

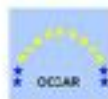
Naval Programmes managed by OCCAR with a focus on the modern Logistic Support Ship (LSS)

Combined Naval Event 2024 – Farnborough (UK)



Agenda

- OCCAR overview
- Programmes managed in the Naval Domain
- Technical focus
 - LSS Programme
 - FREMM Programme
 - Hrz MLU Programme
 - PPA Programme
 - MMPC Programme
 - MMCM Programme
 - MALE RPAS Programme
 - LWT Programme
- Questions



OCCAR

OCCAR (Organisation Conjointe de Coopération en matière d'Armement)

International Organisation for the management of cooperative defence equipment programmes

Created through the **Convention** signed in 1998 and entered into force in 2001



Member States



Non-Member
Participating States



Observer States



Cooperation by identifying Centres of Excellence

Member States
Participating States

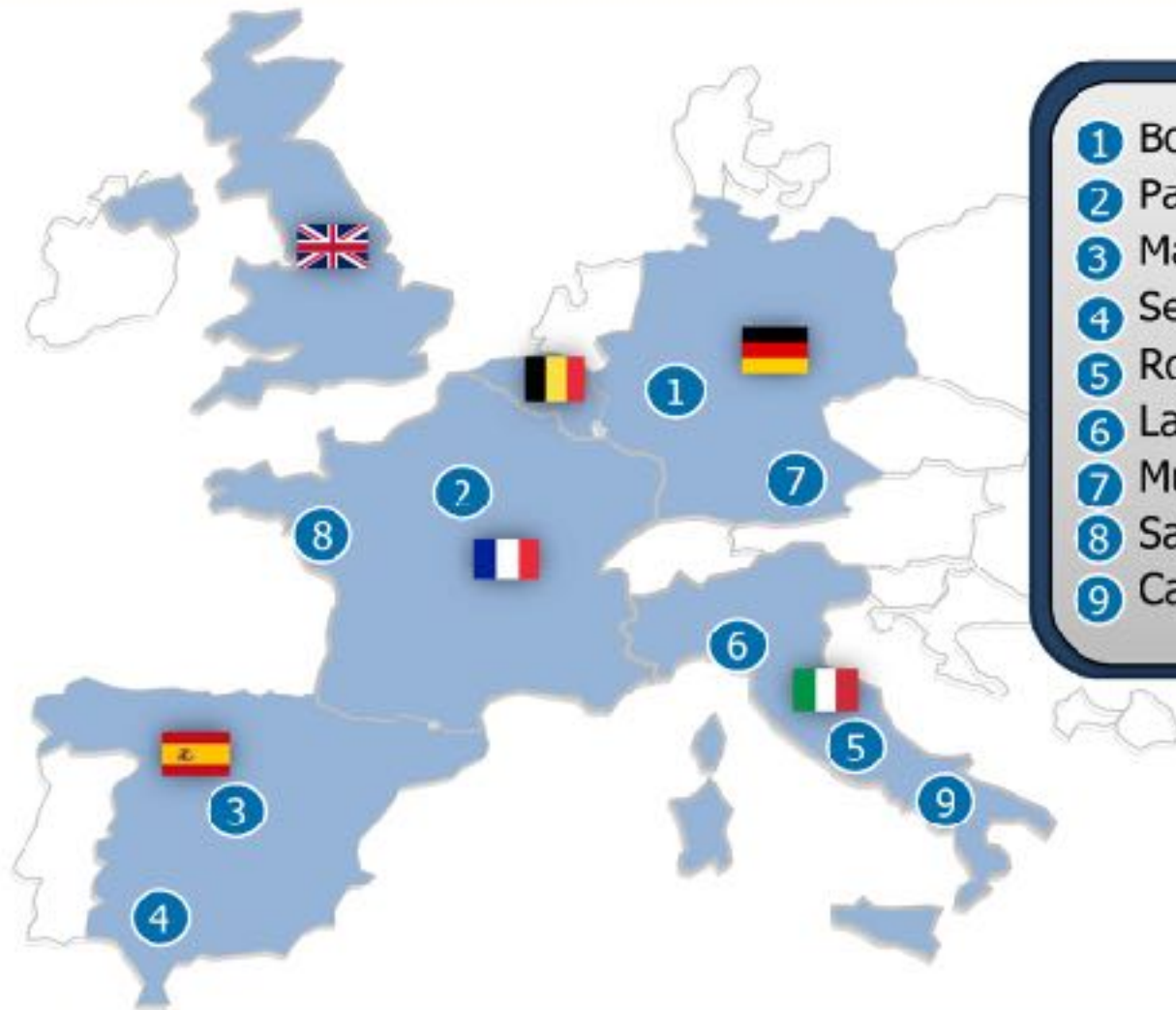
 Co-funded by
the European Union



-  E-NACSOS - European Naval Collaborative Surveillance Operational Standard
-  HYDIS - European Endo-Atmospheric Interceptor
-  ESSOR - European Secure Software Defined Radio
-  HYDEF - European Hypersonic Defence Interceptor
-  MALE RPAS - MALE Remotely Piloted Aircraft System
-  MMPC - Modular and Multirole Patrol Corvette

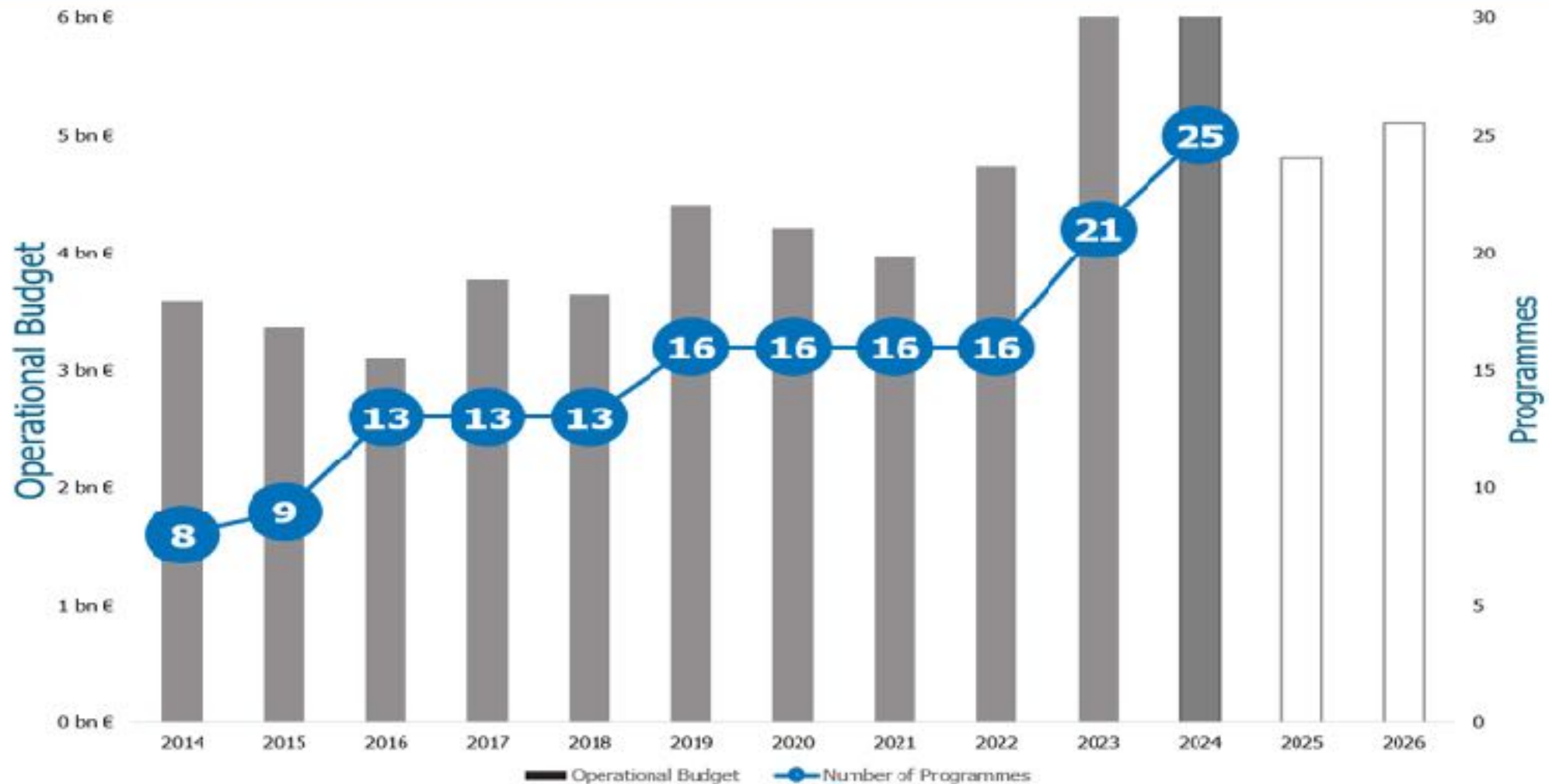


OCCAR Sites



- 1 Bonn (Central Office+ BOXER – COBRA – ESSOR – MUSIS – NVC – TIGER)
- 2 Paris (FREMM – Hz MLU – MAST-F – FR/UK MMCM – FSAF/PAAMS – LSS – MMPC)
- 3 Madrid (A400M – HYDEF)
- 4 Seville (A400M – Satellite Office)
- 5 Rome (U212 NFS – PPA – FREMM – CAMM-ER Satellite Office)
- 6 La Spezia (LSS – FREMM – Satellite Office)
- 7 Munich (MALE RPAS)
- 8 Saint Nazaire (LSS – Satellite Office)
- 9 Castellamare di Stabia (LSS – Satellite Office)

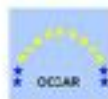
OCCAR past and future



OCCAR Organisation & Business Model

Key Success Factors

- ⌘ 20 years of successful record as INDEPENDENT international organisation;
- ⌘ Flexible, lean and agile;
- ⌘ Quality Management System framework and ISO-9000;
- ⌘ Best practice programme management techniques;
- ⌘ Empowered Programme Managers;
- ⌘ TLM approach;
- ⌘ "Global Balance" replacing "Juste Retour";



OCCAR in the Naval Domain



Medium Altitude Long Endurance Remotely Piloted Aircraft System (MALE RPAS)



Co-funded by the European Union



Logistic Support Ship (LSS)



Observer



Maritime Mine Counter Measures (MMCM)



Lightweight Torpedo (LWT)



Multi Mission Frigates (FREMM)



Offshore Multipurpose Patrol ships (PPA)



Modular Multirole Patrol Corvette (MMPC)



Co-funded by the European Union

LSS Programme overview

Logistic Support Ship

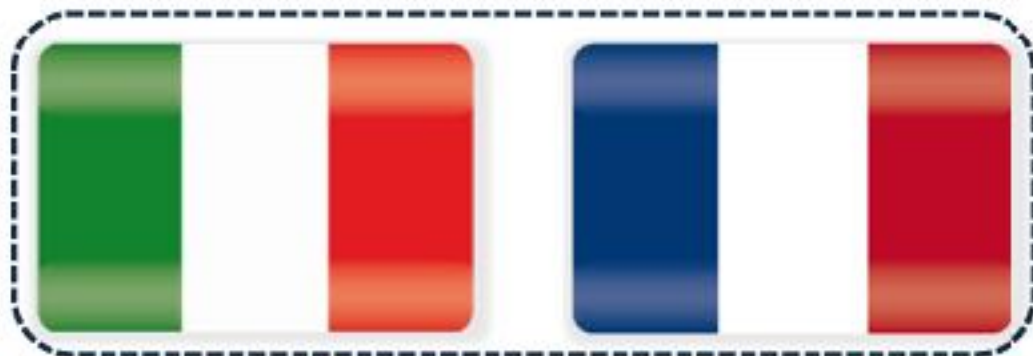


Programme Overview

Stakeholders



Observer

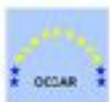
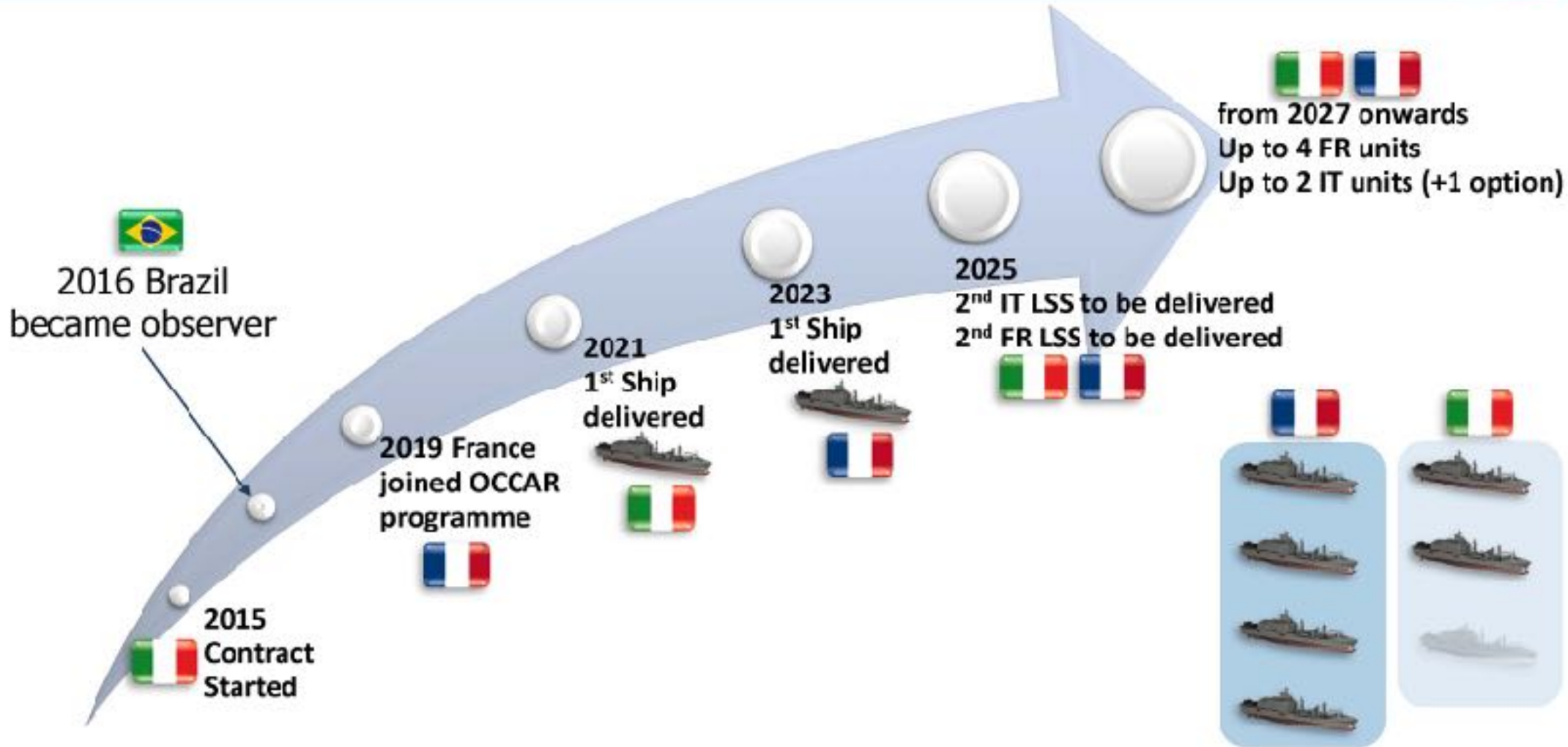


Temporary Consortium



The strength of co-operation

How to make defence expenditures more effective (get more for less)?



Tasks and capabilities



LSS will perform the main following tasks

Multirole and Dual Use:

CIVILIAN

- Logistic support to a naval group for an extended period;
- Technical assistance and support of systems/equipment embarked;
- Medical and surgical support;
- Disaster relief, humanitarian response, provision of medical aid;
- Search and rescue operations and aid to vessels in distress;

MILITARY



Common French-Italian objectives



A win-win cooperation through OCCAR



Technical Overview (1 of 4)



Main Characteristics

- Displacement: up to 31.000 t.
- Length: \approx 194 m
- Speed: more than 19 Kts
- Range: up to 8.000NM
- Crew: up to 235
- Diesel-Electric Propulsion Plant (low environmental impact)
- Flight Deck & Hangar up to 2 Helos
- Medical Facilities, NATO Role 2 LM



Technical Overview (2 of 4)



Photo credit: Fininvest

SUPPLY & LOGISTIC CAPABILITIES:

- 4 refuelling stations for fuel and JP5
- 2 stations for heavy material transferring
- 1 aft refuelling station for fuel
- Workshops and labs for repair activities



≈ 8.700 m³
Naval Fuel



≈ 3.700 m³
Avio Fuel



≈ 800 m³
Fresh Water

≈ 30.000
Food rations

Technical Overview (3 of 4)



Surgery 1



Surgery 2



Intensive care



ROLE 2 MEDICAL SUPPORT:

- Connection with hospitals ashore
- Telemedicine / VTC medical consultation / Second opinion
- Diagnostic imaging

HOSPITAL CRITICAL AREA:

- First aid: 8 beds
- Burn unit: 1 bed
- Intensive care: 4bd + 4bd
- Surgery : 2 rooms

HOSPITAL INPATIENT AREA:

- Hospital stays: 2bd + 2bd
- Infectious stays: 2bd + 2bd
- RX, Orthopantomograph, CAT
- Analysis laboratory
- Pharmacy/

Technical Overview (4 of 4)

Range of Combat System capabilities

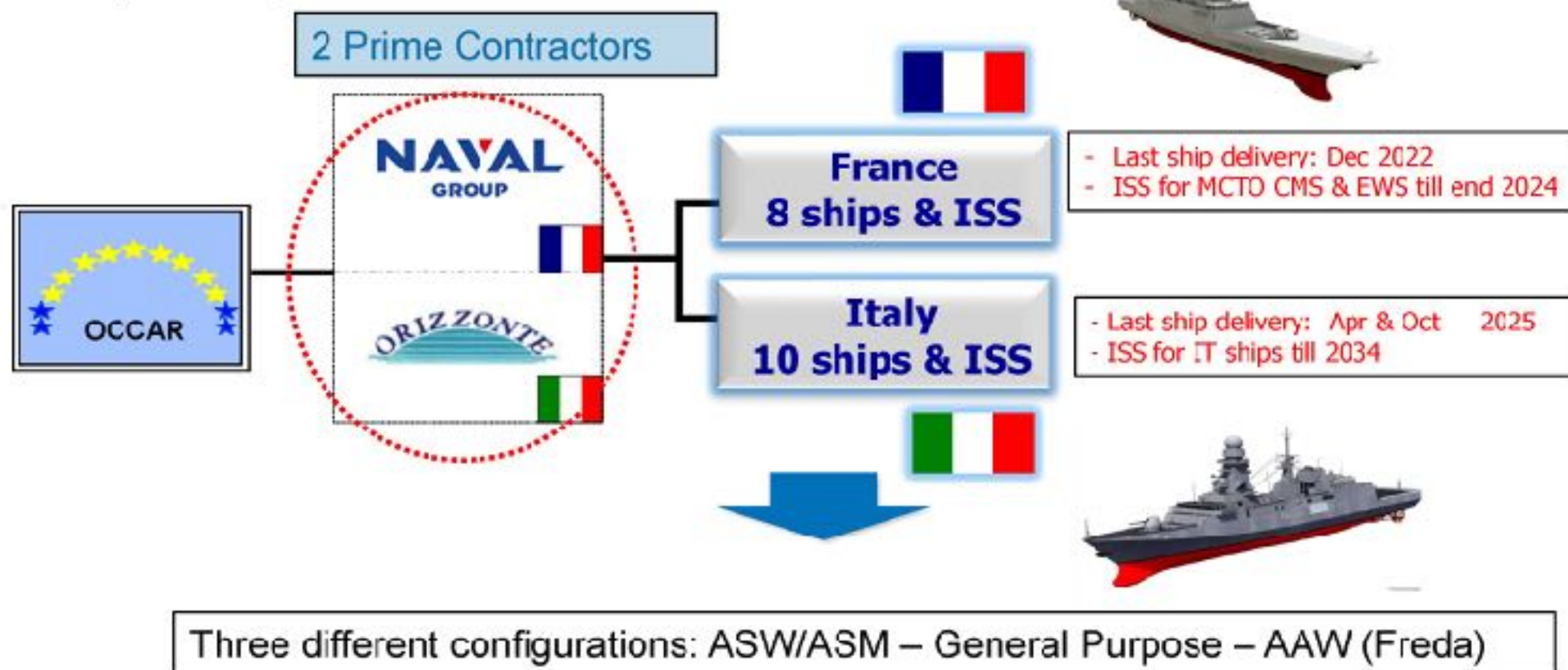
- Radar and ASW Suite
- Integrated Bridge
- Combat Management System
- Fire Control System
- Medium Caliber Gun system (MCGS)
- 360° Asymmetric Warfare Center
- Close-In Weapon Systems (CIWS)
- Electronic Warfare (EWS)
- Torpedo Detection System (TDS)
- AAW/ASW Decoy Launching System
- Ship Board Protection
- Communication System



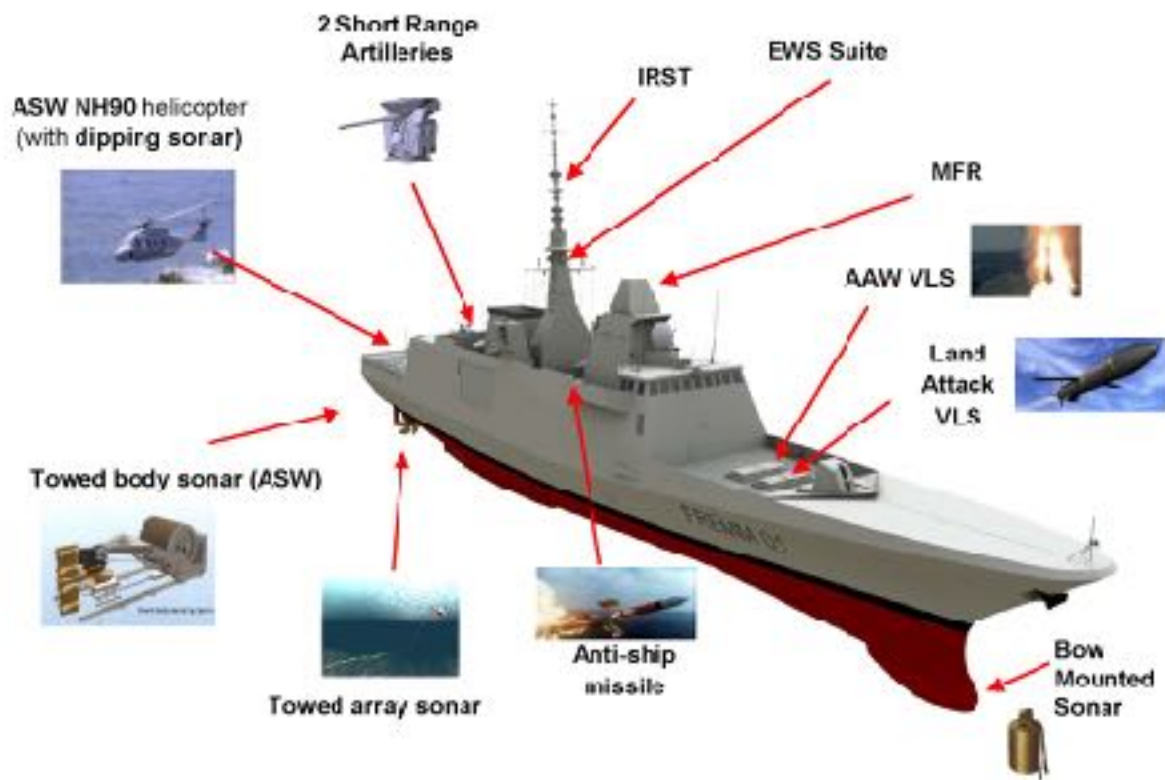
FR-IT Multimission Fregates (FREMM Programme)



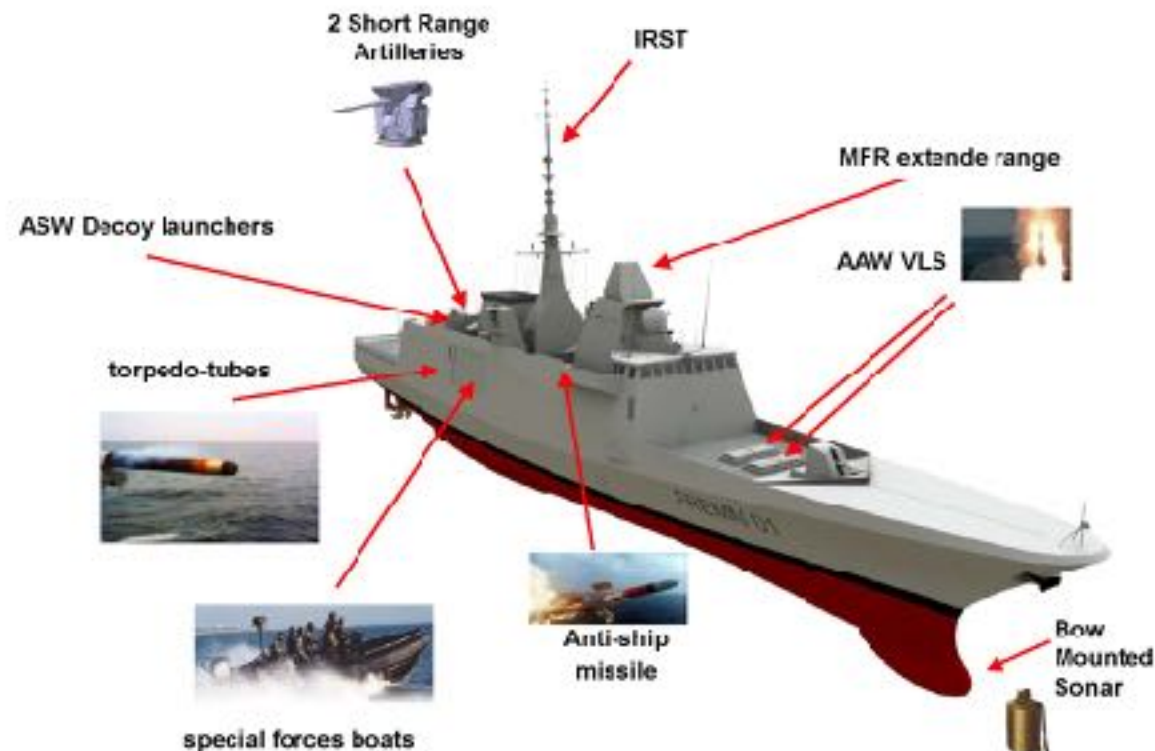
FREMM PD
(Paris and La Spezia sites)



FR-IT Multimission Fregates (FREMM Programme)



French FREMM - ASM version



French FREMM - FREDA version

FR-IT Multimission Fregates (FREMM Programme)

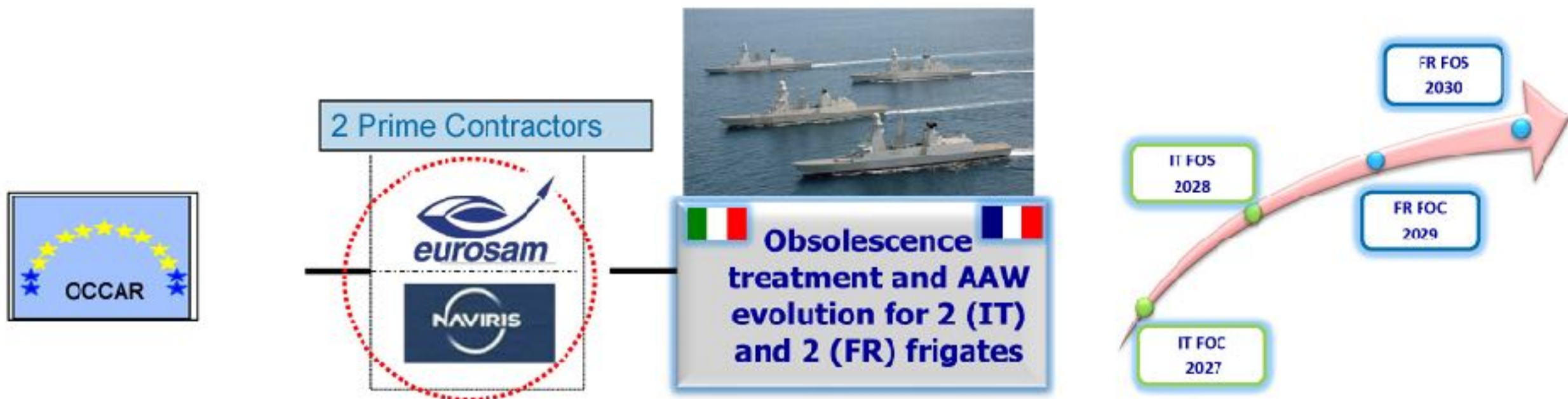


Italian FREMM – GP Version

Italian FREMM – ASW Version



FR-IT HORIZON (class frigates) Mid-life Upgrade Programme



- ❑ Significant evolutions in C/S domain (combined with update CMS):
 - AAW evolutions (new PAAMS + LRR)
 - new EWS
- ❑ Obsolescence treatment (with updated systems) in PTF domain

PPA Programme - Ship main features and capabilities



1

Architecture

Length (b.p.) 133 m

Beam 16.5 m

Draft 5.2 m

Displacement \sim 6,000 t



2

Propulsion

Co.D.a.G.o.L.

Max Speed 32 Knt

Range 5,000 NM at 15 Knt

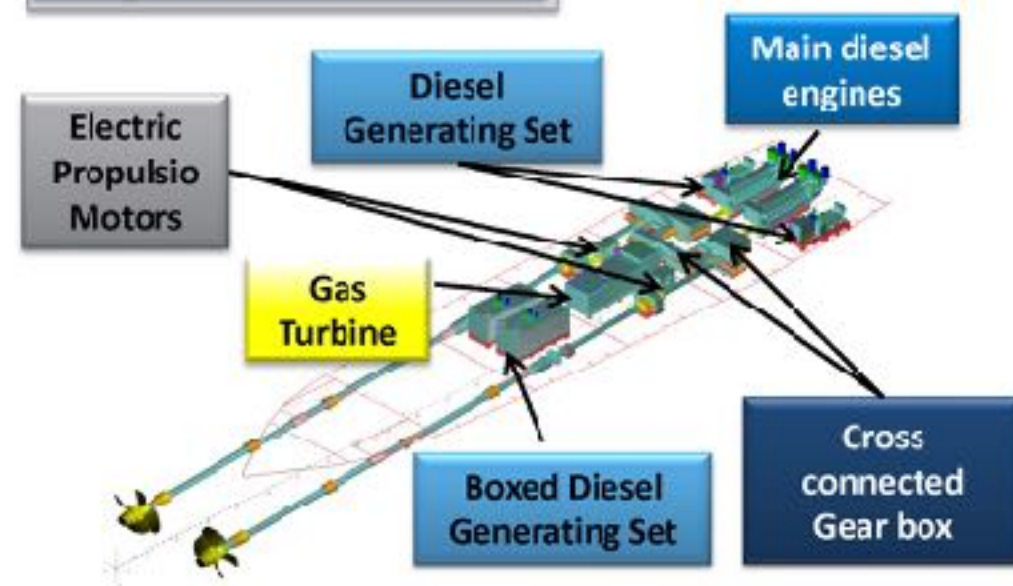
3

Accommodation & Hangar

Crew 145

Accommodation 181

Hangar 1 EH 101 or 2 SH 90



17.05.2024

Innovations and new generation systems



PPA - CS Configuration: Light, Light + and Full versions



| Equipment | Light | Light+ | Full |
|---|------------|------------|------|
| <ul style="list-style-type: none"> • 5' Inch Firing Gun (127mm) – Vulcano Ammunition • 3' Inch Firing Gun (76mm) – Strales/Vulcano Amm. • Small Caliber Gun (25mm) • CESM (Communication Electronic Support Measure) • RESM (RADAR Electronic Support Measure) • THS (Torpedo Handling System) • DDS (Diver Detection Sonar) | ● | ● | ● |
| <ul style="list-style-type: none"> • RADAR AESA-X 4FF | ● | Fitted for | ● |
| <ul style="list-style-type: none"> • RADAR AESA-C 4FF • RECM (RADAR Electronic Counter Measure) • Missile System SAAM – ESD (ASTER 15/30) -B1NT | Fitted for | ● | ● |
| <ul style="list-style-type: none"> • ATAS (Active Towed Array Sonar) • TLS (Torpedo Launching System for LW Torpedo) • DLS (Decoy Launching System) • MJTE (Mobile Jammer Target Emulator) | Fitted for | | ● |



MMPC Programme



MMPC is a **surface combat 2nd rank vessel** (according to NATO nomenclature: **Limited Warship Unit**) based on a mono-hull concept with a common core design, which can be the base for pre-designed specific versions and variants, derived with minimal reworks and interfaces tailored to Nations individual needs.



Versions

- **Full Combat Multipurpose (FCM) version (Italy/Greece)**
 - ✓ adequate self-defence in all warfare areas
 - ✓ capable of acquiring certain additional capabilities
 - ✓ modular configurations (multi-mission bay)
- **Long Range Multipurpose (LRM) version (France/Spain)**
 - ✓ extended endurance (up to 9.000 NM at 12-14 kts)
 - ✓ adequate self-defence in selected warfare areas
 - ✓ capable of acquiring additional capabilities
 - ✓ modular configurations (multi-mission bay)

energy-efficient, green, safe, interoperable and cyber-secured

| Max Length (m) | Max Displacement (t) | Max Draft (m) | FCM-LRM range (nm) |
|----------------|----------------------|---------------|--------------------|
| 112 | 3300 | 5,5 | 4000-9000 |

FR-UK Maritime Mine Counter Measures (MMCM)



A Capability comprising Autonomous Unmanned Systems operating remotely, at a stand-off distance from Mother Ships, through a Command and Control Centre (either embarked or deployed ashore)

Main Activities 2024

- Production Phase : Qualification and Delivery of the First Systems (out of 8 in total)
- Kick-off of In-Service Support

Looking towards 2025

- Production Phase : Qualification and Delivery of the Last Systems
- In-Service Support



MMCM

performance

Mine neutralization up to 300m depth (120m today)
Operated from land or from a building

secure

Limited human presence, drone search/neutralization of mines

precision

New generation multi-aspect sonar

MINE WARFARE VESSEL

- Prepares and operates the mission
- Commits mine search/identification/neutralisation assets



BASE VESSEL FOR BOMB DISPOSAL DIVERS

Engage mine clearance divers if necessary



SURFACE VESSEL

Remotely controlled, information sent in real time



COMMAND AND CONTROL CENTRE

- Prepares and operates the mission
- Commits mine search/identification/neutralisation assets

Operates/engages (or aiming) using artificial intelligence



Mother Ship or Base Vessel outside the Scope of Cooperation managed by OCCAR

TELEOPERATED ROBOT

Identify and neutralise the mines



TOWED SONAR

Search for mines



UNDERWATER AUTONOMOUS VESSELS

High resolution images and multi-views



MINE CLEARANCE DIVERS

Search, identify and neutralise the mines



IDENTIFICATION - NEUTRALISATION

DETECTION - CLASSIFICATION - LOCALISATION



MALE RPAS - Advanced Maritime ISR Missions



Observer

Multi-domain situational awareness with best in-class sensors

Naval Force Support

Detection from Surface Vessels to Small Maritime Targets
(Submarine Periscopes)

Maritime Search, Inverse SAR, Maritime MTI, Small Maritime
Target Modes

Collabrative/non-cooperative Vessel identification

Maritime Radio system

Naval Datalink System

Search & Rescue

EC/IR Imagery and Full Motion Video

Personal Locating System

Small Maritime Target Modes

Law Enforcement

Monitoring of Anti-piracy, smuggling and illicit
trafficking thanks to small targets detection



MALE RPAS Payload

Weaponization



Multifunctional Information Distribution System (MIDS)

Link 16 for NATO coalition communications with airborne/ground assets

Personal Locating System (PLS)

for search and rescue of isolated civil and military ground forces



High payload capacity (2,300 kg)

Light Weight Torpedo



MU90 In Service Support for FRA, ITA, DEU and COA



- Utilized by 13 navies
- More than 350 sea trials performed
- Qualified for use from ships, helicopters and airplanes
- Operational depth from 3 to 1.000 m
- Engagement distance superior to 12.000 m
- High resistance against decoys and jammers

Looking towards 2025

- Extension of operational life
- Obsolescence treatment
- ISS performance improvement





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