IIMEO

INSTANTANEOUS
INFRASTRUCTURE
MONITORING BY
EARTH
OBSERVATION

AIRBORN DEMONSTRATOR

SMART SKIES SAFER TRACKS

The IIMEO Airborne Demonstrator brings cutting-edge Earth Observation technologies into real-world operation—delivering near real-time insights for safer, smarter railway infrastructure monitoring.

AIRBORNE PLATFORM

Advanced sensors on board a specially equipped aircraft capture high-resolution data over long corridors.

NEAR REAL-TIME DELIVERY

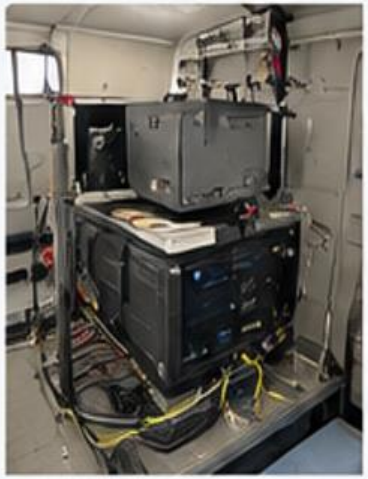
On-board processing and intelligent analysis provide critical information while the aircraft is in the air.

RAILWAY SAFETY AT THE CORE

Detecting changes and obstacles on and around tracks to support proactive maintenance and safety.

ACTIONABLE INSIGHTS

Compact, relevant results are delivered fast to help operators and authorities make better decisions.



FROM LAB TO LIFE

The IIMEO team has successfully progressed from laboratory development to real-world validation.

- Extensive ground and flight tests completed
- Validation of sensors, on-board processing and data links
- Demonstrated performance over real railway corridors

INNOVATION THAT DELIVERS. IMPACT THAT MATTERS.

BUILT FOR EUROPE'S RAILWAYS

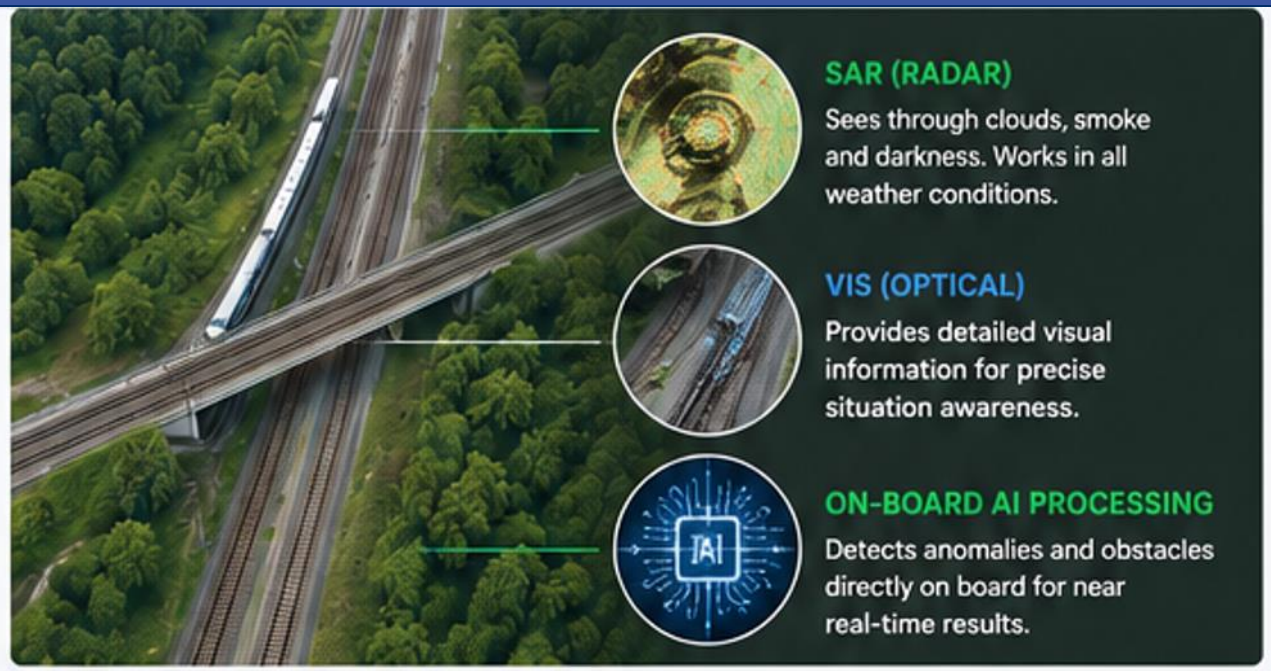
Designed to support railway operators and infrastructure managers across Europe with:

- Safer infrastructure and proactive maintenance
- Reduced disruptions and operational costs
- Reliable monitoring – in any weather, day or night
- A strong foundation for future satellite-based services

WHAT IS THE AIRBORNE DEMONSTRATOR?

The IIMEO Airborne Demonstrator is a complete airborne system that integrates powerful radar (SAR) and optical (VIS) sensors, on-board processing and data communication to monitor railway infrastructure from the air.

During flight campaigns over real railway corridors, the system collects high-resolution data and automatically detects changes and obstacles. Only the most relevant information is transmitted to the ground – enabling near real-time awareness with minimal data transfer.



KEY CAPABILITIES

HIGH-RESOLUTION IMAGING

Captures fine details of tracks and surrounding infrastructure.

OBSTACLE & CHANGE DETECTION

Identifies objects and changes that could impact railway operations.

GEO-REFERENCED ACCURACY

Precise positioning ensures reliable integration with railway maps and data.

EFFICIENT DATA TRANSMISSION

Only meaningful information is sent – saving bandwidth and time.

SUPPORTING SMARTER OPERATIONS

Empowers operators with timely insights for planning and response.

Funded by the European Union