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Open Cooperation for European mAritime awareNess

To demonstrate enhanced situational awareness in a maritime environment through integration of technologies for unmanned systems, CMS, naval communications and maritime operation centers.

Coordinator **Leonardo S.p.A.**
42 Participants - **15** countries
Project duration **2018 - 2021**
Total budget **35 480 000 €**

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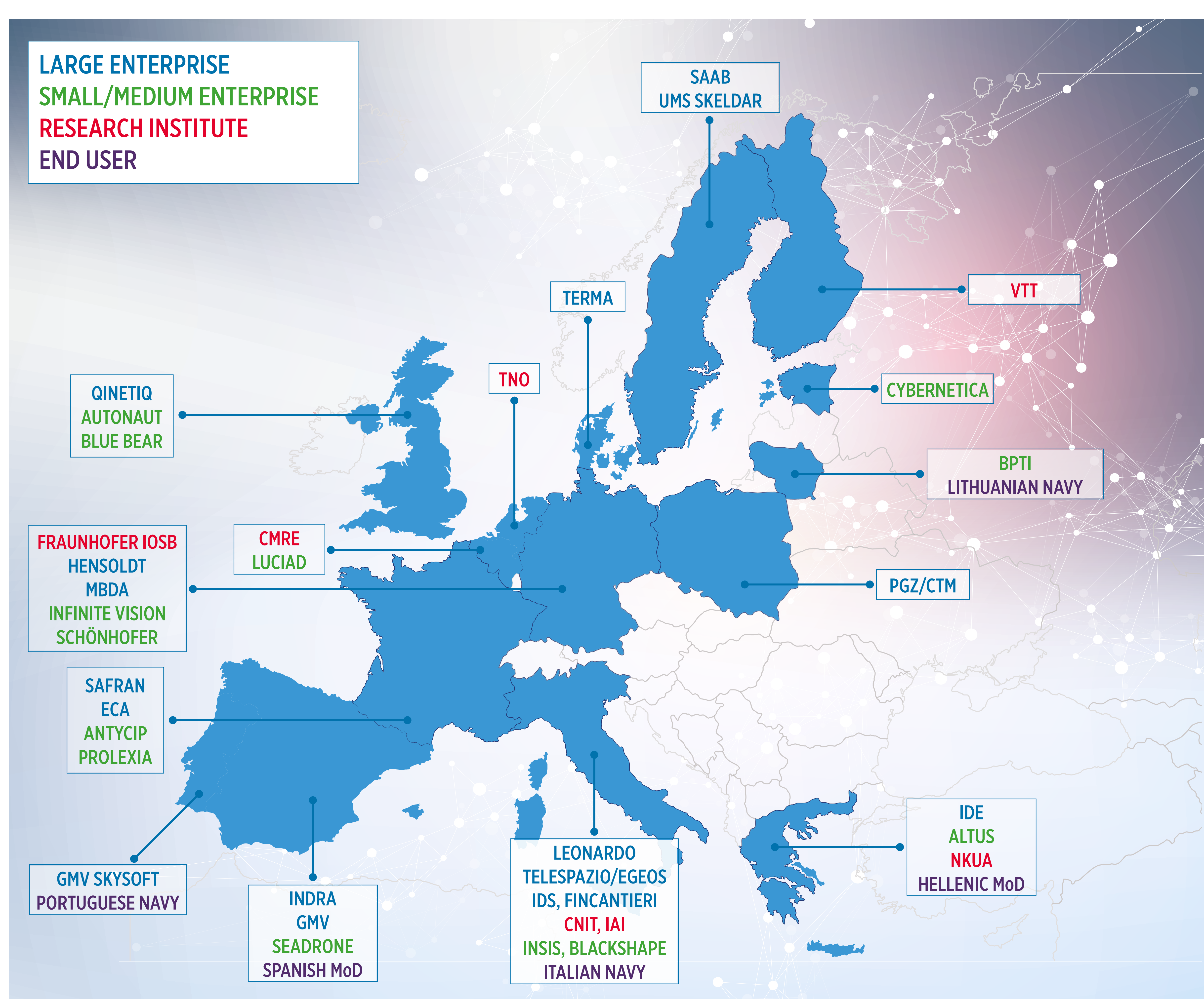


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OCEAN2020 The Consortium



indra

Fraunhofer
IOSB



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First Sea Demonstration 20 -21 November 2019 Gulf of Taranto



2 scenarios:

- Threatening Vessel Interdiction
- Interception of a Mine Laying Vessel before an Amphibious Operation

6 Vessels

10 Unmanned systems

5 Different satellites

3 Ground communication networks

4 National maritime operation centres

1 Prototype of a EU command centre

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AWHERO

- This new Rotary Unmanned Air System (RUAS) benefits from the Leonardo's strength and extensive experience in rotorcraft development and systems integration. Two modular payload bays carry sensors including radar such as the Gabbiano TS Ultra-Light, EO/IR and advanced communication systems.
- The AWHERO can perform land operations from rough terrain and in harsh environment and is ideally suited for maritime operations. Its low footprint means that it can be easily maneuvered, stowed and maintained in ships facility.



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SW-4 Solo

- Based on the proven SW-4 light single engine EASA certified helicopter, it has been designed to be used both in manned and in remotely piloted missions (RUAS) to ensure maximum operational flexibility. ISTAR Mission, Manned-Unmanned Teaming and Data Dissemination capabilities have been demonstrated in real operational environment.
- The RUAS variant is capable of performing a large spectrum of civil and military roles including Disaster Relief, Law Enforcement, Combat Support, Intelligence, Surveillance Targeting and Reconnaissance (ISTAR) missions, both in Land and Maritime environments.



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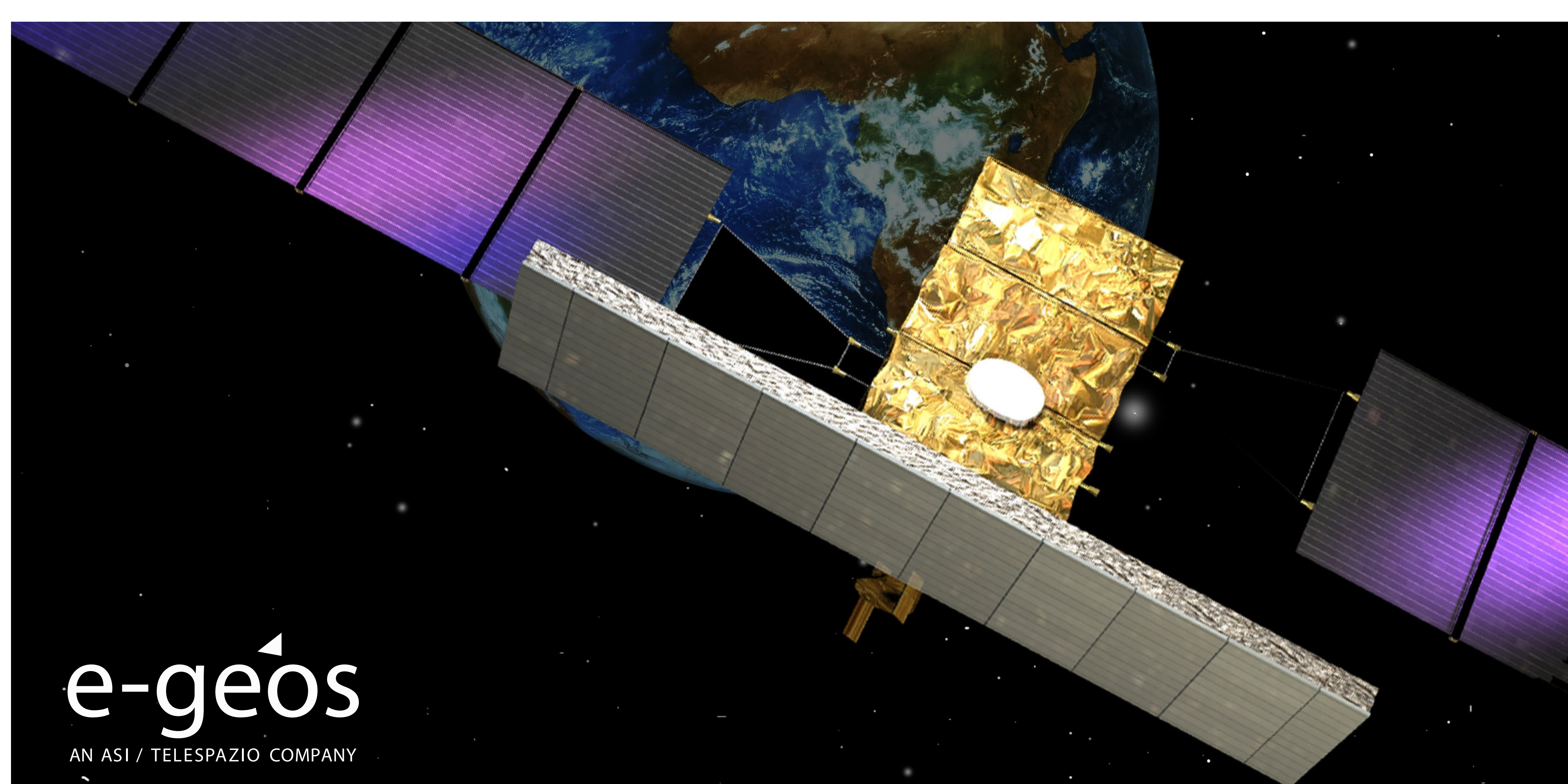
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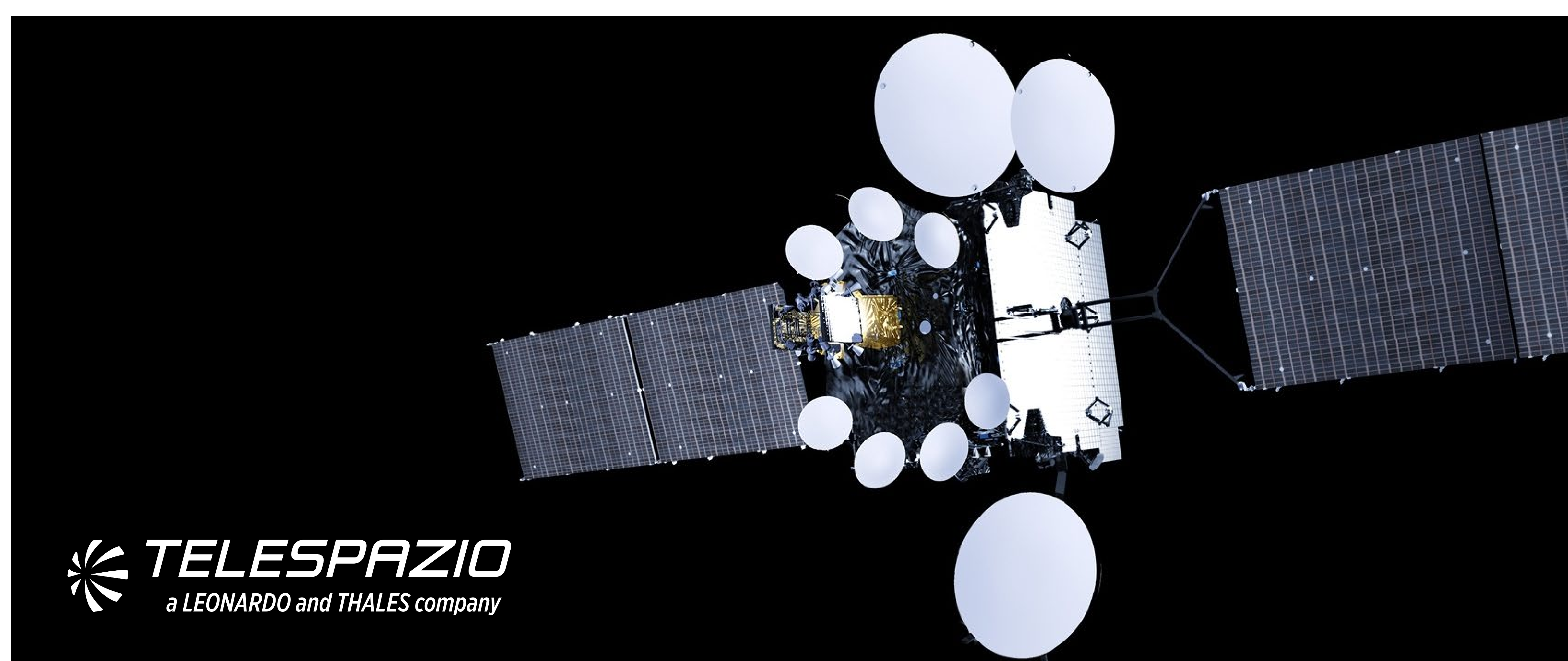
COSMO-SkyMed

- A constellation of four synthetic aperture radar satellites that provide an all-weather, day-and-night imagery of Earth's surface, able to support a variety of applications including environment protection, land management, defense and security, maritime surveillance, food & agriculture management.
- e-GEOS is the world-wide exclusive distributor of COSMO-SkyMed and operates, on behalf of ASI, the IC-UGS (Italian Civilian User Ground Segment) at the Matera Space Center.



ATHENA-FIDUS (Access on Theatres and European Nations for Allied forces - French Italian Dual Use Satellite)

- A French-Italian telecommunications infrastructure based on a geostationary satellite for dual use broadband communications services, able to replace/complement terrestrial networks, in case of unavailability of or damage to them, with an expected operating lifespan of over 15 years.
- Telespazio managed the launch services, the LEOP and the IOT phase and took part in the development of the ground segment, at the Vigna di Valle Centre for Defence, near Rome.



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SEAD 23

- Conceived in the framework of the Ocean2020 project, SEAD 23 is the fourth USV designed and built by Seadrone. With 7 m overall length and waterjet diesel propulsion, the boat is designed for ISR and protection missions with a low radar cross section. Built in advanced low flammability composites with a solid fender, its range is more than 200 miles at 20 knots speed.
- With a termic/day light gyrostabilized camera, solid state radar, sonar and five high resolution pilot cameras, it is managed from a ship or ground console and a small portable one for short distance approach. SEAD 23 is capable of dropping different types of sensors into the sea and for protection purpose can carry a 12.7 mm RWS.



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PELICANO

- Indra is one of the major partners of Ocean2020. It is leading the design of the global maritime surveillance and interdiction system that is being tested in the Mediterranean and Baltic seas by several navies.
- It has deployed the first prototype for a future European Union Maritime Operations Centre (EU MOC) that would enable different countries to share a single view of the situation in the sea. It is also flying its RPAS helicopter Pelicano.



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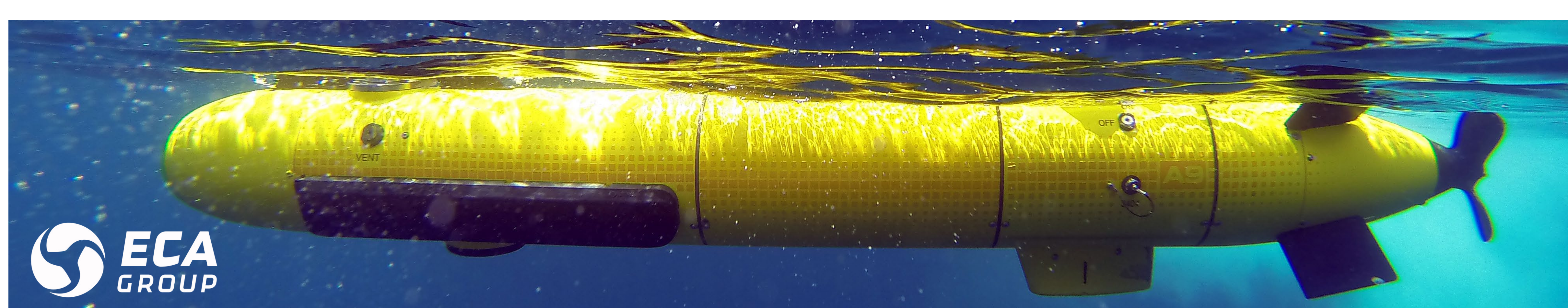
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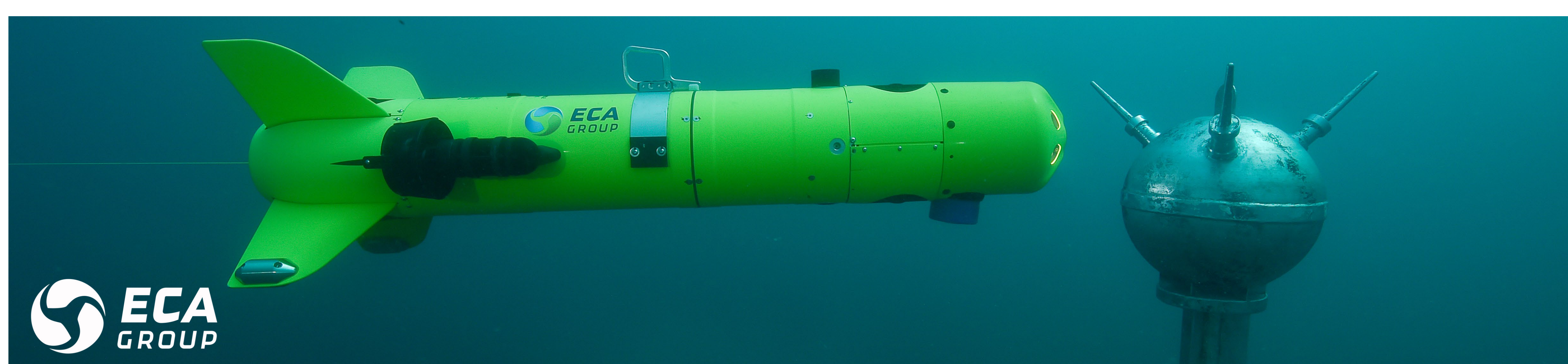
A9 range / AUV / Autonomous Underwater Vehicle

- Sea drone used as a hand-launched vehicle and deployable from small craft and in shallow-water situation. Integrated within ECA Group's UMIS drones system provides a comprehensive turnkey solution for mine counter measures. Already in mission within French Navy.
- Man portable AUV designed for various missions such as mine counter measures (detection and classification), sea floor survey, hydrographic and oceanographic data acquisition, homeland security (wreck localisation, port and coastal security).



SEASCAN - MINE IDENTIFICATION REMOTELY OPERATED VEHICLE

- Light weight self-propelled ROV- remotely operated vehicle- with strong hovering capability and stability in turbulent water, dedicated to inspection missions and used by navies within mine counter measures operations.
- Integrated into ECA Group's UMIS drones system - a turnkey MCM (Mine Counter Measure) solution in operation already within two world's navies, chosen by Belgian & Dutch navies.



INSPECTOR USV

- Autonomous platform able to perform several missions at sea, also remotely operated or manned, able to autonomously launch and recover AUVs, towed systems as well as ROVs.
- Part of ECA Group's UMIS drones System – a turnkey mine clearance solution already in mission within two world's navies, chosen by Belgian & Dutch navies.



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BLAKSHAPE BK180-ISP

- The Blackshape BK180-ISP is an innovative aerial platform with OPV (Optionally Piloted Vehicle) capabilities. This configuration enables the aircraft to be controlled remotely from a Ground Control Station and to perform specific intelligence surveillance and reconnaissance missions with the ability to transfer the acquired data (video, snapshots, weather, metadata) via data-link in real time to the ground station. The BK180-ISP can carry different payloads (EO/IR, Radars), integrated in two reconfigurable sub-wing pods. This allows it to perform different missions and meet different payload requirements.
- Currently the aircraft is provided with a multi-sensor gyro-stabilized imaging system, capable of operating in the visible and infra-red spectrum as well as a weather and search & rescue RADAR. The integration of these sub-system on-board, allows for surveillance, patrolling and data recording missions.



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MUSCLE

The MUSCLE (Minehunting UUV for Shallow waters Covert Littoral Expeditions) is a state-of-the-art mine hunting autonomous underwater vehicle, which uses multi-resolution, multi-aspect Synthetic Aperture Sonar to create detailed images of the sea floor.



WaveGlider

WaveGliders are low-power, long-endurance unmanned surface vessels (USVs). Nominally 3m in length, the WaveGlider takes propulsion energy from ocean waves and the battery recharges from the sun. They travel at 1.5 to 2.25 knots in sea and can tow payloads such as sonar arrays. They have been proven in multi-month deployments, mainly for oceanographic purposes.



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USV SeaRider

- USV-SeaRider is a Rigid Hull Inflatable Boat (RHIB) developed by INTRACOM DEFENSE (IDE) to implement all necessary improvements and equipment integration, in the frame of OCEAN2020 project, in order to operate as Unmanned RHIB.
- USV-SeaRider is capable to address several mission types such as Tactical ISR (coastal and offshore), Port and Harbor security, Maritime Interdiction Operation support, Search And Rescue (SAR) operation support.



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