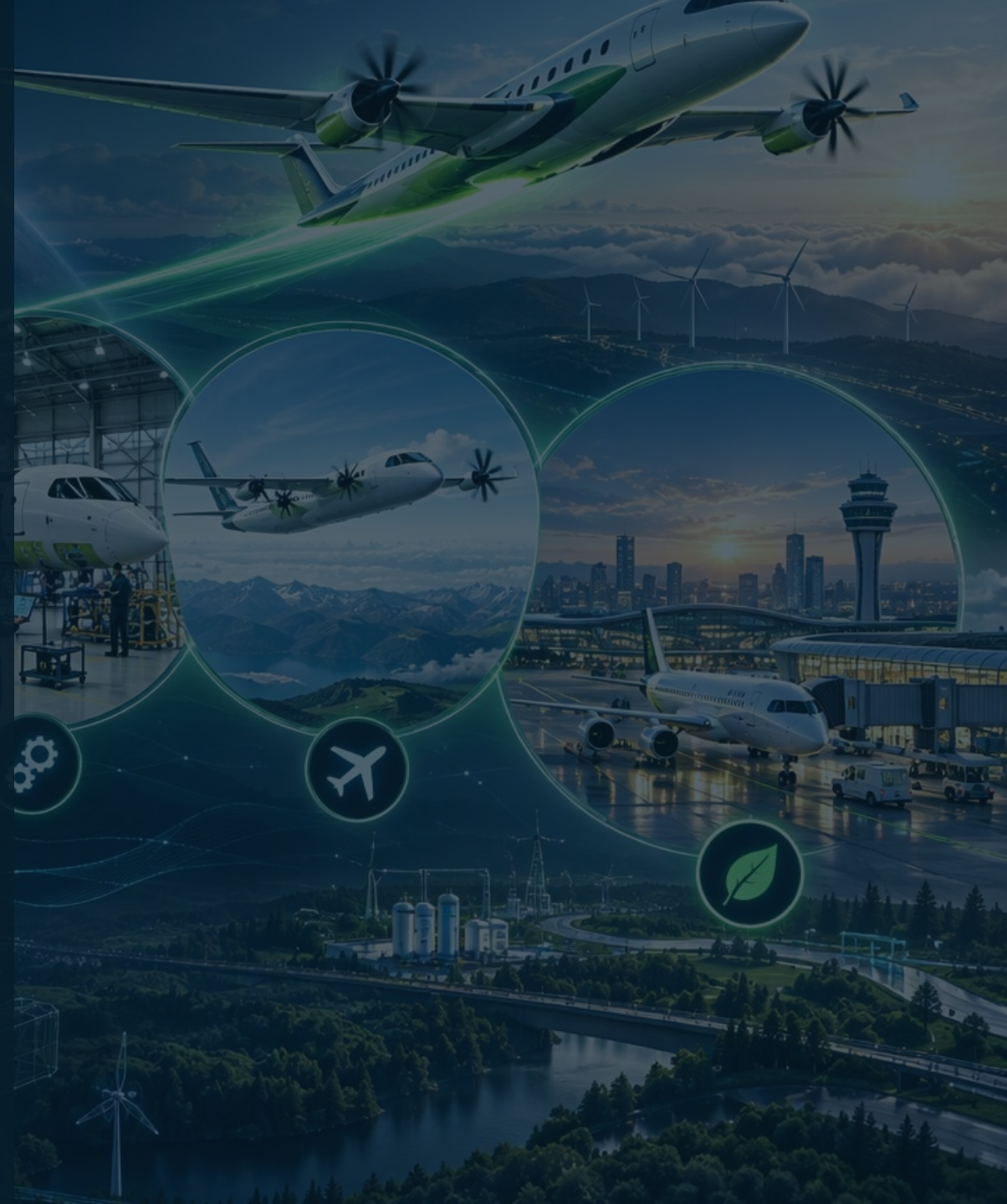


STRATEGIC OUTLOOK

# Fraunhofer Program Management in Clean Aviation

From excellent technologies to executable aircraft  
roadmaps

Florian Hilpert | Fraunhofer IISB | PEASA Europe 2026



# PEASA shows the building blocks. The task now is convergence.

## PROPULSION

Hybrid-electric and hydrogen-electric architectures

## ELECTRICAL

Power electronics, HV distribution and protection

## VALIDATION

Digital twins, certification-oriented design and testing

## INFRASTRUCTURE

Energy supply, airports and operational integration



# Introducing ...

PEASA shows the building blocks. The task now is convergence.

# Fraunhofer-1



# Fraunhofer's distinctive role: technology partner and neutral orchestrator

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No worries DLR – just kidding

***“We do not own the aircraft roadmap.  
We help make the roadmap executable.”***

# Fraunhofer's distinctive role: technology partner and neutral orchestrator

## 1 Develop

Mature enabling technologies and create validated building blocks.

## 2 Integrate

Connect institutes, disciplines, infrastructures and aircraft-level requirements.

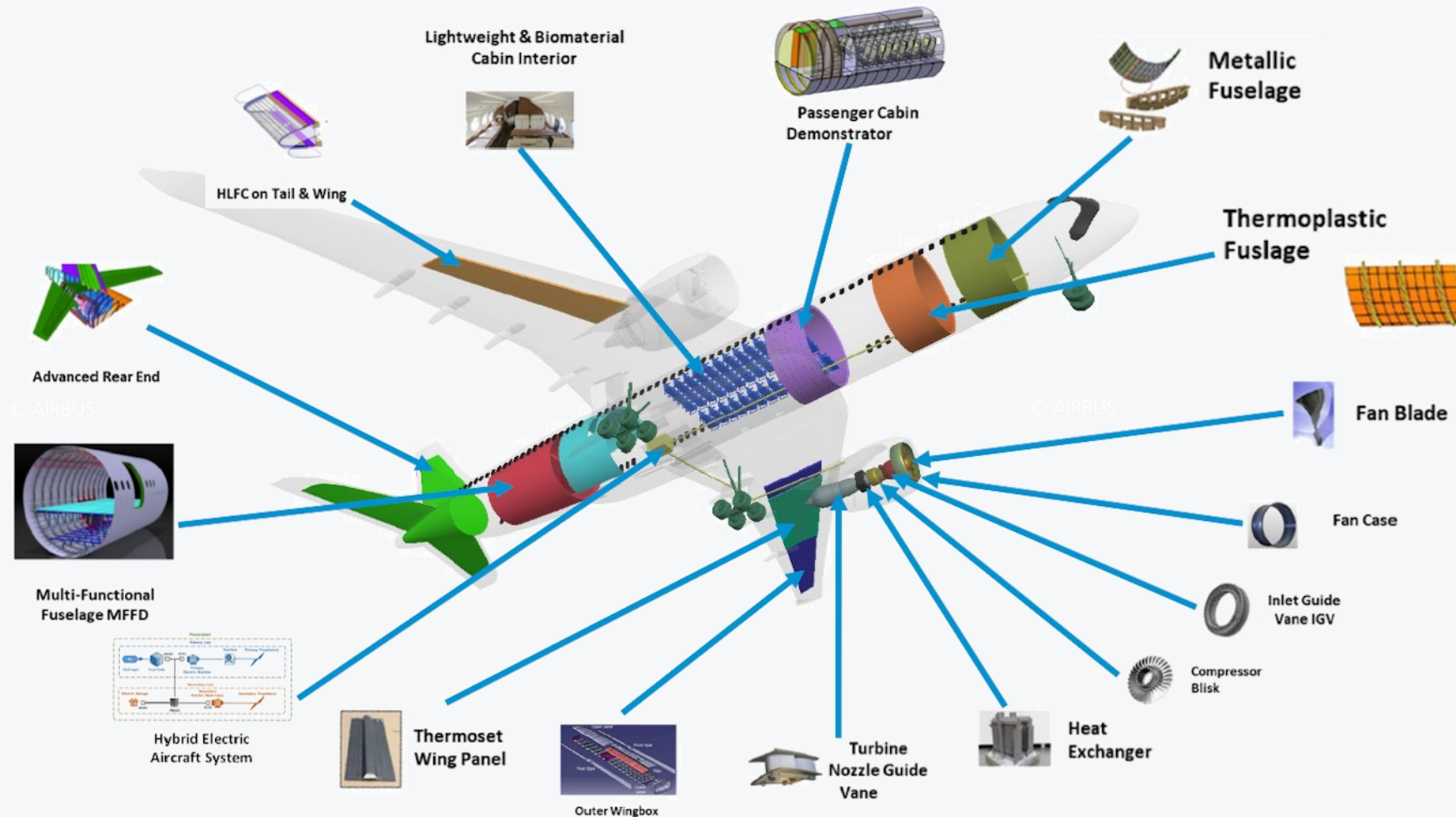
## 3 Orchestrate

Align industry, research, policy, funding instruments and future roadmaps.

***"We do not own the aircraft roadmap.  
We help make the roadmap executable."***

# Fraunhofer Activities in Clean Sky

20 Fraunhofer institutes have been partnering in Clean Sky; lead in ecoDESIGN



## Hot Take:

No aircraft in active service without Fraunhofer technology!

# Fraunhofer Activities in Clean Aviation

Fraunhofer is involved in 21 Projects

## Hybrid Electric

Combining Innovative Airframe,  
Novel Systems & HE power train



**HE-ART**  
2.150-2.850 MW Multi Hybrid  
Electric propulsion system  
for regional Aircraft  
ROLLS-ROYCE (\*)



**AMBER**  
2250 MW Multi Power train  
Innovative for hybrid-Electric  
Regional Application  
GE AVIO (\*)



**TheMa4HERA**  
Thermal Management  
Solutions for Hybrid  
Electric Regional Aircraft  
HONEYWELL (\*)



**HECATE**  
Electrical Distribution  
Solutions for Hybrid-Electric  
Regional Aircraft  
COLLINS (\*)



**HERWINGT**  
Hybrid Electric Regional Wing  
Integration Novel Green  
Technologies  
AIRBUS (\*)

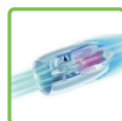
(\*) Consortium Leader

## Ultra Efficient / Short Medium Range

Combined powerplant & Airframe efficiency



**HEAVEN**  
Ultrafan – Hydrogen & hybrid  
gas turbine design  
ROLLS-ROYCE (\*)



**SWITCH**  
Sustainable Water-  
Enhanced-Turbofan (WET)  
Comprising Hybrid-electrics  
MTU AERO ENGINES (\*)



**OFELIA**  
Open fan engine demonstrator  
incl. gas turbine design  
hybridisation for Environmental  
Low Impact of Aviation  
SAFRAN (\*)



**UP WING**  
Ultra performance wing  
AIRBUS (\*)



**FASTER-H2**  
Fuselage H2 integration &  
Ultra efficient empennage  
AIRBUS (\*)

## Hydrogen Powered Aircraft

Novel concepts with H2 direct burn &  
fuel cell based propulsion



**CAVENDISH**  
Consortium for the AdVent of aero-  
Engine Demonstration and aircraft  
Integration  
ROLLS-ROYCE (\*)



**HYDEA**  
HYdrogen DEMonstrator for  
Aviation  
GE AVIO (\*)



**NEWBORN**  
NEXt generation high poWER fuel  
cells for airBORNe applications  
HONEYWELL (\*)



**H2ELIOS**  
HydrogEn Lightweight &  
Innovative tank for zero-emisSion  
aircraft  
ACTURRI (\*)



**FLHYing Tank**  
HydrogEn Lightweight &  
Innovative tank for zero-emisSion  
aircraft  
PIPISTREL (\*)



**HyPoTraDe**  
Hydrogen Fuel Cell Electric Power  
Train Demonstration  
PIPISTREL (\*)

## Fraunhofer active in:

### Call 1:

- Amber
- TheMa4Hera
- HECATE
- HERWINGT
- UP WING
- FASTER-H2
- NEWBORN
- H2ELIOS
- HYPoTrade
- CONCERTO
- HERA
- SMR ACAP

### Call 3:

- LEIA
- OSYRYS
- POWER4AIR
- MODABAT

### Call 4:

- ARCTIC
- HERACLES
- FOCUS
- ARELIS
- SILENTIUM

# Fraunhofer@Clean Aviation

## Program Management Team and Representatives



**Andreas Battenberg [ZV]**  
PMO



**Florian Hilpert [IISB]**  
TC (Representative)



**Martin Lehmann [LBF]**  
TC (Alternate)



**Victor Norrefeldt [IBP]**  
TP



**Michael May [EMI]**  
GB



**Simon Kothe [IFAM]**  
PGMT (spokesperson)

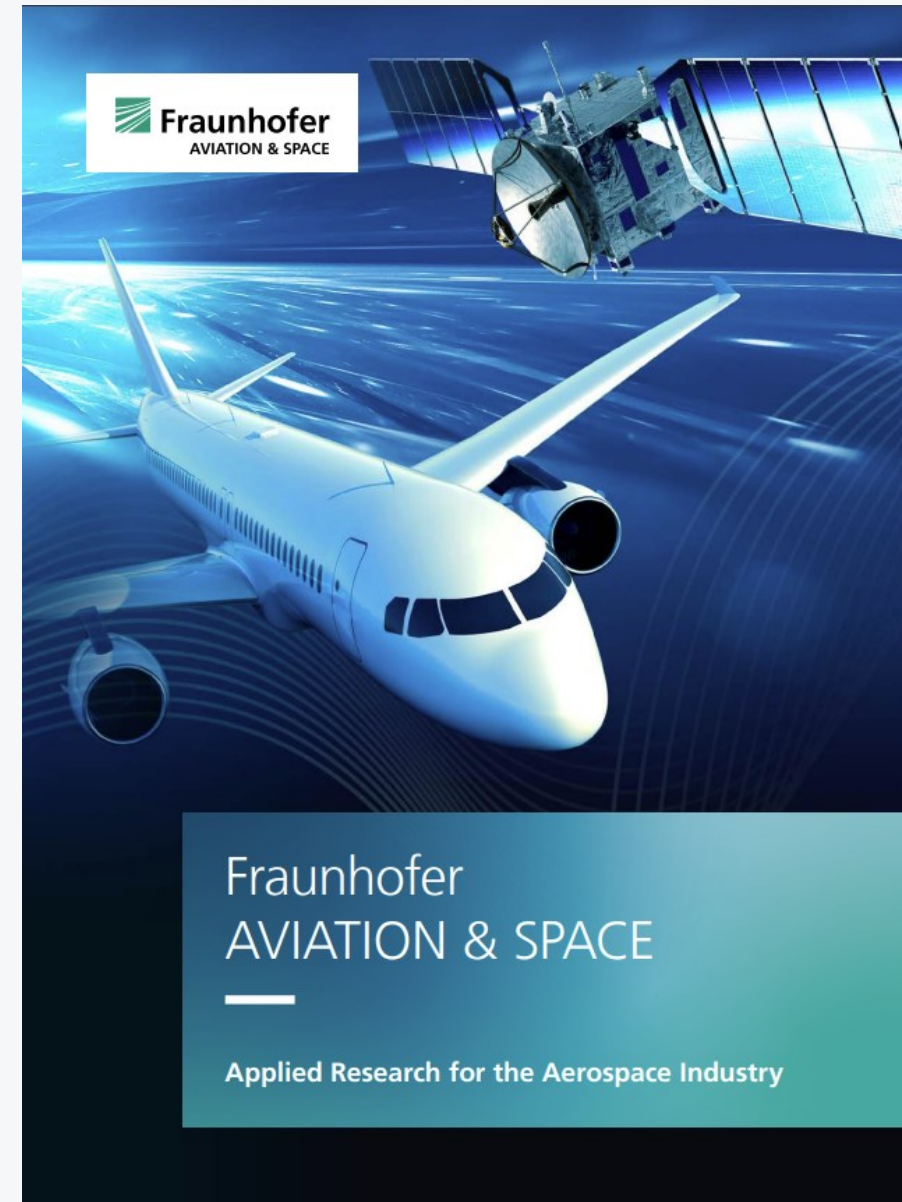


|             |                                  |
|-------------|----------------------------------|
| <i>GB</i>   | <i>Governing Board</i>           |
| <i>PGMT</i> | <i>Program Management Team</i>   |
| <i>PMO</i>  | <i>Program Management Office</i> |
| <i>TC</i>   | <i>Technical Committee</i>       |
| <i>TP</i>   | <i>Technical Panel</i>           |

# Fraunhofer Aviation & Space

## Organization and Objectives

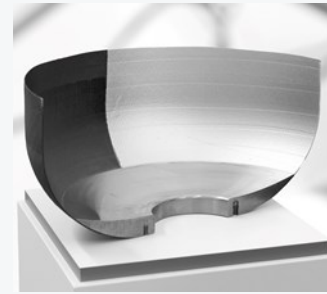
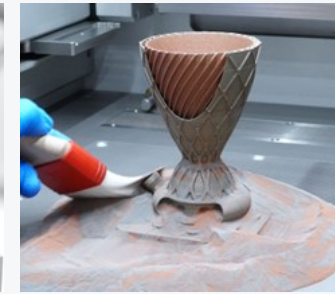
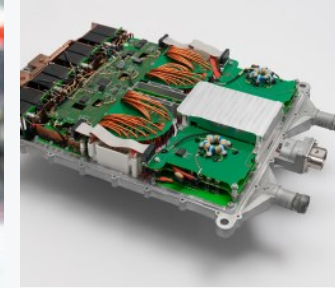
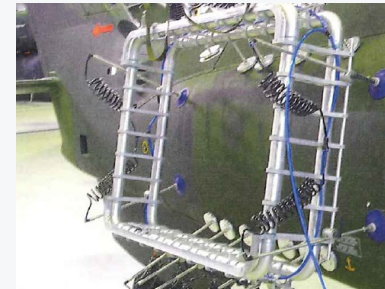
- **The Aviation and Space industry is a strategic market segment for Fraunhofer**
  - **anchor point** for industry, politics and community
  - coordinated and **market-driven research management**
- In total ca. **37 Fraunhofer institutes** are involved in the **Alliance Aviation & Space**  
→ focus on selected research topics
- **Fraunhofer as enabler** for Aviation & Space research
  - exploit Fraunhofer expertise and research infrastructure in industry funded projects
  - research partner in publicly funded projects, e.g. regional, national or EU
  - build competencies in Fraunhofer internal funded projects



# Fraunhofer Aviation & Space

## Organization and Objectives

- Sustainable materials and Circular Economy
  - Eco Design & Life Cycle Assessment (LCA) | Avoidance and replacement of critical (raw) materials | Bio-based / recyclable materials | Recycling and use of recycled materials etc.
- Climate neutral and efficient propulsion
  - hydrogen based propulsion | fuel cells | battery-electric propulsion | power electronics | turbo machinery | sustainable aviation fuels | high temperature materials etc.
- Resource efficient manufacturing to enable sustainability
  - lightweight design | additive manufacturing | automation, robotics | digital twin | green factory | MRO etc.
- Eco-efficient aircraft structures and cabin
  - efficient production, dismantling of aircraft structures | efficient cabin air conditioning | environmentally friendly fire protection | green cabin etc.



# Four main priorities for the next phase

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- |    |                                          |                                                                            |
|----|------------------------------------------|----------------------------------------------------------------------------|
| 01 | <b>SYSTEM INTEGRATION</b>                | Optimise interfaces across power, propulsion, thermal and control systems. |
| 02 | <b>PHYSICAL + DIGITAL<br/>VALIDATION</b> | Connect test infrastructure, models and digital twins.                     |
| 03 | <b>INDUSTRIAL READINESS</b>              | Include manufacturability, maintainability and EU supply-chain resilience. |
| 04 | <b>CONNECTED PROGRAMS</b>                | Build continuous paths across European, national and industrial funding.   |

FROM TECHNOLOGIES TO TRAJECTORY

**Connect early.  
Demonstrate together.  
Think beyond one program.**



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**Clean Aviation Program Management helps utilizing  
multiple Fraunhofer Institutes as one coordinated European research partner**