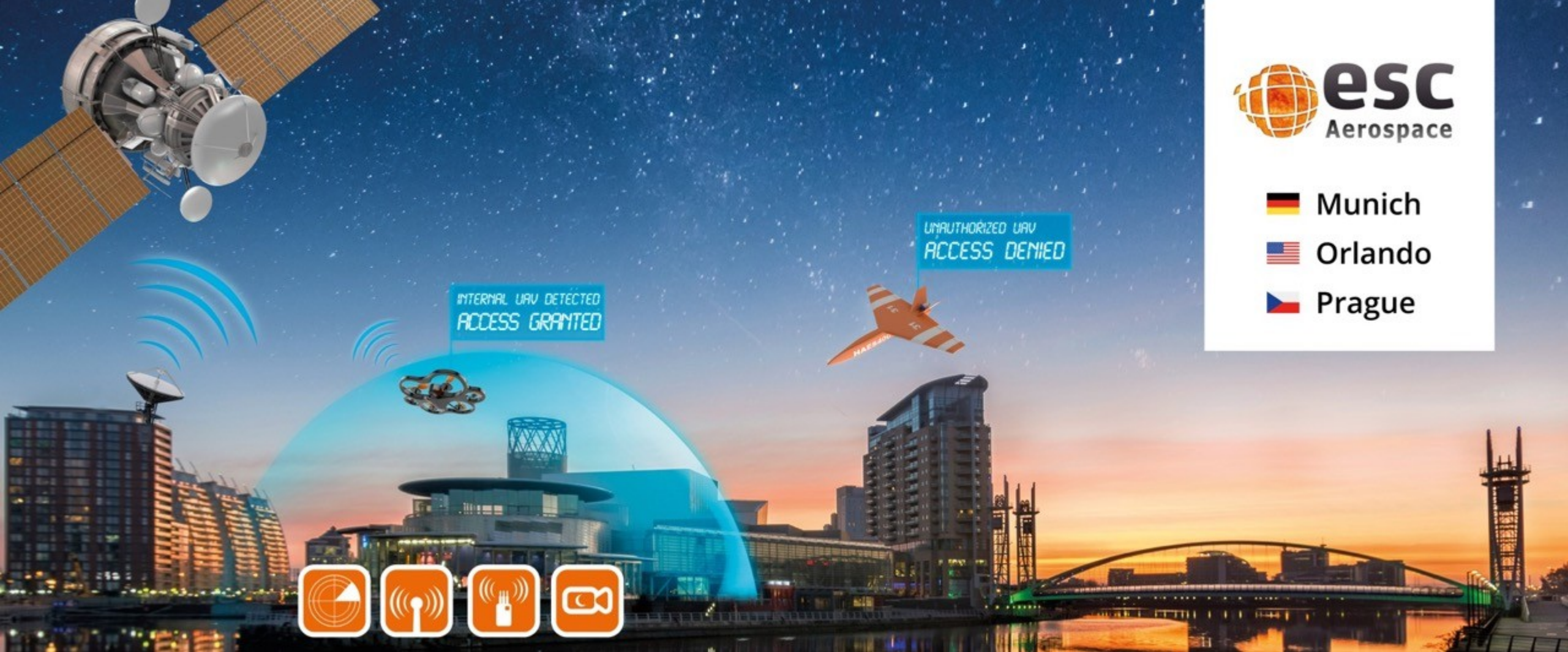


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esc Aerospace is an agile **product neutral systems integrator** with the depth of experience of a larger corporation. Our size, low overhead, extensive solutions partnerships and global reach enable us to meet the highest complexity technological challenges and meet our clients' needs with **best value solutions**.

esc Aerospace

Company presentation

03.11.2020

Petr Suchanek

15 years experience in space!

SOLAR ORBITER STIX FSW 2016	SENTINEL 4 UVN IQT PAT SW 2016	DEMISE CAPSULE FSW/EGSE 2016	DEMISE CAPSULE FSW/EGSE 2016	OSRAp GSTP 2015
MTG DCS & GEOSAR SIM 2015	OSRAc GSTP 2013	SWARM ACC FSW 2013	SWARM ACC EGSE 3 pcs 2011	OBCP-BB GSTP 2011
IRIS ANTARES ATM 2011	CORONAS-PHOTON SphinX DP 2009	CZCUBE CAMERA FSW 2006	MIMOSA ACC&S/C FSW 2003	MTI HXRS FSW 2000

On-board Software (criticality B and C)

- Complete SW for SWARM ACC
- Start-up SW (Bootloader) for STIX (Solar Orbiter)
- Application SW for STIX (Solar Orbiter)
- Bootloader for LEON2 (Instrument on METOP-SG)
- Dual-core bootloader for GR712
- Application SW for Demise Observ. Capsule
- Triton-X (LuxSpace) SW team member
- QKD payload complete SW

EGSE, Testing, Simulations

- IRIS – System Load Emulator & Test Controller
- EGSE for SWARM ACC
- Simulator for DCS & GEOSAR on MTG
- Performance Assessment Tool (PAT) for SEN-4

ISVV

- ISV on ExoMars 2020 for ESA

SW development research

- IMA, PUS-C generator
- On-board SW Reference Architecture for Payloads

Radiation Monitors including research

- Detection systems for Ionizing radiation
- Instrument prototype on Cubesat (530 km)
- Tight cooperation with Czech Tech Uni

UAV avionics

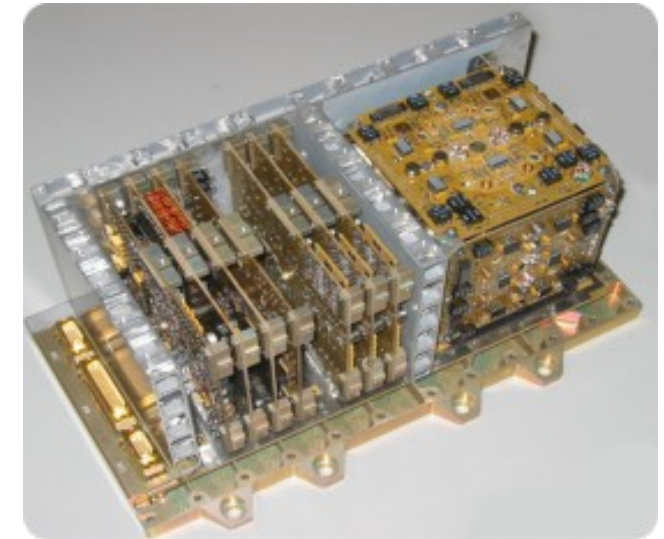
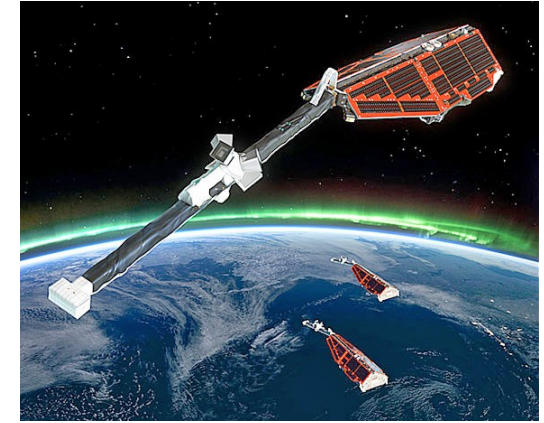
- Avionics for multiple UAVs
- Vertical Take-off
- Virtual fence
- Nano-sized

Counter-UAV

- RF finder

On-board Software (criticality B and C)

- StartUp SW - Mission critical SW (stored in PROM)
- Application SW (stored in FLASH memory)
- Software features
- Science and Housekeeping data acquisition using multiple AD converters, time-stamped better than 1 ms
- ESA Packet Utilization Standard (PUS) TC/TM interface
- SW developed in C, time critical routines in Assembler
- HW target was a significant performance constraint for the SW – x51 family 8-bit microcontroller (Space qualified 80C32E at 12 MHz with only 268 Dhrystones / 0.153 VAX MIPS)
- Priority scheduler for optimal utilization of limited CPU performance
- Launched in Nov 2012 in a triple constellation



On-board Software (criticality B and C)

- StartUp SW - Mission critical SW (stored in PROM)
- Application SW (stored in FLASH memory)
- Software features
- Control of the instrument and interface to the spacecraft
- Science data acquisition and storage in the instrument internal mass memory
- SpaceWire link interface, using the 'CCSDS packet transfer protocol' and ESA Packet Utilization Standard (PUS) TC/TM interface
- Housekeeping data acquisition and reporting
- FDIR (Failure detection, isolation and recovery) with a high level of autonomy
- Developed in C language
- HW target Leon 3FT IP core in FPGA
- Launched in Feb 2020



Project #1

- Platform software for small satellites
- Zynq 7000 family
- Including full-scope EGSE for validation
- Full-rank validation activities

Project #2

- Instrument software for quantum key distribution
- Zynq UltraScale+ MPSoC
- Security certification of the whole mission and project

Project #3

- Platform software for small satellites
- Zynq MPSoC

Project #4

- Still in planning phase
- Complete OBSW for a satellite fleet



Reference projects – Radiation flux measuring device

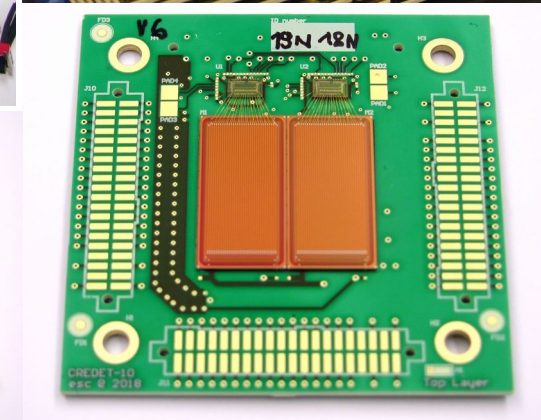
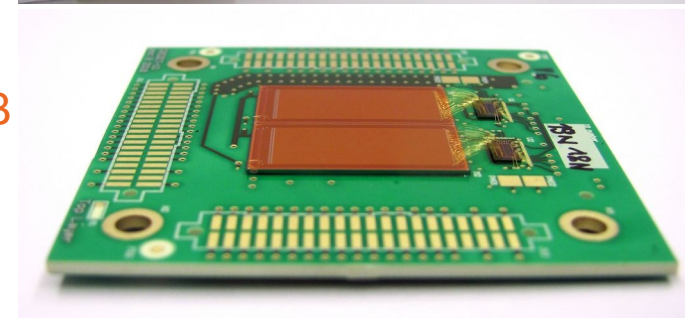
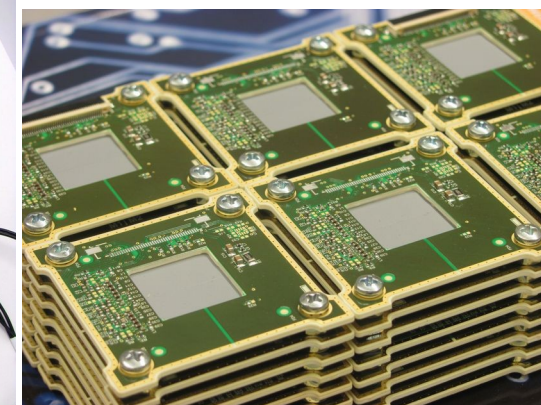
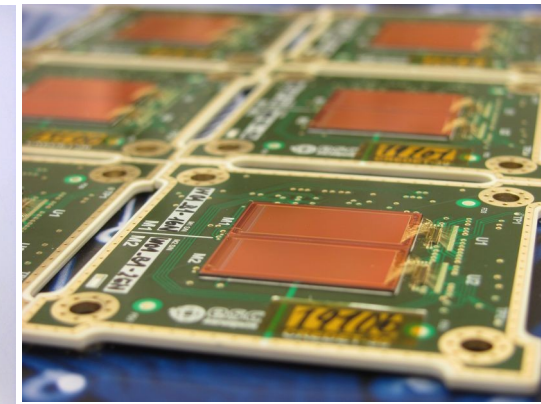
The equipment measures two types of particles – muons and neutrons. It could be operated in a field (more than 8 hours) or everywhere by USB B-Type.

Features

- High performance ARM Cortex M4
- High performance FPGA (Spartan-6 family)
- Precision timing GNSS modul
 - timing up to 10 MHz
 - timing accuracy < 20 ns
 - GNSS chips qualified according to AEC-Q100
- Software for a display of real-time data and data processing in Python

Detectors

- AMS aC18 CMOS process for a production of the ASIC chip
- PCB is made of Rogers material
- ENEPIG surface protection surfaces
- Gold wire bonding technology for connection ASIC with PCB
- SPI communication
- High-voltage power up to -190 VDC
- Separate power distribution +1.8 VDC for analog and digital part



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- Audit by RUAG AB in 2016
- Capability Level CL1 reached

SPICE = Software Process Improvement and Capability dEtermination

ECSS-Q-HB-80-02



AEROSPACE

AURORA - EU project 101004291
Kick-Off Meeting
November 2020



SPACE



DEFENSE



AERONAUTICS



POLITÉCNICA

AURORA

Kick-Off Meeting (KOM) - Agenda

- 09:30 - 09:45 Presentation and Welcome (ALL)
- 09:45 - 10:15 EC-REA presentation and Project development guidelines
- 10:15 - 11:00 Project Objectives, Work Plan and Risks (SENER AE)
- 11:00 - 11:30 *Coffee break*
- 11:30 - 12:30 N7 Space (20') / Esc Aerospace (20') / **UPM (20')**
Project expectations and resources
- 12:30 - 13:00 Project Methodology Overview (SENER AE)
- 13:00 - 14:15 *Lunch break*
- 14:15 - 15:00 Short-Term Planning (SENER AE)
- 15:00 - 15:30 Contractual and Financial Aspects (SENER AE)
- 15:30 - 16:00 Conclusions and AoB (ALL)



UPM- STRAST

Recent Activities: UPM-Sat2

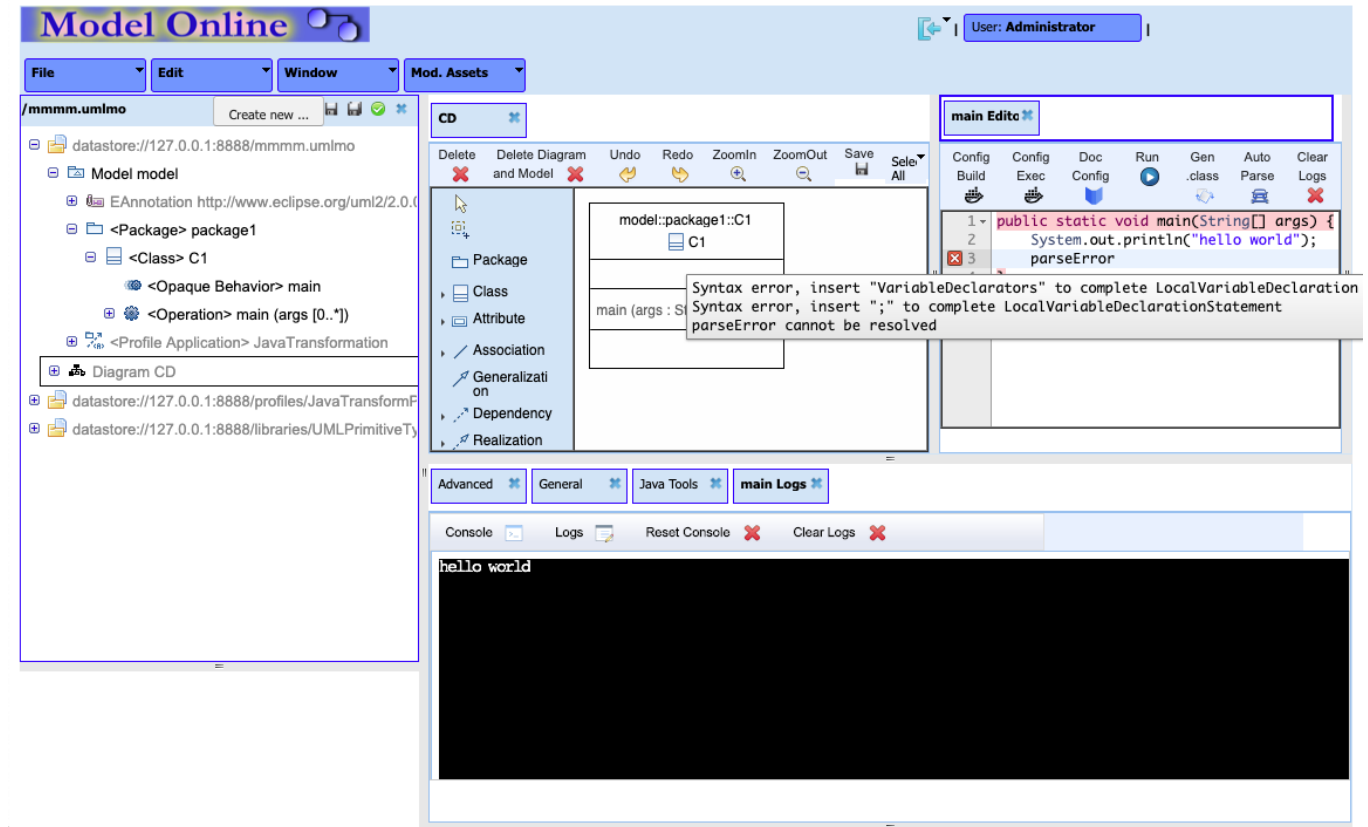
- UPMSat-2 was successfully launched on September 3, 2020
 - <https://web.dit.upm.es/~str/upmsat2/index-en.html>
- UPMSat-2 is a micro-satellite that can be used as an in-orbit technology demonstration platform
- The role of the STRAST group is focused on developing the software system for the flight and ground segments
- The on-board computer (OBC) hardware has been built by TECNOBIT, with the collaboration of the STRAST group



UPM- STRAST

Recent Activities: ERMA-Reusable Modelling Assets

- Cloud based UML Modelling tools:
 - <http://modeeditor.erma-assets.org/ModelEditorBase.html>
- Reusable modelling assets:
 - Java and C++/Qt Code generators, editors, compilations and execution
- Interoperability of Web-based modelling tools and Eclipse modelling frameworks





POLITÉCNICA

UPM- STRAST

AURORA Activities

- **WP2: Technical Coordination and Innovation Management**
 - Innovation Management
- **WP3: AOCS/GNC Code Generator (QGen) Technology Demonstrator**
 - Modelling toolset setup
- **WP4 - Flight SW Autocoding Life-cycle Process Definition**
 - Definition of the Component-In-the-Loop



- **WP5: Component-Based Interfaces, Models**
 - Evaluations of alternatives (cFS, RabbitMQ, AUTOSAR). Requirements.
 - Component Model platform
- **WP6: Demonstration Viability Assessment**
 - TRL Assessment
 - Technology Readiness Levels Assessment Plan
- **WP7: Dissemination, communication and exploitation**

STRAST

THANK YOU

 www.dit.upm.es/~str/