



Leonardo Electronics Division

LEONARDO AIRBORNE SYSTEMS

FALCO EVO



Electronics



Helicopters



Aircraft



Cyber & Security



Space



Unmanned Systems



Aerostructures

LEONARDO

A TECHNOLOGICAL AND INDUSTRIAL LEADER IN AEROSPACE, DEFENCE & SECURITY

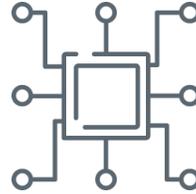
HELICOPTERS



AIRCRAFT



ELECTRONICS



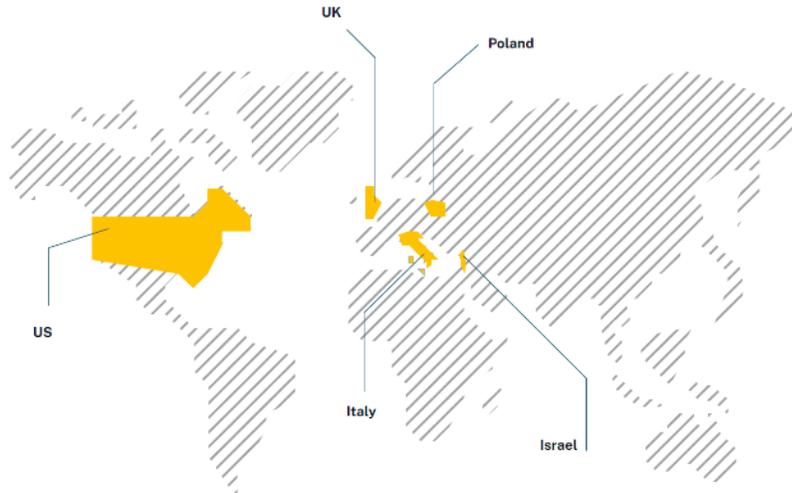
AEROSTRUCTURES



CYBER & SECURITY



WORLDWIDE FOOTPRINT



BUSINESS



51,392
people worldwide



105
sites worldwide



~10,500
suppliers worldwide



150
countries with a
commercial presence



€14.7 BIL.
revenues 2022



€17.3 BIL.
orders 2022



€ 37.5 BIL.
orders portfolio 2022



€ 1,218 MIL.
EBITA 2022



€ 2.0 BIL.
in R&D



FALCO EVO

The European “Tactical MALE”



DELIVER END TO END SOLUTIONS



DESIGN

INTEGRATION

PRODUCTION

SERVICE

PAYLOADS AND AVIONICS



VEHICLE



GROUND SEGMENT



MISSION SYSTEM AND DATA DISSEMINATION



TRAINING

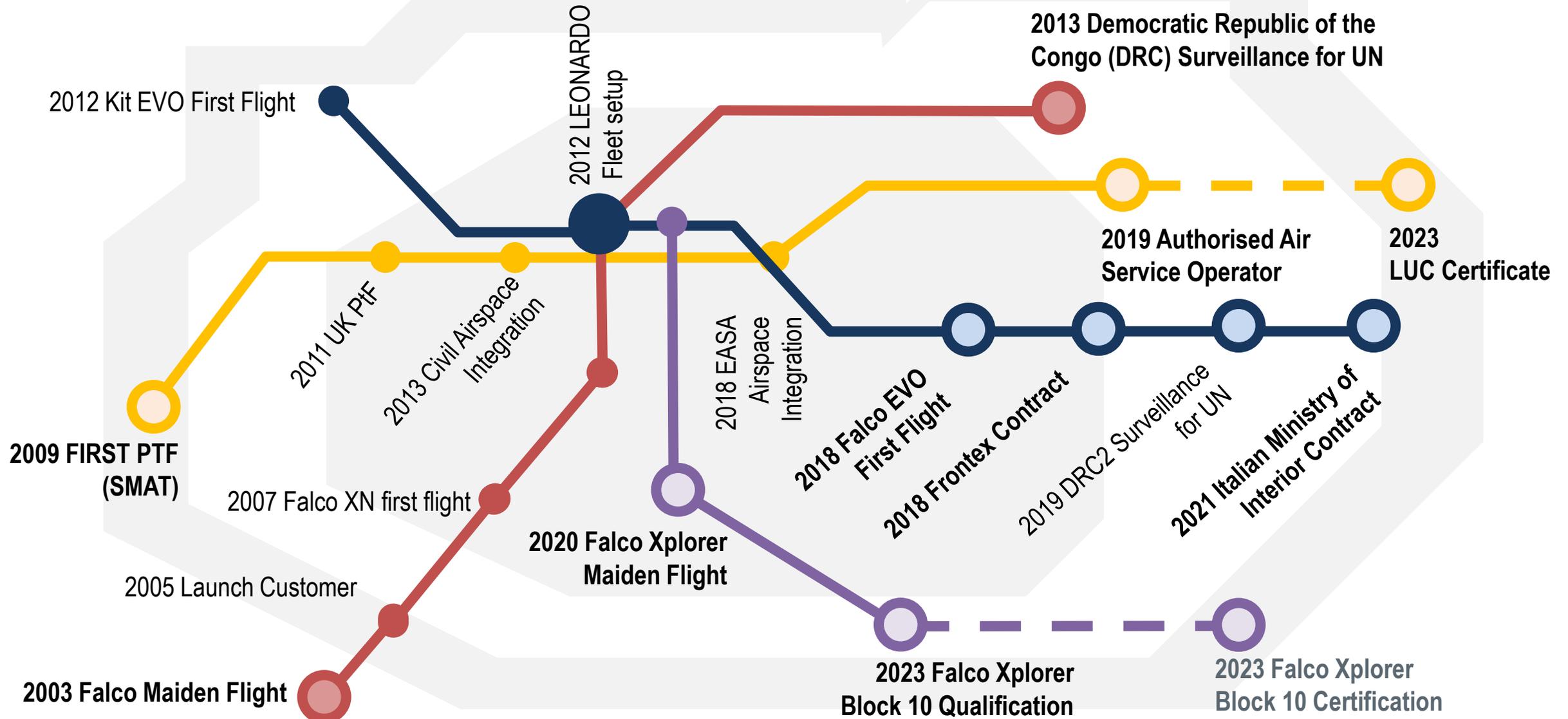


FINAL ASSEMBLY

FINAL ASSEMBLY



FALCO FAMILY MAIN MILESTONES



FALCO EVO CHARACTERISTICS



CHARACTERISTICS	FALCO EVO
MAX GROSS WEIGHT (KG)	650
WINGSPAN (M)	12,5
PAYLOADS (KG)	120
OPERATIONAL SPEED (KTS)	70-105
ENDURANCE (HRS)	16H+ WITH FULL MARITIME SENSORS SUITE
CEILING (FT)	21.000
NOISE (DB)	<43 A 1.000 M
LOS LINK RANGE (KM)	200+
DUAL BAND SATCOM	L-BAND / K- BAND
ENGINE	TURBO / HEAVY FUEL

**COMPACT
OPERATIONAL
TEAM
(5 PEOPLE)**

**FLIGHT
TEAM**

PILOT
PAYLOAD OPERATOR
GCS ENGINEER

**GROUND
TEAM**

AVIONIC ENGINEER
MECHANICAL ENGINEER



FALCO BLOCK 64 CONFIGURATION



UHF-Band LOS Link



L-Band NBDL
Ku-Ka WBDL
BLOS
SATCOM



VHF
Maritime
Radio relay



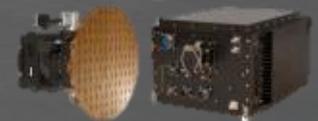
ATC VHF
Voice relay



10"
EO/IR/LRF



AIS
RECEIVER



GABBIANO
Multimode Radar



MARITIME OPERATIONS

18 - 22 NM

40 - 50 NM

65 - 75 NM

> 110 NM



SKIFF LIFERAFT



IMMIGRANTS SHIP



FRIGATE



CONTAINER SHIP

TRACKING ON A TARGET WITH NO AIS TRANSCIVER

Search & Rescue with Multi-Standard BEACON



SEARCH & TRACK

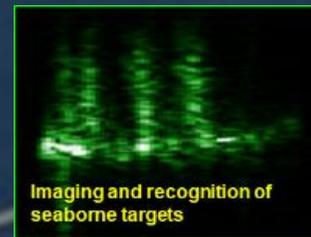


SEA CLUTTER CANCELLATION

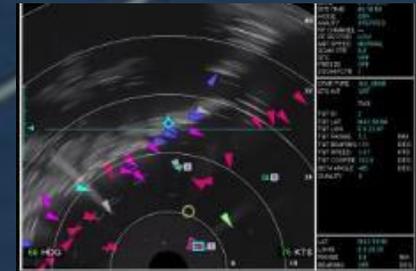
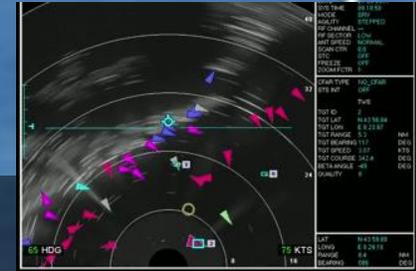


Sea - SAR

POLLUTION DETECTION



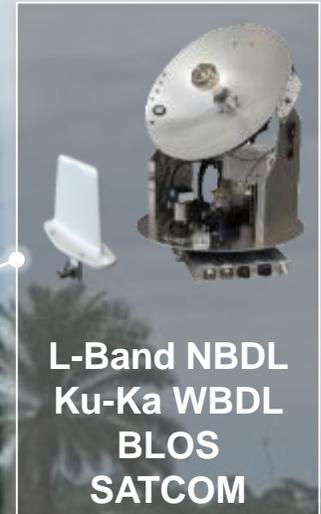
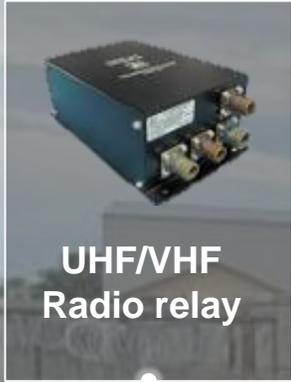
Imaging and recognition of seaborne targets



- Long range detection (up to 160 NM)
- Effective track of multiple targets (up to 200)
- High range resolution (effective zooming, target discrimination and reliable track)
- Effective sea clutter cancellation for target detection also in heavy sea clutter environment
- Long range non cooperative target imaging, recognition & classification
- Multi-Standard Beacon
- Pollution detection & target counting of small fleet and towed skiff with SAR



FALCO BLOCK 70 CONFIGURATION



OVERLAND OPERATIONS

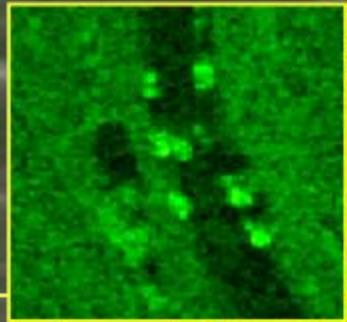


60 NM

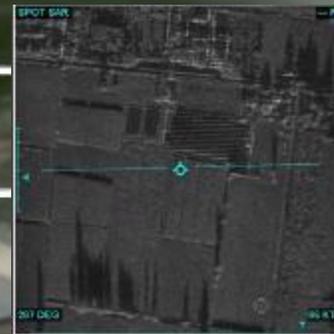
42 NM

17 NM

8.5 NM



GMTI - WAS and NAS



STRIP SAR
Wide area High Res. mapping



Sub-metric Spot-SAR

- Long range High Quality High resolution imaging (Strip-SAR and Spot-SAR) up to 60 NM
- Several selectable resolutions from sub-metric to 22 m with wide swath
- Outstanding GMTI performance in WAS (WAS-Wide Area Scan) & NAS (Narrow Area Scan) sub-modes
- Long range (up to 40 NM)
- Selectable sector scanning
- High range resolution and target counting (GMTI-NAS)

SPOT SAR
mode

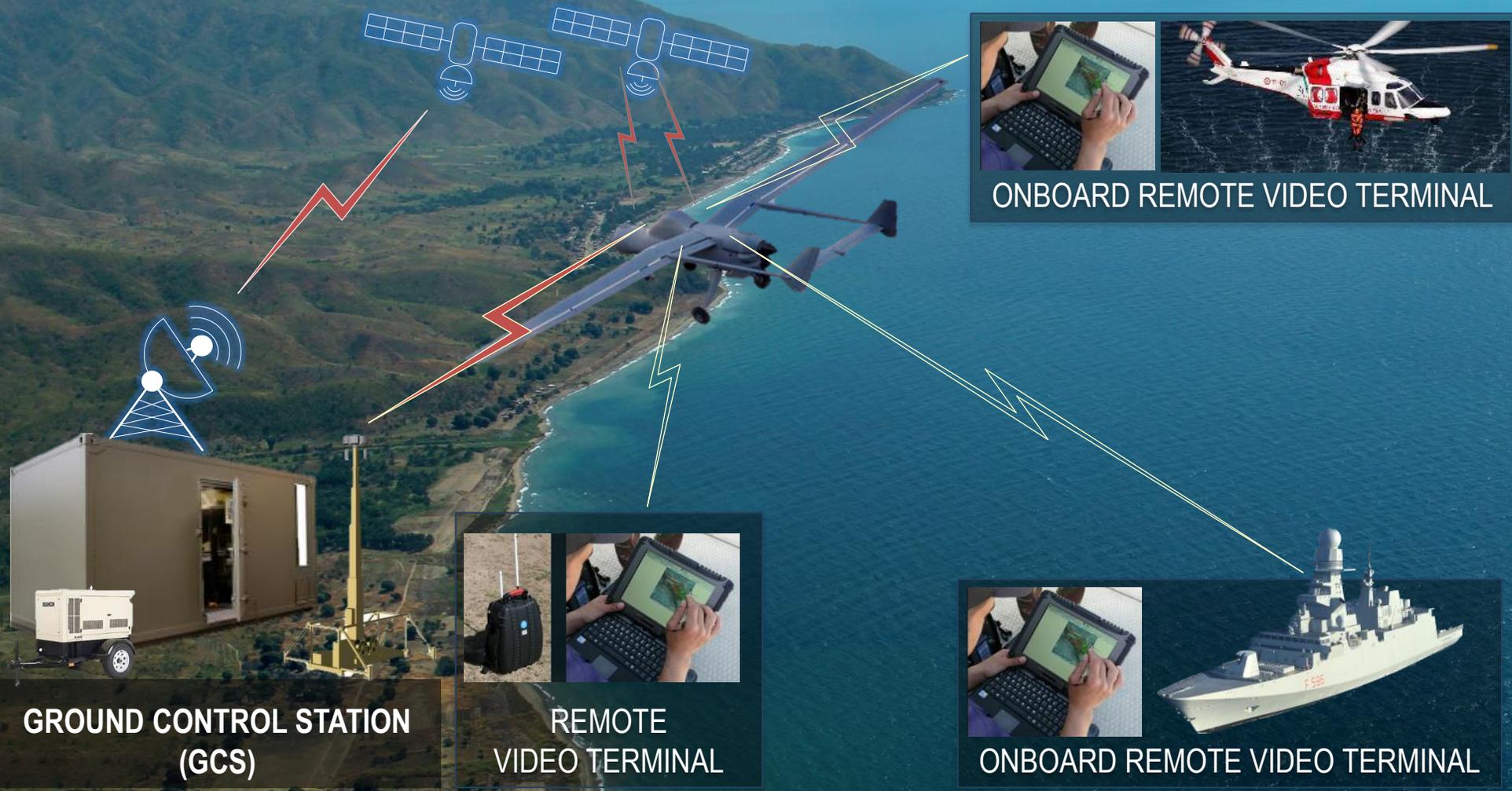
GMTI

SPOT SAR - Continuous High Resolution watching



REMOTE VIDEO TERMINAL

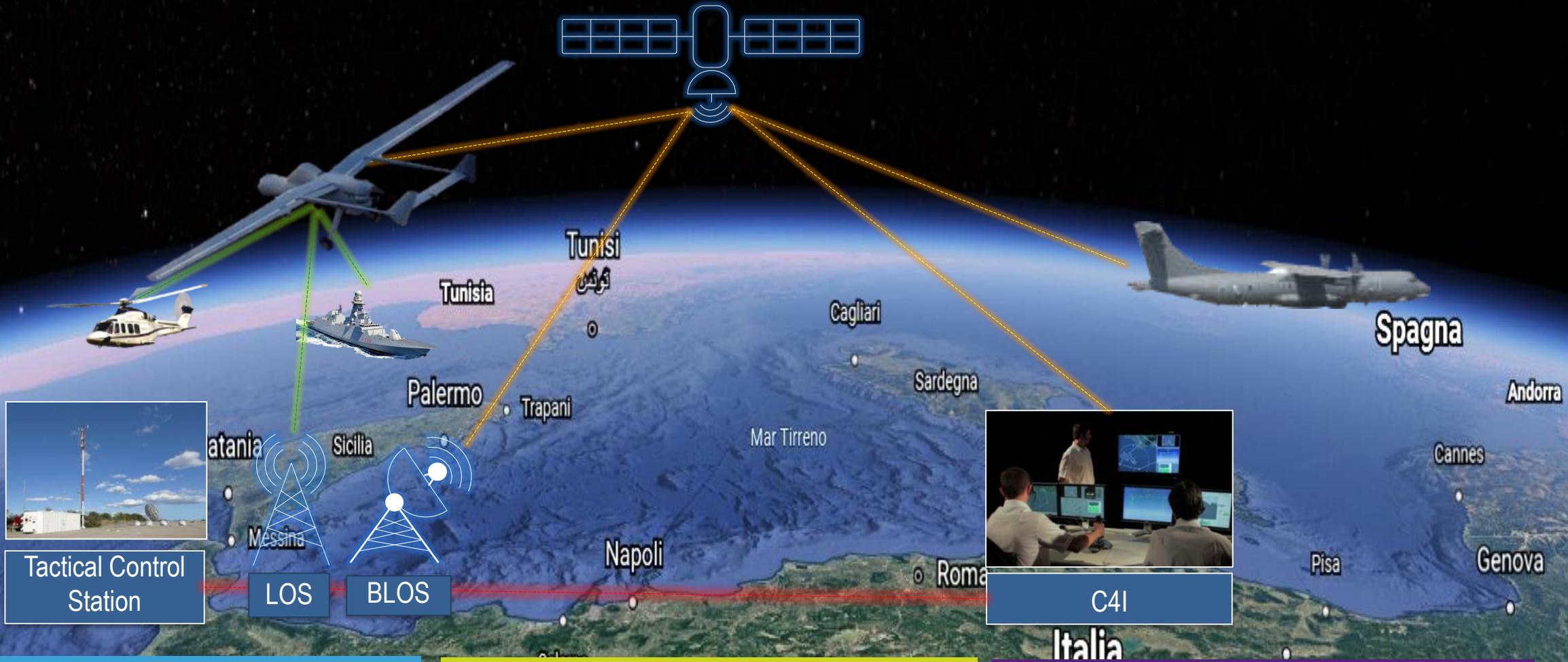
FEATURES



- INFORMATION AVAILABLE AT TACTICAL LEVEL
- MANPORTABLE
- SYSTEM CAN BE INSTALLED ON GROUND VEHICLES OR HELICOPTERS
- INFORMATION SUPERIORITY AND SITUATION AWARENESS
- SECURE ACCESS FROM MULTIPLE LOCATIONS
- INFORMATION AVAILABLE EVERYWHERE



BLOS INFORMATION DISSEMINATION



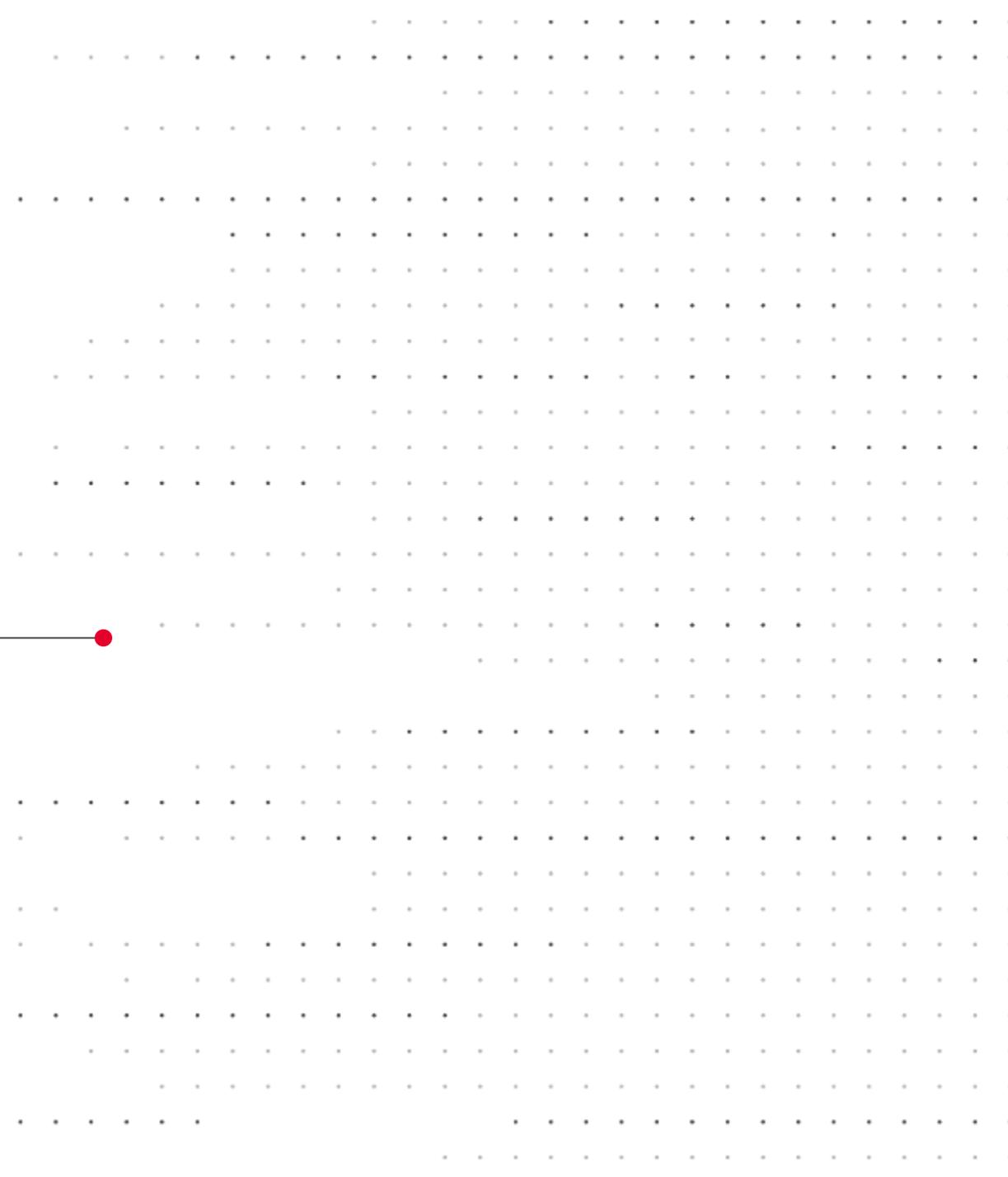
SATELLITE COMMUNICATION
VPN

SECURE COMMUNICATIONS
CYBER RESILIENT

ACCESS TO INFORMATION BASED ON
SECURITY POLICY AND NEED TO KNOW

Sea WAch Dog: S.WA.D

«Manned & Unmanned» Blue Water Surface System



S.W.A.D. – GENERAL DESCRIPTION (1/3)

S.W.A.D. (Sea WAtch Dog) is a New USV System Concept based on an **High Speed Boat (> 60Kn)** for operations in **littoral** and **“Blue Water” (beyond 20 nautical miles) scenarios**. It has a modular system architecture which allows, by means of a very fast “re-configuration”, to **satisfy different missions** like: *Piracy Interdiction; Law enforcement; Disaster Management; Fast MEDEVAC; Search and Rescue; Coast Guard and Patrolling; harsh environment tests.*



S.WA.D. – GENERAL DESCRIPTION (2/3)

The **USV «S.WA.D.»**, with its payloads, **can also be used as a Manned boat** by means very fast (few minutes) reconfiguration, since the boat is provided with a cabin crew and all equipments and arrangements as a manned boat.

The **S.WA.D operational capabilities** can be totally **achieved by a *reduced number of persons***, typically 2: the Driver and the Mission Payload operator. All Operational Capabilities can be faced either in Manned and Unmanned configuration.



S.W.A.D. – GENERAL DESCRIPTION (3/3)

The System is ***easily transportable***: it fits in an High Cube Container, C130 Hercules and ships equipped with systems for boarding boats with displacement of 10 tons (it has a maximum displacement of 7 Tons). In addition, it can entry and housed inside ships equipped with “Dry Dock Entry” for boarding boat.



S.W.A.D. - SYSTEM KEY FACTORS

- **Ballistic Protection** of the electronic compartment, cabin walls and glass with multi-hit capability;
- **No. 1 all-weather radar**;
- **No. 3 optronic systems** (visible / IR) for *boat guide, surveillance and search, targets detection and identification, target tracking*;
- **Different mission payloads**, including NLW like LRAD;
- **No. 1 obstacle detection system** based on optical data;
- **Integrated Bridge & Automation (included Autopilot)**: 3 monitors for the *Optics and Mission Payload Control, Boat Navigation, and boat Automation Management*;
- **Refoldable Mast** for sensors (radar, optical devices) and remote-control equipment;
- **N. 3 Radio Links** for Unmanned Operations: *UHF Band for Video and Guidance and Control Data: Line Of Sight (LOS), VHF emergency channel, **always active**, SATCOM (I/F Provision)*;
- **Command and Control Remote Station** for the COMPLETE REMOTE-CONTROL OF THE SYSTEM: man-portable, connected to the Command and Control System of the Ship or C2 SYSTEM and able to be installed in a shelter. The Command & Control Remote Station allows:
 1. The complete teleoperation of the boats and payloads;
 2. Mission-planning and Path-planning autonomy: Way-points following;
 3. Visualization of all boat video signals
 4. Safety Strategies Application: Emergency Stop, SW and HW fault tolerance



S.W.A.D. – BOAT KEY FACTORS

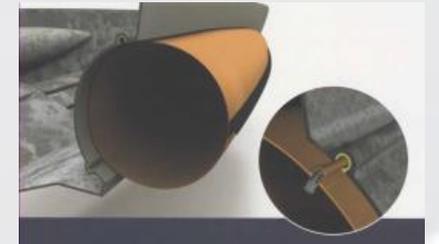
Unsinkable and very resistant **hull**, made of **STRUCTURAL FOAM®** (foamed in closed-cell polyurethane resin);
TWO STABILIZERS (STAB®), one for each side of the hull, optimize maneuverability and reduce planning time;
ANTI-DIVE BOW to avoid frontal foundering

BOAT KEY FACTORS:

- Overall length: **11.90m**
- Overall width, with deflated or removed STAB®: **2.33m**
- Overall width, with inflated STAB®: **3.20m**
- Maximum speed (at 80% of load): **>60 knots**
- Maximum speed (at full load): **55 knots**
- Cruising speed: **35 knots**
- Fuel capacity (auto-stagnant tanks made of explosion-proof material, anti-shaking interior bulkheads): **1200 liters**
- Fuel autonomy at cruising speed: **>400 nm**
- Maximum number of people (in "*manned*" configuration): **4 (+ 6)**
- Maximum displacement: **7000 kg**
- Displacement without any payload: **5500 kg**



Structural Foam® Technology



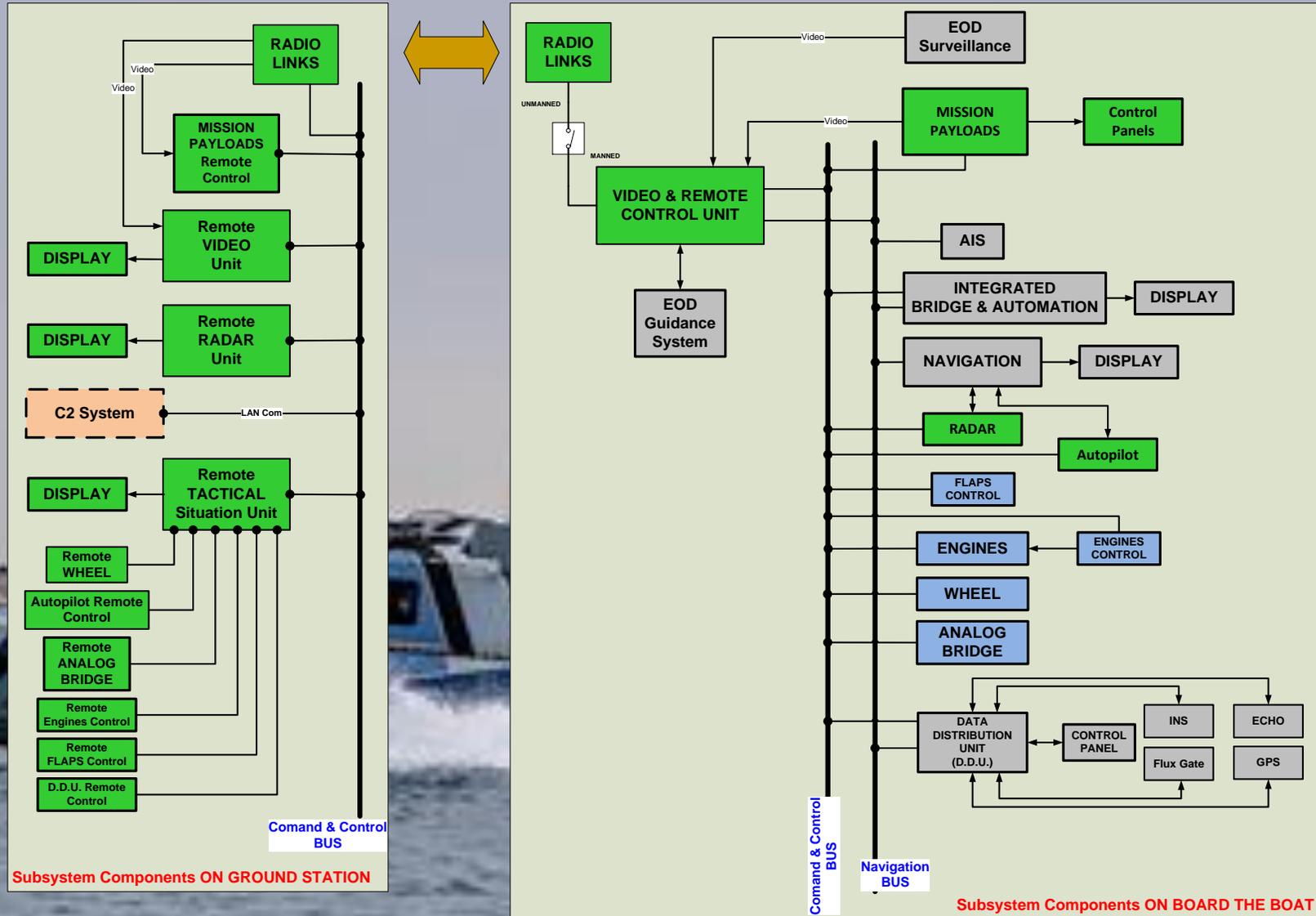
STAB® system



Anti-Dive Bow

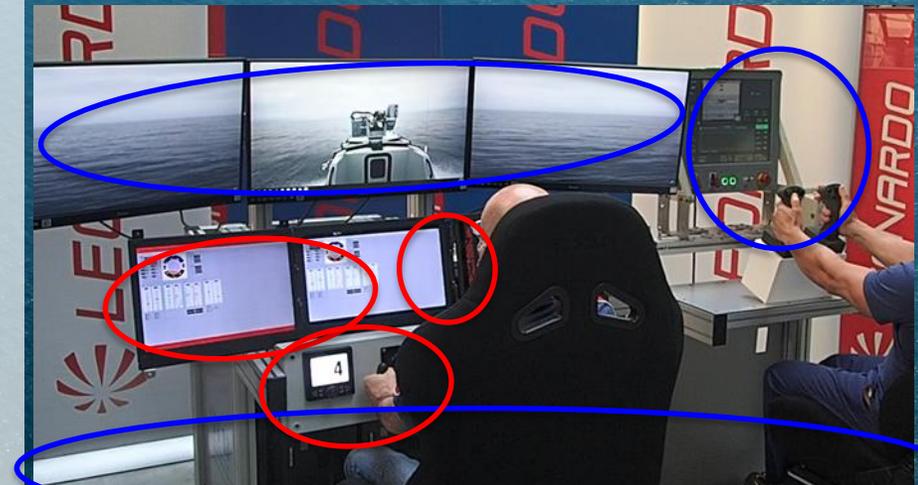


S.W.A.D. – SYSTEM ARCHITECTURE



S.W.A.D. – REMOTE COMMAND & CONTROL STATION - COMPONENTS

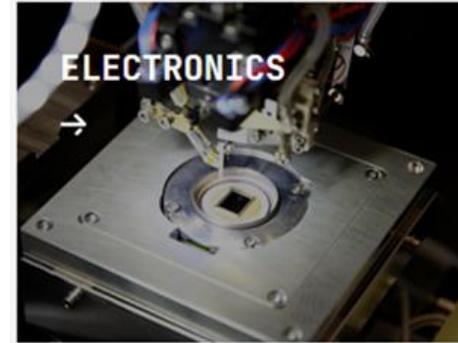
- Replication of the **Boat Analogic Bridge Panel and Trim Tabs Unit**
- Replication of the **Boat Wheel and Throttle Unit**
- Same Remote Control Console of the Mission Payloads used onboard of the Boat
- One Computer and n. 3 Monitors to manage all video signals of the boat sensors and for the **Boat Guidance Cameras visualization**
- One Computer and Monitor for the **Boat Radar Visualization and Operation**
- One Computer and Monitor for the **Boat Automation and Navigation Visualization and Operation, including Path-planning and Mission-planning**
- One separate Unit dedicated to **manage different power supply sources**
- Handling & Transportation subsystem



Questions?

Nicola Toniuzzi
Leonardo Electronics
Head of Product Sales Support & Partnership
M +39 (331) 6549 928
E nicola.toniuzzi@leonardo.com

Sandro Lazzari
Leonardo Electronics
Chief Technology Office
Naval Armaments & Systems
M +39 (336) 630 5260
T +39 (0187) 582 724
E sandro.lazzari@leonardo.com





THANK YOU
FOR YOUR ATTENTION

leonardo.com

