

*Clean Sky 2*

# **10<sup>th</sup> EASN *Virtual* International Conference**

## **REG IADP Overview and link to AIR ITD**

Virtual Event, 2<sup>nd</sup> – 4<sup>th</sup> September 2020

Vittorio Ascione (LEONARDO)

[www.cleansky.eu](http://www.cleansky.eu)



# Outline

- High Level Plan for CS2
- The REG Team
- Work breakdown Structure
- Interfaces with other SPDs
- Major Demonstrators
- Automation from AIR ITD to REG IADP
- Acknowledgement

# REG IADP – High Level Plan for CS2

To bring the integration of technologies for regional aircraft to a further level of complexity and maturity than achieved in GRA. **The global strategy is to integrate and validate, at a/c level, advanced technologies for regional aircraft so as to drastically de-risk their integration on future products:**

➤ **LDO Regional (2025+):.....**



➤ **LDO Regional (2035+):.....**



Hybrid-Electric 40-50 Pax (\*)



TP130 Pax (\*\*)

➤ **AIRBUS DS Multi-mission (2025+):.....**



## Notes:

(\*) H-E Regional A/C activities started in 2019

(\*\*) TP 130 Pax technical activities Loop 3 discontinued from 2019. TE support not discontinued

# REG IADP TEAM

- **LEADERS:**



Fraunhofer Gesellschaft



- **CORE PARTNERS:**

**AG2**

CIRA, ONERA, **IMAST**,  
HAI, SICAMB, SISW,  
**FOXBIT**, AEROSOFT,  
ITALSYSTEM, UMBRA,  
NOVOTECH, TECNAM,  
POLIMI, POLITO, UNINA,  
UNIFI



UMBRA, CERTIA,  
INSA, MAGNAGHI  
AER., POLITO, VIOLA



**ACITURRI**, MTC,  
CAETANO AER.

**IRON**

CIRA, CENAERO  
NLR, ONERA, GRC,  
DOWTY GE, AVIO GE,  
TUD, POLITO, UNINA

- **Service Support:**



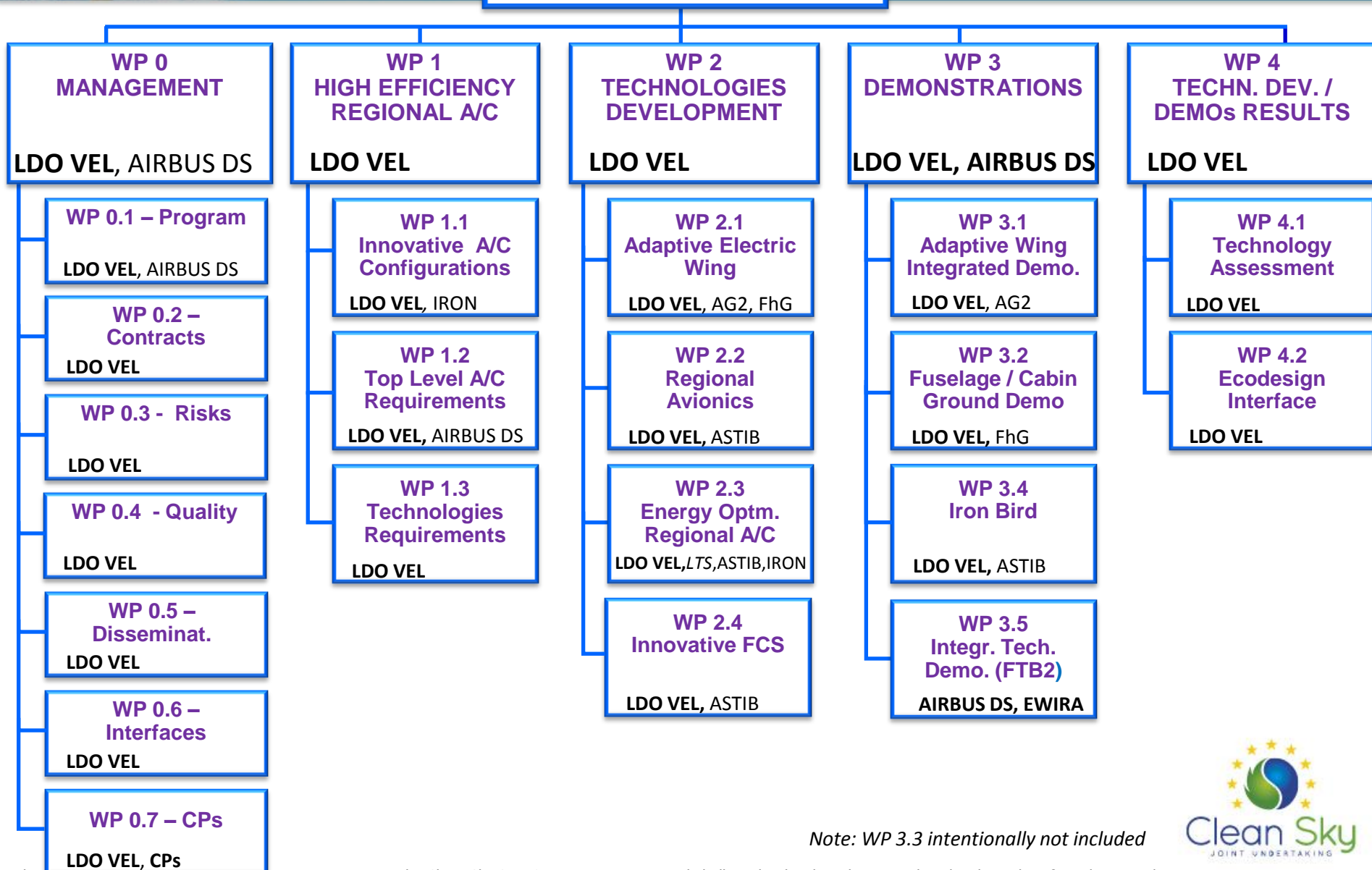
*IMAST and FOXBIT terminated their participation*



## CSJU Beneficiaries in the REG IADP: 114 Parties

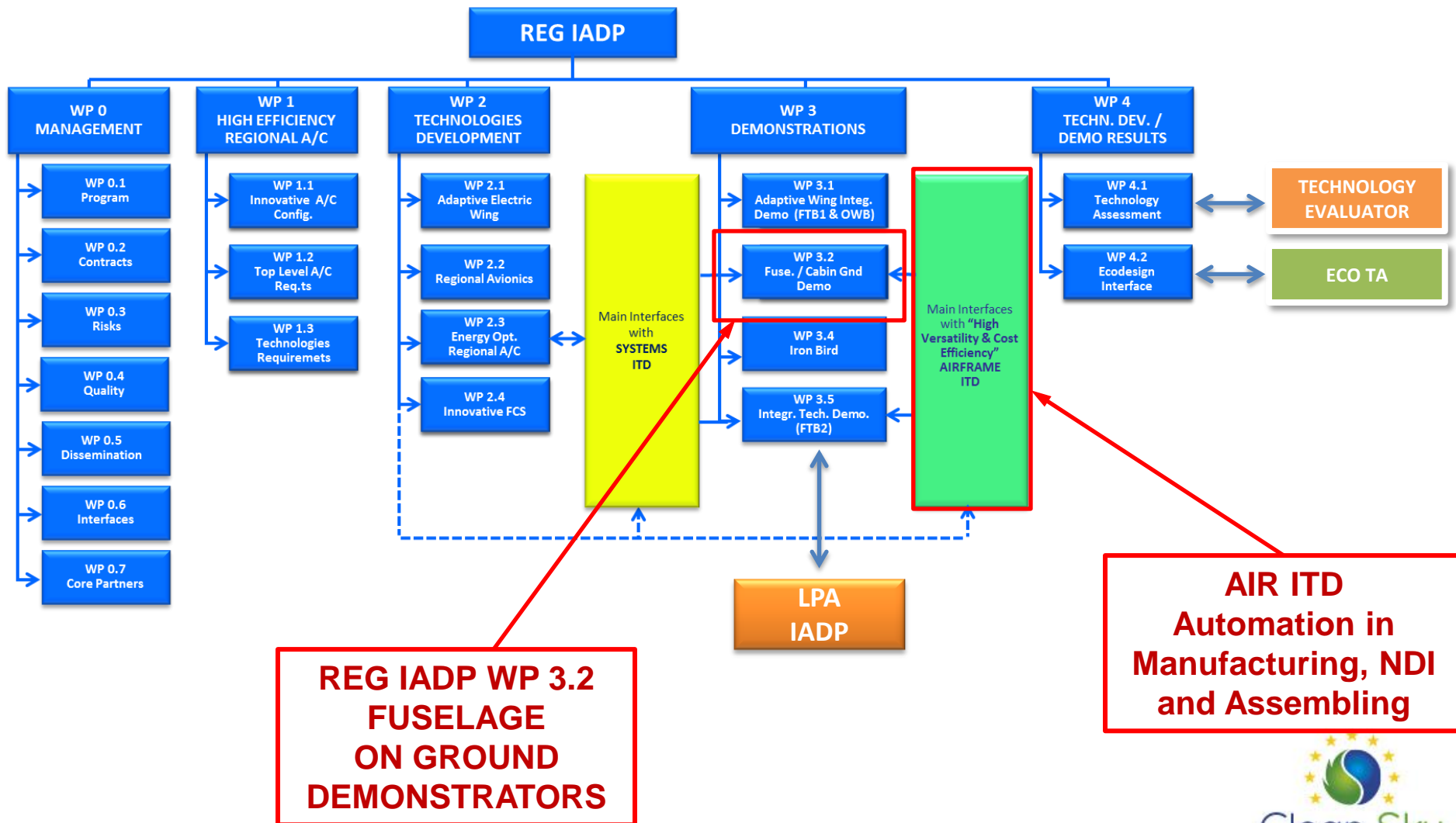






Note: WP 3.3 intentionally not included

# CS2 REG IADP Interfaces with other SPDs: the enhanced operational “Regional” Team



# REG IADP Major Demonstrators

## D1 – Adaptive Wing Integrated Demonstrator (Leader: Leonardo Aircraft)

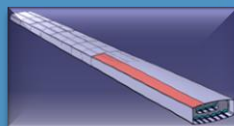
### D1.1 – FLYING TEST BED#1 (FTB#1)

Demonstration of LC&A and Aerodynamics enhancements features through new generation wing devices and advanced FC Actuation systems



### D1.2 – OWB Ground Demonstrator

Structural static and fatigue tests of innovative low cost and low weight structural technologies Integrated at full scale level



## D2 – Flying Test Bed #2 (FTB#2) (Leader: Airbus DS)

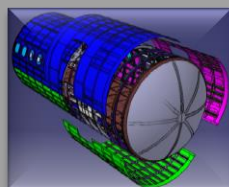
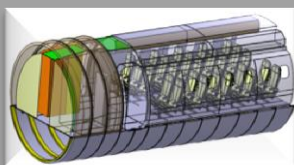
### Integrated Technologies Demonstrator

Flight Demonstration of a high efficient and low noise Wing with Integrated Structural and related Systems solutions



## D3 - Fuselage / Cabin Ground Demonstrator (Leader: Leonardo Aircraft)

Full scale composite fuselage and passenger cabin with innovative structural and architectural solutions aimed to weight and cost reduction , methodologies and technologies for innovative NDI, repair and maintenance, human centered approach, comfort



## D4 - IRON BIRD Ground Demonstrator (Leader: Leonardo Aircraft )

Integration and validation of FCS Load Control/Load Alleviation (LC/LA), Electrical Landing Gear, Electrical Power Distribution System, inter-system integration activity; support the achievement of the permit-to-fly for FTB#1)

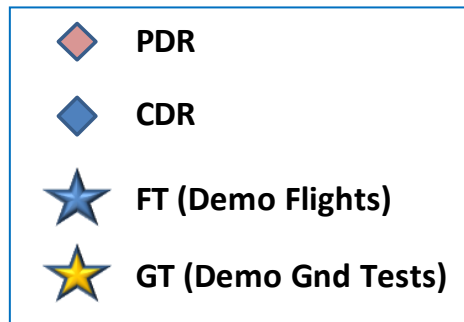




# REG IADP Full Scale Demonstrators

## Master Plan – Major Milestones and TRL evolution

DEMONSTRATOR	2016	2017	2018	2019	2020	2021	2022	2023
D1.1 - Flying Test Bed#1 (FTB1)								
D1.2 - Outer Wing Box (OWB)								
D2 - Flying Test Bed#2 (FTB2)								
D3.1 - Fuselage Structure								
D3.2 -Pax Cabin								
D4 - Iron Bird								



# Automation from AIR ITD to REG IADP

## SMART-LAYUP

CfP03 - AIR-02-26 (AIR ITD)

Development of innovative **automated fiber placement** machine for composite fuselage manufacturing with high performance hybrid materials.

Partnership: EURECAT, M TORRES

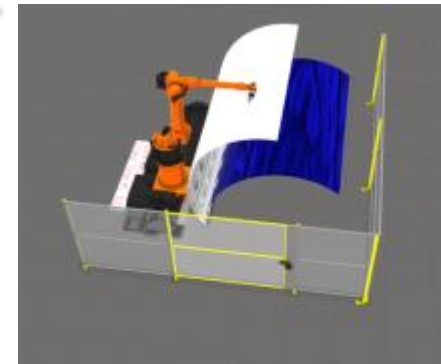


## ACCURATE

CfP04 - AIR-02-36 (AIR ITD)

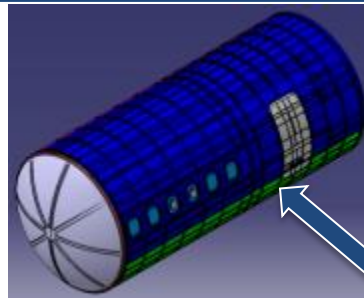
Development of prototype system based on **Laser UT** technology for high speed contactless no-couplant **inspection** of hybrid and thick composite structures

Partnership: TWI, INNOLAS LASER, KUKA Systems, RECENDT



## REG IADP

Fuselage Demonstrator



## LABOR

CfP06 - AIR-02-46 (AIR ITD)

Development and validation of a self-adaptive system for **automated assembly of major composite aerostructures**

Partnership: AEA srl – LOCCIONI, UNISA, UNICAMPANIA



# Acknowledgement

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*Thank you for your attention*