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ADHA-3 EXPANSION:

UNLOCKING THE FULL POTENTIAL

EUROPEAN DATA HANDLING AND DATA PROCESSING CONFERENCE FOR SPACE
13-17.10.2025, ELCHE, SPAIN

AGENDA



- 1** ADHA-3 STRATEGIC RELEVANCE & GOALS
- 2** SPECIFIC CONTRIBUTIONS FROM OHB
- 3** OHB ADHA DEVELOPMENT & ADOPTION PLANS
- 4** OUTLOOK INTO ADHA ROADMAP: KEY OPPORTUNITIES & CHALLENGES
- 5** CONCLUSIONS

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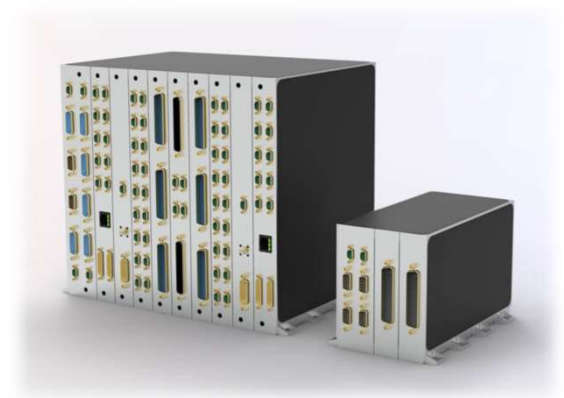
STRATEGIC RELEVANCE & MOTIVATIONS

ADHA-3 EXPANSION: UNLOCKING THE FULL POTENTIAL

STRATEGIC RELEVANCE & MOTIVATIONS

ADHA considered an enabler to:

- Increase reusability and minimize NRE
- Enhance competitiveness & facilitate dual-source procurement
- Upgrade & expand functions without penalizing TRL
- Foster collaboration and facilitate contributions of functionalities/boards by SMEs



ADHA-3 EXPANSION: UNLOCKING THE FULL POTENTIAL

STRATEGIC RELEVANCE & MOTIVATIONS



To unlock the full potential of ADHA, it is essential to address following areas of standardization & industrialization:

- ADHA System SW architecture and module interactions
- Definition of Common ADHA EGSE & Test approach
- Perimeter Expansion beyond Classical Platform Data handling
- Competitiveness of ADHA products & Industrialization

ADHA-3 EXPANSION: UNLOCKING THE FULL POTENTIAL

STRATEGIC RELEVANCE & MOTIVATIONS



To unlock the full potential of ADHA:

- ADHA System SW architecture and module interactions



Task-4: Data/SW Interfaces
Task-5: Electronic Data Sheet (EDS) Format

- Definition of Common ADHA EGSE & Test approach



Task-10: ADHA Verification and Validation approach
Task-7: EGSE Architecture

- Perimeter Expansion beyond Classical Platform Data handling to:

New functions & modules:

- TTC Transponders and SDRs
- GNSS, Security...
- Payload Co-Processor & ICUs
- RTU modules...



Task-2: Payload Use Case & Modules/Unit Specifications
Task-3: Additional Modules Specifications

New applications in Commercial & Class Gamma/Delta Missions



Task-1: ADHA-3U Specifications

- Competitiveness of ADHA products & Industrialization



Task-6: Thermal and Mechanical studies and prototyping
Task-8: Missions E2E use-case analysis
Task-9: Industrial Roadmaps

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SPECIFIC CONTRIBUTIONS FROM OHV TO ADHA-3

ADHA-3 EXPANSION: UNLOCKING THE FULL POTENTIAL

OHB SPECIFIC CONTRIBUTIONS TO ADHA-3 ACTIVITIES

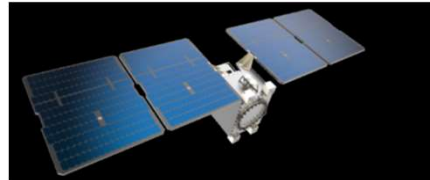


Task-1: ADHA-3U Specifications:

- Establish detailed electrical, mechanical, and thermal specifications for 3U-ADHA units and modules
 - Focus on Class Gamma (equivalent to current Class III) missions
 - Tailoring of PA/QA requirements & **ENV Specifications**
- System requirements and architectures from following OHB small-sat (Class III & IV) Reference Platforms will be analyzed:
 - InnoSat & Triton Platforms

INNOSAT

- GMS-T, Arctic Weather Satellite
- Up to 1kW



TRITON microsatellite Platform family covering:

- 3 main classes: Light (40kg), Medium (75kg) and Heavy (150-250kg).
- Designed around the modular and configurable Integrated Avionics Unit (IAU)



Task-2: payload specifications

- EO payload applications, including the study of Optical and RF payload data handling for current and future EO missions
- High-Power/Payload Power Module Specifications**

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OHB SPECIFIC CONTRIBUTIONS TO ADHA-3 ACTIVITIES



Task-3: Additional module specifications:

- ADHA TTC/Payload Transponder (SDR) Module Specs
- Co-Processing Module (CPM) Specs
 - **OHB currently developing ADHA HIPERPRO Co-Processor**

High-Performance Reconfigurable Processing in Space: Utilizing the AMD Versal AI Core in an ADHA Co-Processing Module

14 Oct 2025, 14:20
20m

Presentation

On-Board data proc...

ADHA (Equipment) #1

Speaker

Julian Schneider (OHB System AG)

Task-8: End-to-End missions Use Case Analysis:

End-to-end use-case analysis of representative EO mission(s) to study the implications of implementing the complete ADHA-based architecture

Task-4: Data handling and Software Interfaces:

- Enabling provision, procurement & easy integration not only on HW, but also drivers & software: Interchangeable SW components
- 2 layers of software envisaged by OHB:
 - Communication Middleware: Standardized interaction-pattern for communication
 - Services: Time provisioning; DataStorage provisioning; Ground communication; Logging...

Task-7: ADHA EGSE Architecture:

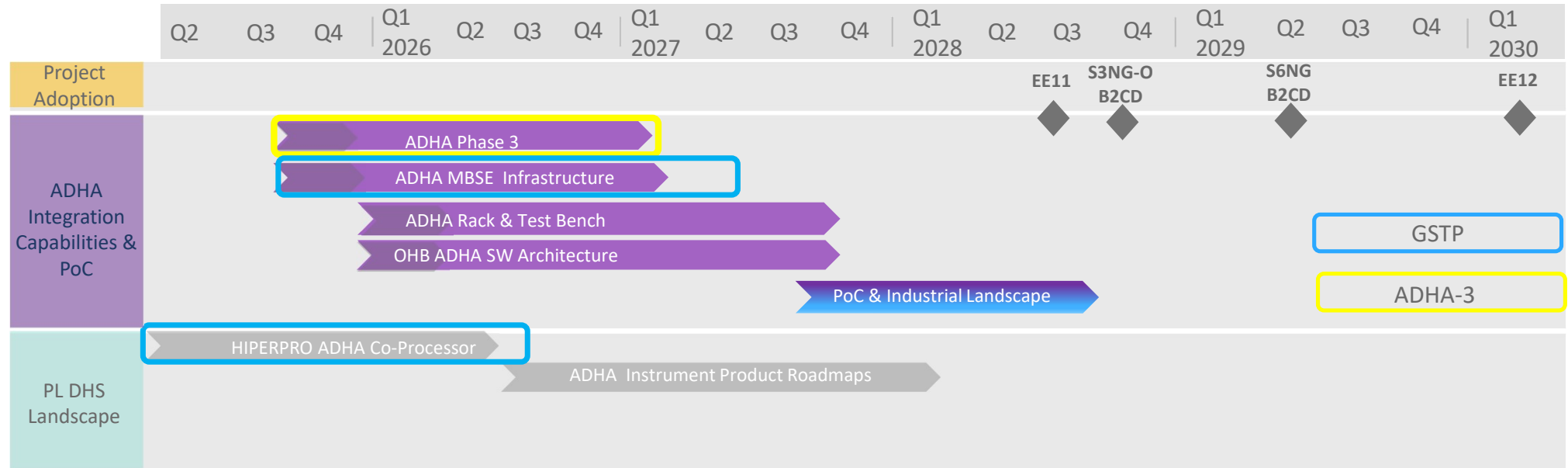
- EGSE Use Case definition
- ADHA EGSE Requirements Specification

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OHV ADHA DEVELOPMENT & ADOPTION PLANS

ADHA-3 EXPANSION: UNLOCKING THE FULL POTENTIAL

OHB ADHA DEVELOPMENT & ADOPTION PLANS

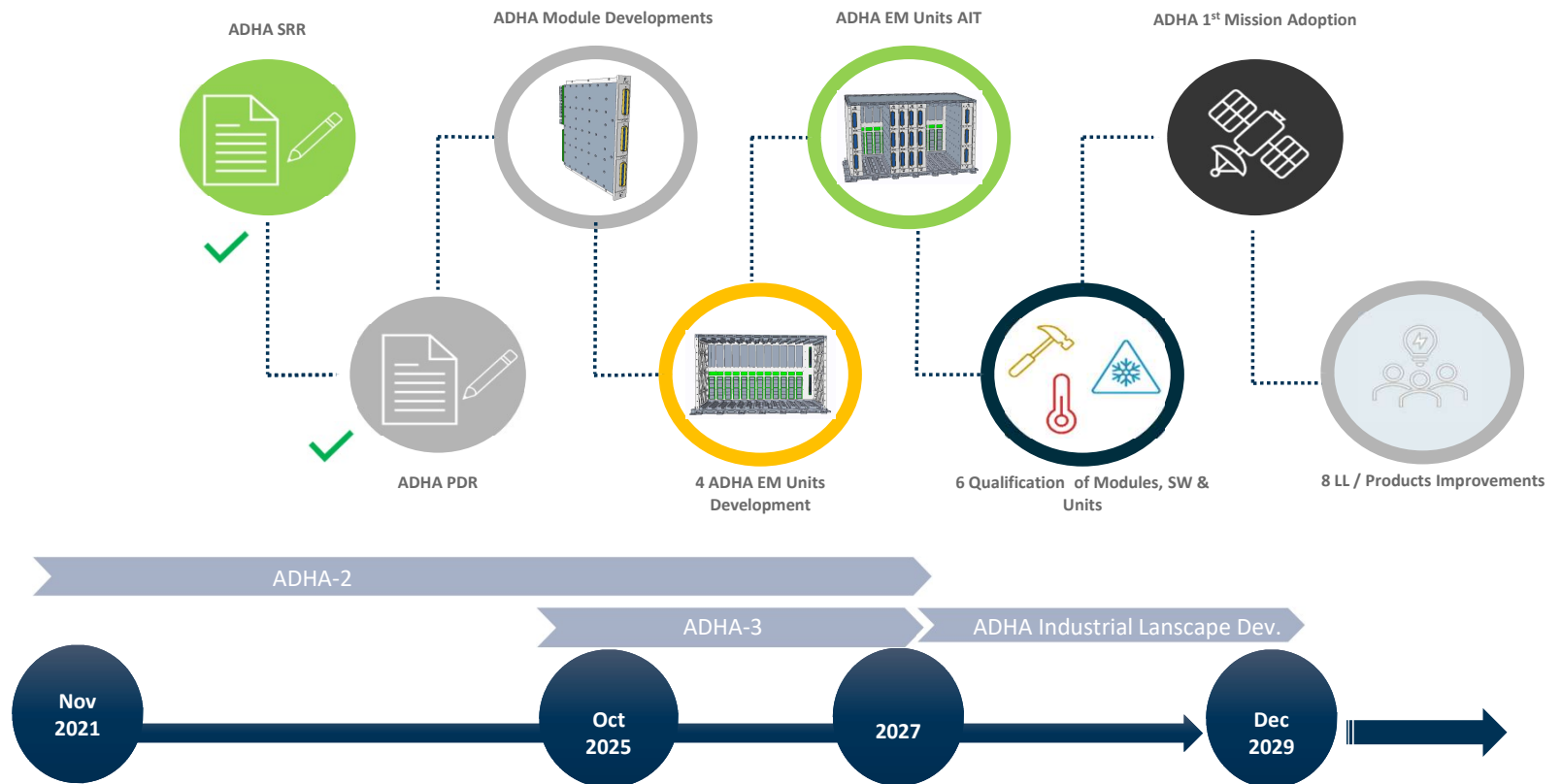


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OUTLOOK INTO ADHA ROADMAP: KEY OPPORTUNITIES & CHALLENGES

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OUTLOOK INTO ADHA ROADMAP: KEY OPPORTUNITIES & CHALLENGES



ADHA Industrial Landscape development phase, focused in the qualification of ADHA products and development of a competitive ADHA Landscape considered Key for the success of ADHA.

This phase needs to encompass several efforts to secure such a competitive industrial landscape:

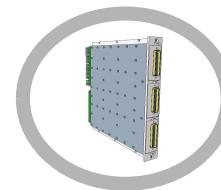
- Development of multiple sources for each ADHA module types.
- Development of ADHA integrator capabilities (HW & SW).
- Qualification of ADHA Units (HW & SW).

A Competitive ADHA Ecosystem is necessary to realistically consider an ADHA based broad RFP campaign in the frame of e.g. SxNG/EE11.

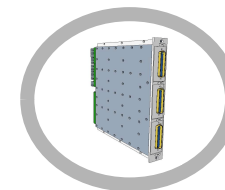
Qualification of Modules & Units
Development of ADHA Landscape



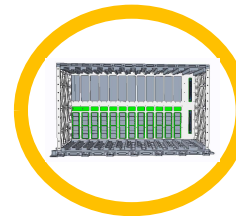
ADHA Modules



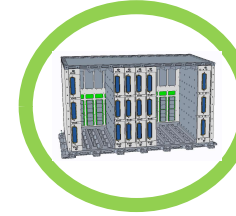
ADHA EQM Development & Qualification



ADHA Integrator Capabilities & Testbenches



ADHA Unit Qualifications



ADHA Industrial Landscape Dev.

2026

2029

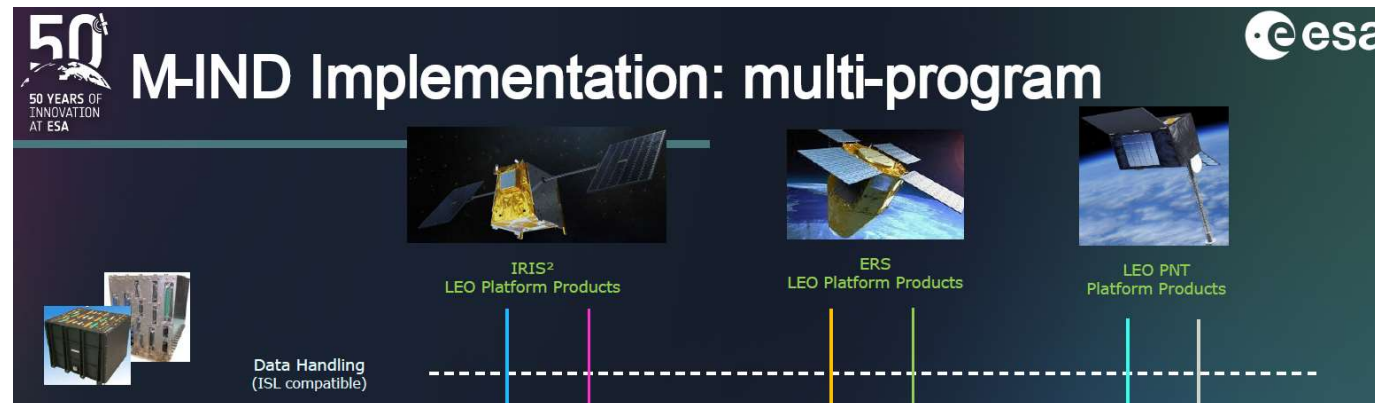
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OUTLOOK INTO ADHA ROADMAP: KEY OPPORTUNITIES & CHALLENGES



Besides ADHA Ecosystem developments, Efforts should be initiated to prepare for project adoption, e.g.

- Connect efforts in ADHA-3 (Task-8: Missions E2E use-case analysis) with planned trades and studies in the frame of SxNG & EE AB1 Studies.
- Class Alpha/Beta missions: e.g. S6NG; S3NG-O, EE-11 & 12 OAB1 Studies: for PF & **Payload elements**.
- **Class Gamma/Delta & Constellations: Potential adoption in LEO-PNT; ERS... needs to be orchestrated with M-IND initiative and related application directorates (NAV, EO, TELECOM...)**



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CONCLUSIONS

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CONCLUSIONS

- ADHA has reached a high maturity and consolidation of main DHS building blocks
- The development of a competitive ADHA Industrial landscape is underway
- ADHA-3 will broaden ADHA's perimeter to exploit its full potential
- ADHA-3 will address E2E System use case optimization, SW architecture & EGSE definitions
- ADHA-3 outcomes need to be demonstrated in a PoC Implementation.
- ADHA community and Project directorates need to get prepared for the first adoption of ADHA Products



THANK YOU!

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