

ACCEPTO: Airbus DS **C**ommand & **C**ontrol **E**GS-CC based **P**roduct line for **T**ests and **O**perations

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AGENDA

1. EGC-CC, the AIRBUS DS baseline for future programs
2. From EGS-CC to ACCEPTO
3. The AIRBUS DS Space Systems ACCEPTO project
4. ACCEPTO - Project Drivers and Objectives
5. Conclusion



EGC-CC, the AIRBUS DS baseline for future programs



EGS-CC, a beneficial opportunity for Airbus DS Space Systems

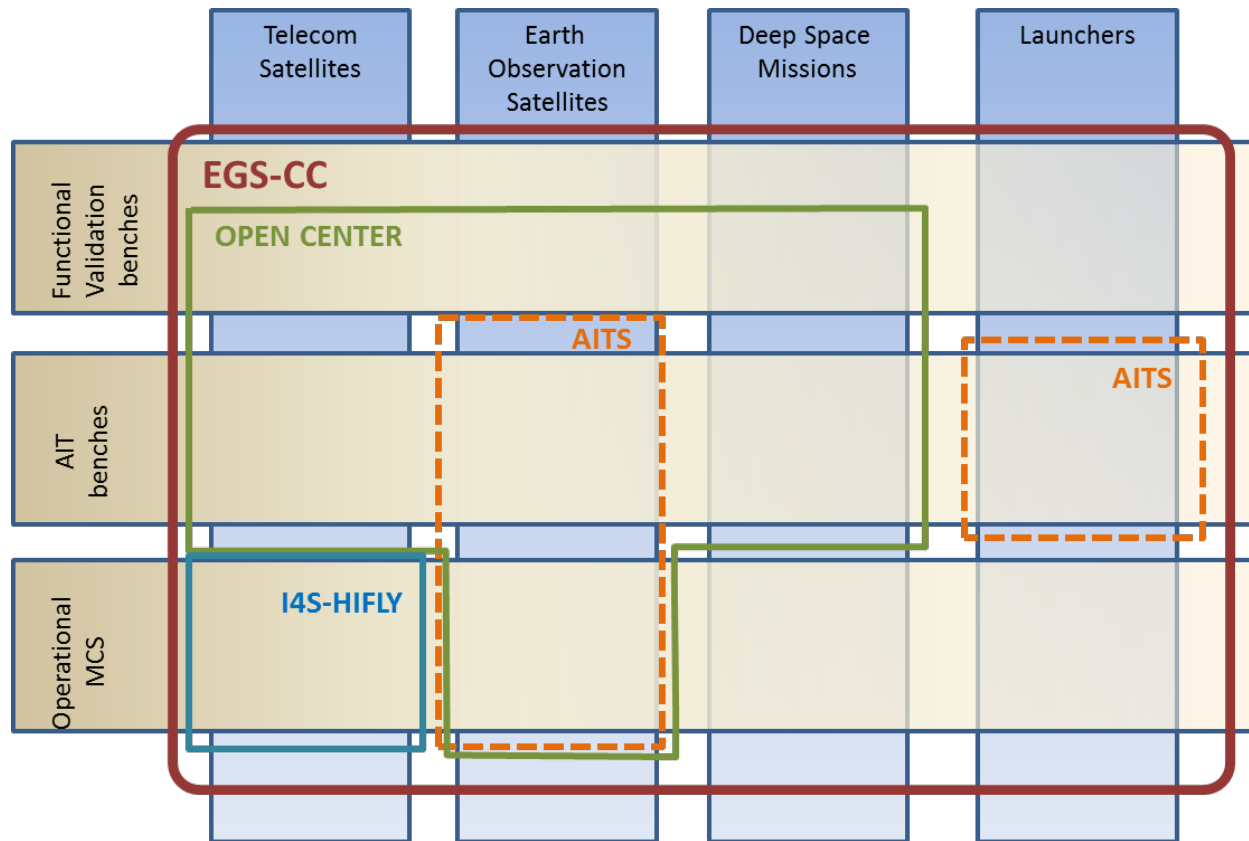


- Airbus DS teams (from launchers, satellites and orbital systems) strongly committed to the EGS-CC project from the very early phases:
 - ➔ Contributed to the definition of a new governance approach between EGS-CC stake holders
 - ➔ Contributed to the Phase A and Phase B technical definition and design of EGS-CC
- Major motivations to support the EGS-CC Initiative:
 - ➔ A unique product to support space systems monitoring and control during pre-launch and post-launch phases for all mission types including launchers, satellites and orbital infrastructure
 - ➔ A seamless transition from spacecrafts/launchers/orbital systems Functional Validation (FV) /Assembly, Integration and Testing (AIT) to mission operations (Ground Control systems)
 - ➔ Improve and ease cooperation with agencies and industrial partners on institutional programs
 - ➔ Fully compatible with Airbus DS Space Systems business cases for both institutional and commercial projects
 - ➔ Enable overall cost reductions by sharing development, sustaining and maintenance of a single infrastructure in an European wide developer community and facilitate cost and risk reduction when implementing space projects
 - ➔ Enable synergies in the validation of software and operational artifacts (spacecraft databases, procedures,...) throughout the complete life-cycle of space projects



EGS-CC, a unique solution for all Airbus DS Space Systems domains

- EGS-CC covers all spacecraft and launcher application domains. It provides with smooth transition from Functional Validation to AIT and Operations
- Legacy solutions and other on going initiatives only partially satisfy the AIRBUS DS Space Systems business cases



- AITs Contributed to the EGS-CC definition and the ACCEPTO project preparation:

- AITS specification is one of the inputs for the EGS-CC URD
- AITS technology assessment and prototyping results provided to the EGS-CC SET
- AITS agile ECSS software process tailoring provided lessons learned and best practices to the EGS-CC/ACCEPTO projects
- AITS team members supported the EGS-CC System Engineering Team (SET) for all phases A and B reviews

EGS-CC, a unique solution for all Airbus DS Space System domains

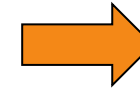
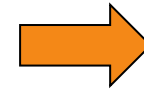
ARIANE 6
The new generation
for launchers



NEOSAT / E3000 Neo,
The new generation
for telecom satellites



EGS-CC
EUROPEAN
GROUND SYSTEMS
COMMON CORE



*Prepare the
future new
generation for
institutional
and
commercial
programs*

- Enable the modernization of legacy EGSE CCS and MCS systems for satellites, launchers and orbital systems
- Opportunity for a single test product line for all AIRBUS-DS Space Systems and facilities (SVF, EFM, payload and instruments benches, PFM)
- Opportunity for a unique solution from subsystems qualification to pre-launch operations on launchers
- Ensure required lifetime for long duration programs (E3000Neo, Metop-SG, A6)
- Shared maintenance costs across the EGS-CC user community



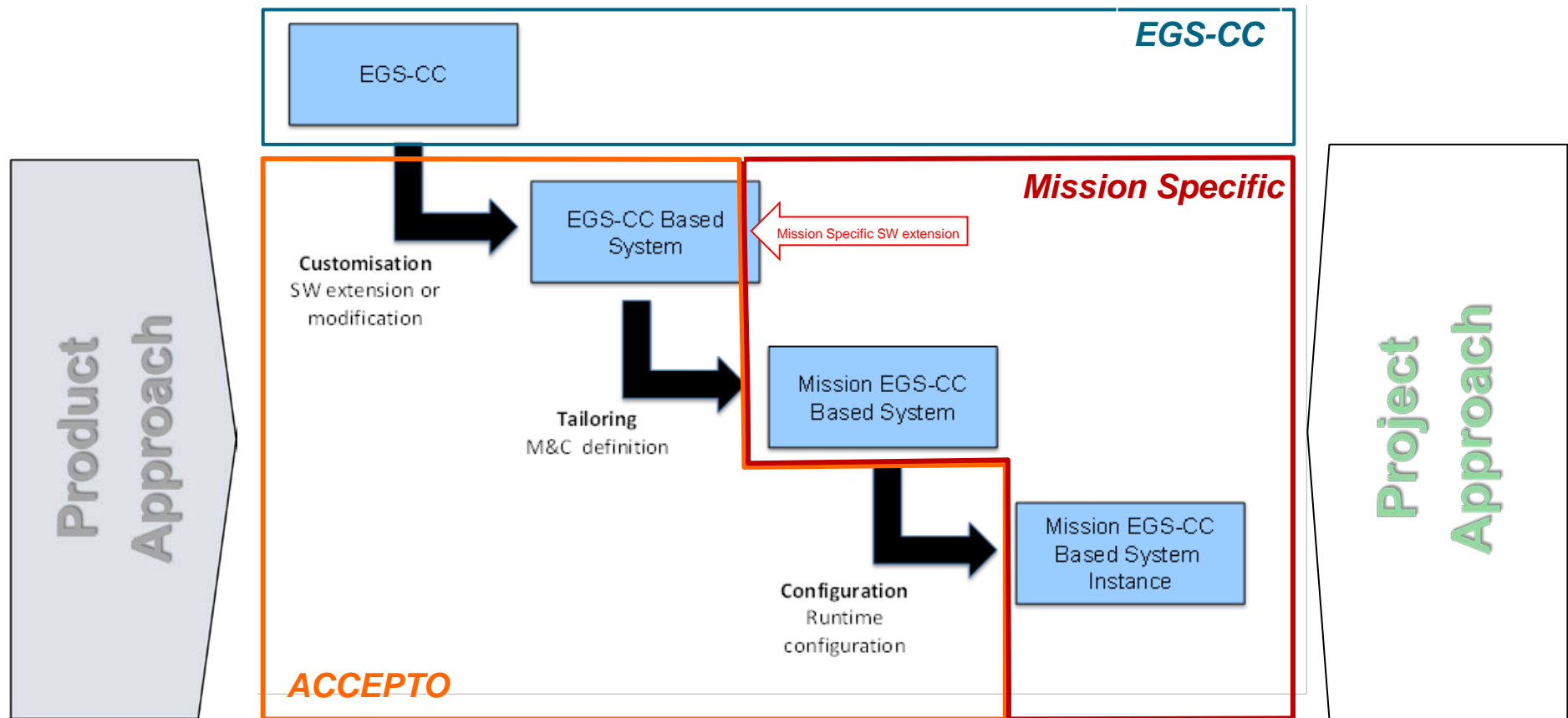
From EGS-CC to ACCEPTO



From EGS-CC to ACCEPTO,

the Airbus DS Space Systems extended core product

- EGS-CC is a baseline product which requires a customization process to achieve a ready to use facility. ACCEPTO aims at covering the Airbus DS Space Systems non recurring activities of this customization process



The ACCEPTO contribution to The EGS-CC Customisation Process

ACCEPTO Support to the “EGS-CC Customization Process”

- **SW CUSTOMIZATION** mainly consists in:
 - ➔ Deploying the ACCEPTO Collaborative tools and SDE
 - ➔ Developing the generic EGS-CC adaptors to existing building blocks and facilities (e.g. SimTG, SCOEs, BBEs...)
 - ➔ Non EGS-CC Existing building blocks adaptations and integration to EGS-CC service layer (e.g. RangeDB model, Archive & Analysis, Automation...)
- **TAILORING** is mainly:
 - ➔ Exchange format of Data between Range DB and EGS-CC.
 - ➔ Configuration management of user artifacts (Procedures, User displays,...)
 - ➔ Checking tools
- **CONFIGURATION:**
 - ➔ ACCEPTO Reference architecture for generic Business Applications
 - ➔ Delivery packages generation methodology and deployment tools for any facility/mission

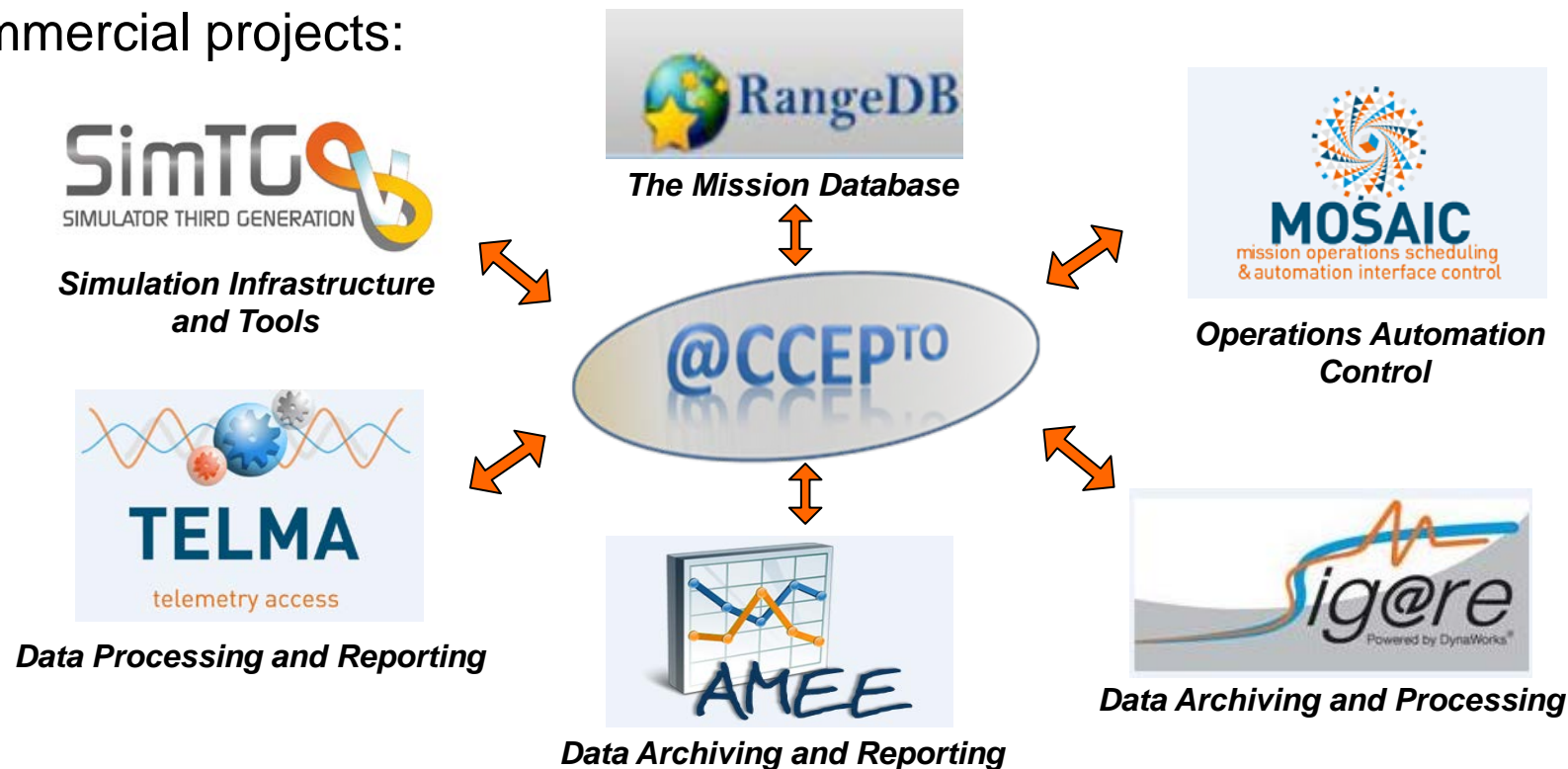


The AIRBUS DS Space Systems ACCEPTO project



AIRBUS DS Space Systems efficiency in operations

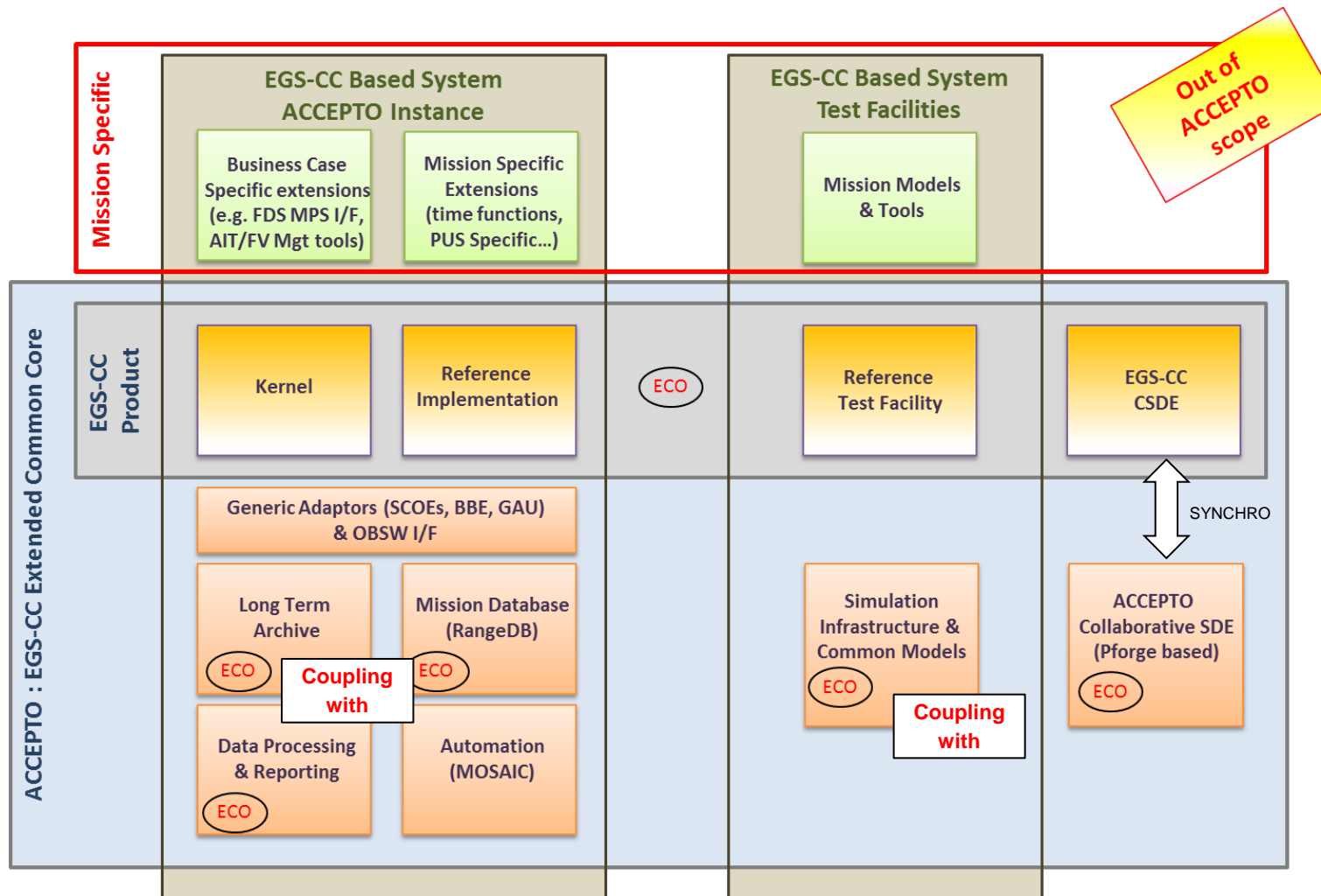
- Airbus DS Space Systems has already started harmonization and collaboration on a number of additional common building blocks which can be shared between all the possible EGS-CC based business applications needed to support its institutional and commercial projects:



- ACCEPTO shall contribute to this harmonization process around EGS-CC and provide with an integrated, generic pre integrated solution for any business applications for the launchers, satellites and orbital systems domains



ACCEPTO from a functional point of view



- Common building blocks sharing already envisaged between AIRBUS DS Space Systems applications in the frame of the Space Systems internal operations efficiency program (ECO).
- ACCEPTO aims at adapting and integrating with EGS-CC existing common buildings blocks already harmonized in AIRBUS DS or foreseen to be shared.
- ACCEPTO CSDE shall allow convergence between the EGS-CC CSDE and the Airbus DS common SDE-NG. It shall be synchronized with the EGS-CC ESA CSDE.

ACCEPTO - Project Drivers and Objectives



ACCEPTO Project - Major Drivers and Success Criteria

- Mastering and Buy In everywhere in Airbus DS Space Systems
 - Involvement of appropriate key people in AIRBUS DS, representative of all needs (Satellites and Launchers) and countries, and having the relevant skills and know-how.
 - Promote co-working and a sustainable ACCEPTO Development/Integrator community
 - Early involvement of the user community (reference deployments, users' interfaces)

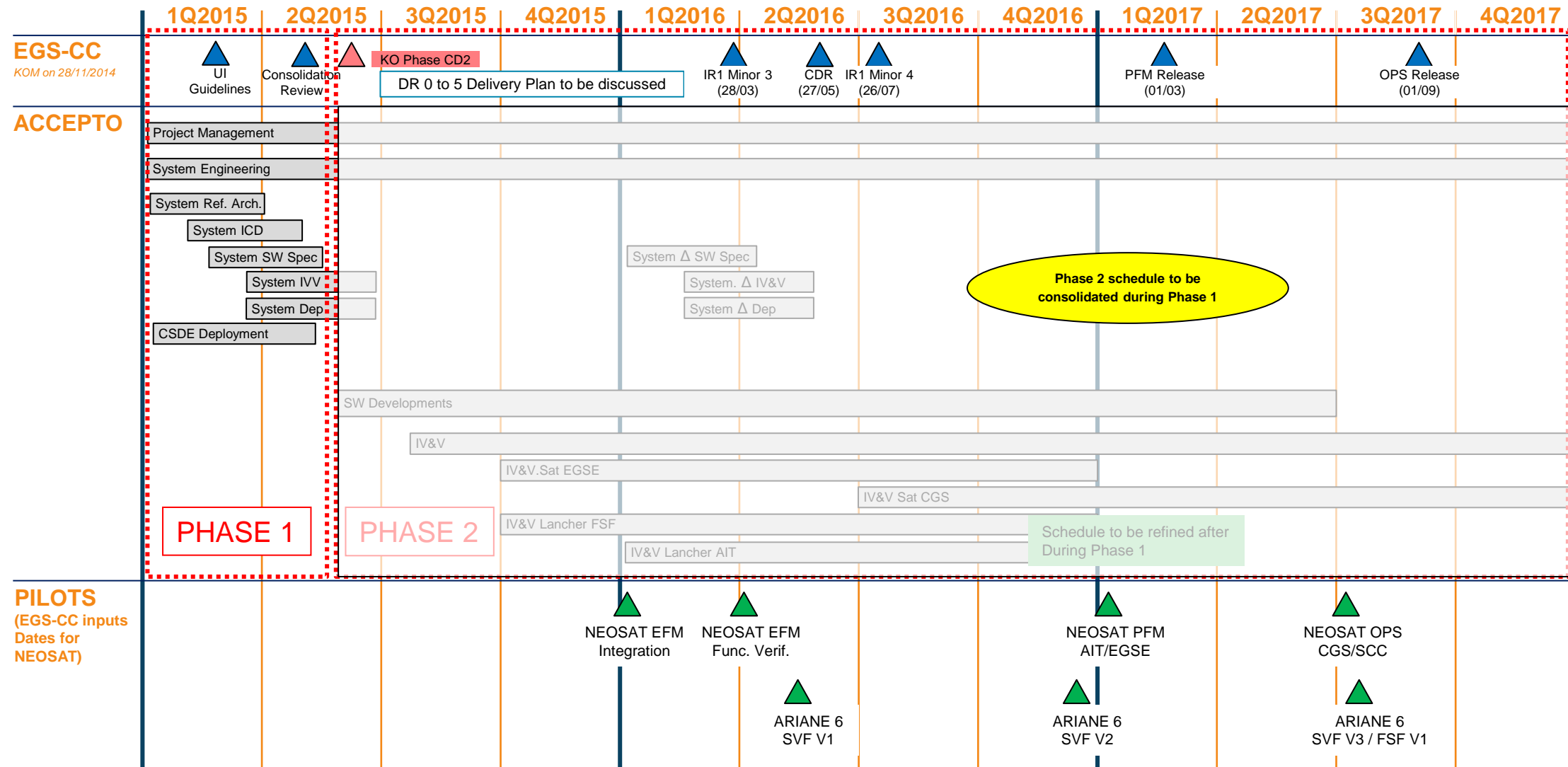
- Successful deployment on pilot projects (NEOSAT, A6)
 - Optimize the EGS-CC iterative development approach vs. pilot projects milestones and ACCEPTO development needs,
 - Efficient and coordinated work organization with EGS-CC Consortium (Co engineering, support line usage...)
 - Strong involvement of the end users in ACCEPTO validation activities contributing to EGS-CC validation
 - Efficient users support to successfully achieve early activities (NEOSAT EFM, A6 FSF...)

- ACCEPTO recognized as the Airbus-DS Space Systems reference solution
 - Global view shall drive the ACCEPTO business applications analysis
 - Efficient and sustainable product approach
 - Company wide ACCEPTO culture



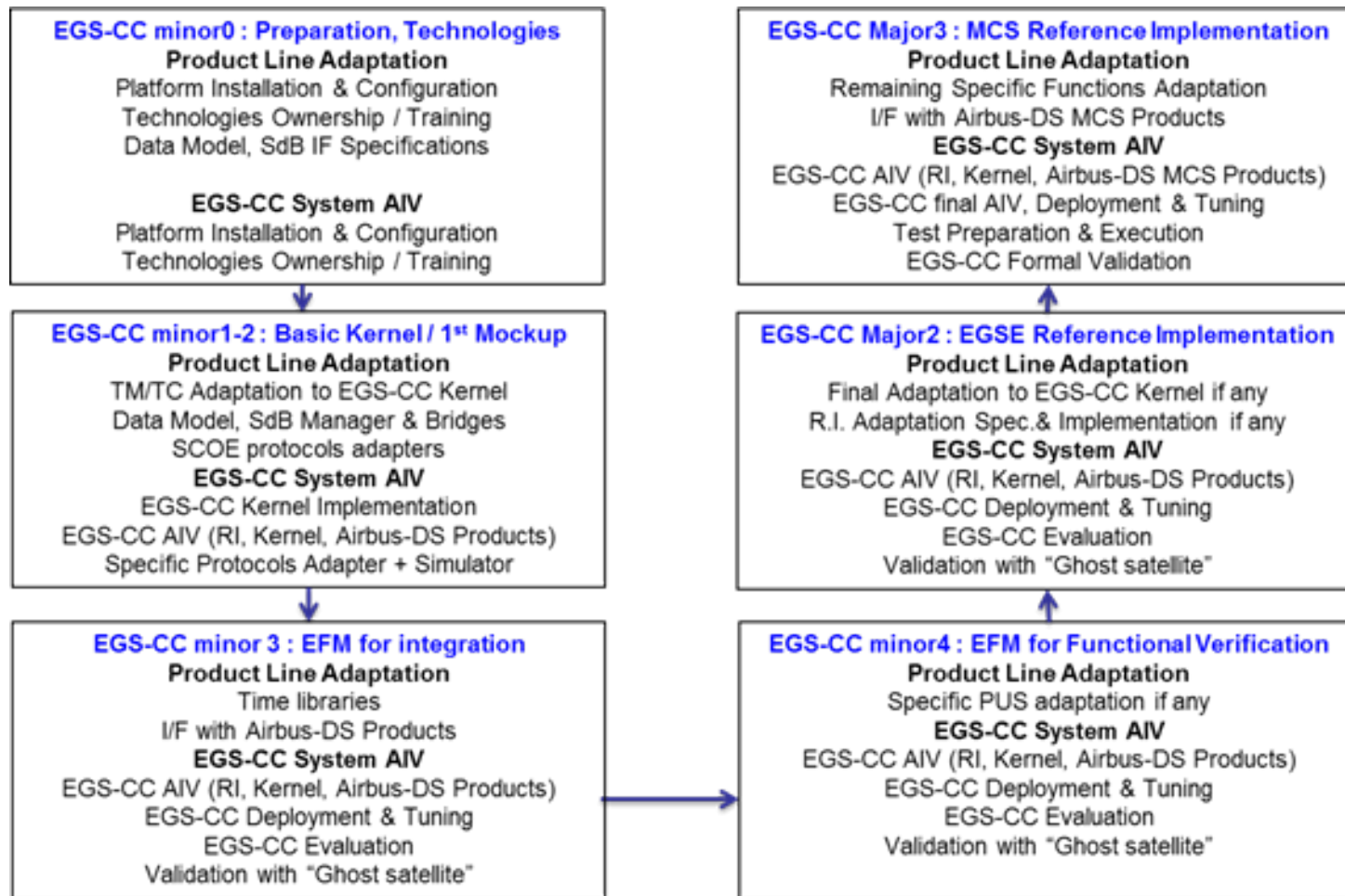
ACCEPTO – High Level Project Schedule

DR: Development Release
IR: Integration Release



NEOSAT project deployment - Optimized use of EGS-CC deliveries

- The challenging schedule of the NEOSAT pilot project imposes to take full benefit of the EGS-CC iterative approach



EGS-CC integration mapping to NEOSAT key milestones

CONCLUSION

- Very rare conjunction of a new launcher program and the design of a next generation telecom spacecraft platform:
 - Provides Airbus DS Space Systems with the opportunity for an industrial approach instead of a project oriented strategy.
- Challenging development schedule to satisfy the envisaged pilot projects:
 - Imposes to take full benefit of the EGS-CC Phase CD iterative approach and to align the ACCEPTO development strategy.
- Success of ACCEPTO is also key for future institutional & commercial activities:
 - Coming ESA new programs
 - Earth Observation turnkey export programs led by Airbus DS Space Systems
 - Smooth transition from tests to operations for the Telecom market



Thanks for your attention!
Any questions?

