ECA GROUP

make sure

UMIS

UNMANNED MCM INTEGRATED SYSTEMS

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VP Strategic Programs

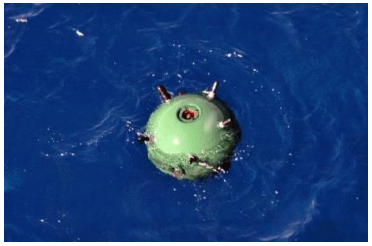
DSEI LONDON

10 September 2019

THE THREAT IS STILL THERE & CHANGING







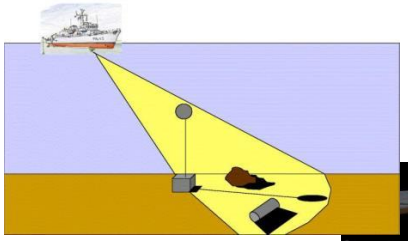

AND EFFICIENT



FROM TRADITIONAL MCM TO OFFBOARD SYSTEMS

FROM

SHIPS IN THE MINEFIELD



HUNTING

DETECTION

CLASSIFICATION

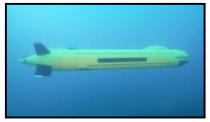
IDENTIFICATION

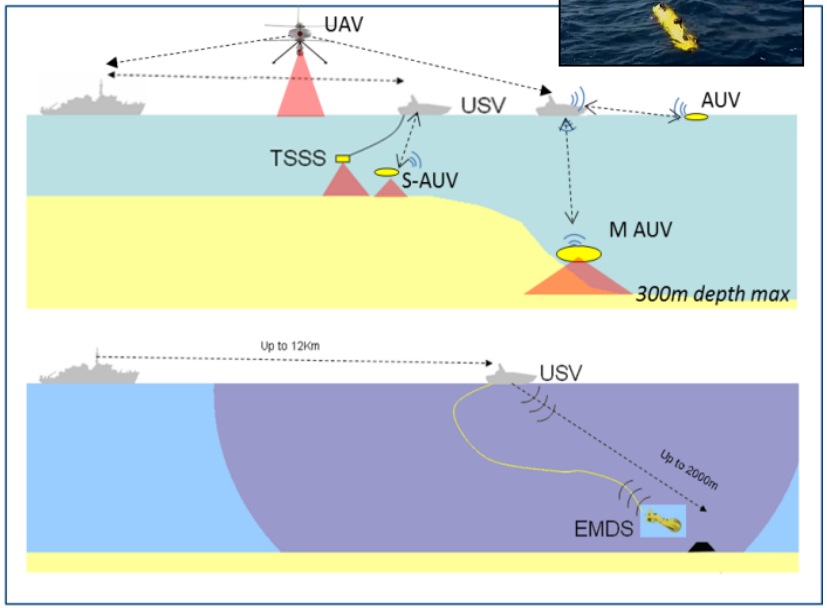
NEUTRALIZATION

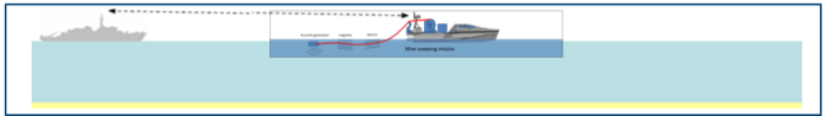
SWEEPING

TO

USE OF OFFBOARD SYSTEMS







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OFFBOARD SYSTEMS

DETECTION → CLASSIFICATION → IDENTIFICATION → NEUTRALISATION

Detection can be performed using:

- AUVs, USVs towing sonars, UAVs with LIDAR, EO/IR

Identification/Neutralization

- USV deploying ROVs

Some advantages compared to traditional MCMVs:

- Safer: the ship do not need to enter the minefield
- More flexible: the toolbox can be adapted to
  - the need of a specific mission (type and number of robots selected deployed)
  - customer requirement (size of ship, COOP, operations from the shore...)
- Faster operations:
  - detection can be performed simultaneously in different areas
  - detection, identification and neutralization can be conducted in parallel (in different zones)

ECA Group Solution: UMIS

UMIS: UNMANNED MCM INTEGRATED SYSTEM

UMIS is a **SYSTEM OF ROBOTS** (TOOLBOX) composed of:

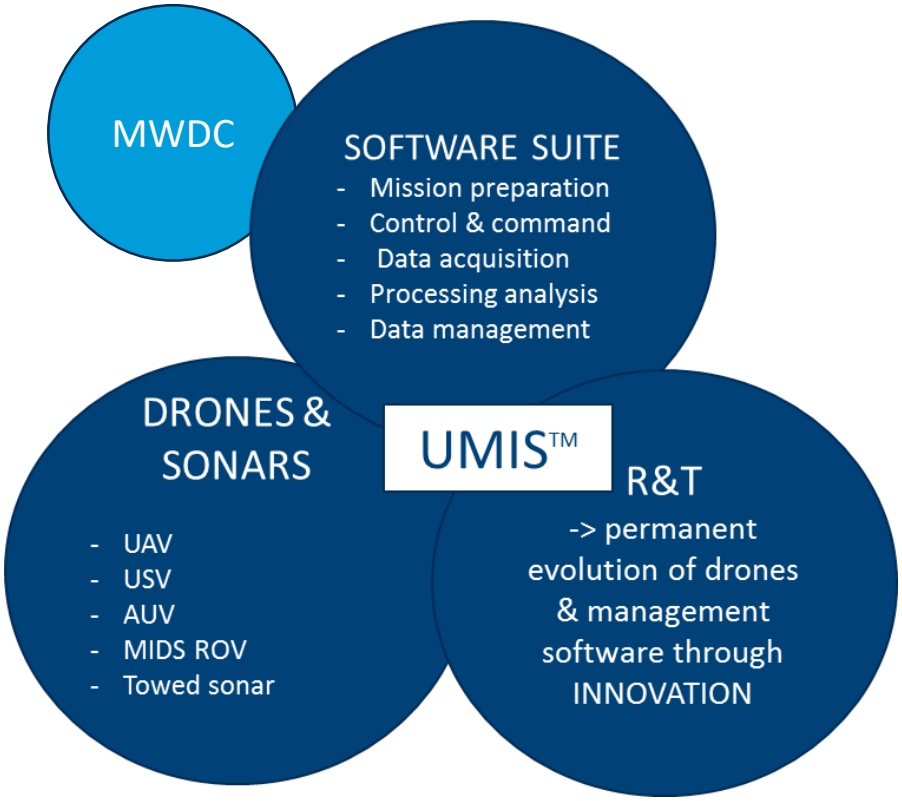
- a set of various types of robots (AUV, ROVs, USVs, UAVs),
- a software suite (for mission preparation & supervision as well as data analysis & management)

That can be:

- integrated and deployed from a ship
- or directly deployed from the shore

For coastal & open seas MCM missions without exposing the mothership and the crew

UMIS can also be adapted to other purposes, e.g. homeland security, critical infrastructure protection…



UMIS: UNMANNED MCM INTEGRATED SYSTEM

A SYSTEM ADAPTED TO CUSTOMERS REQUIREMENT

UMIS IS A TOOLBOX

T18-M Towed SAS

A18-M et T18-M LARS

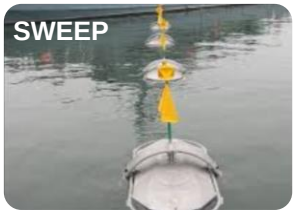
INSPECTOR 125 USV

A18-M AUV

A9-M AUV

SEASCAN

INSPECTOR with 2 SEASCAN & 6 K-STER



SWEEP

UAV

K-STER EMDS

« Commonalities » between the Tools:
Use of common building blocks, hardware & software

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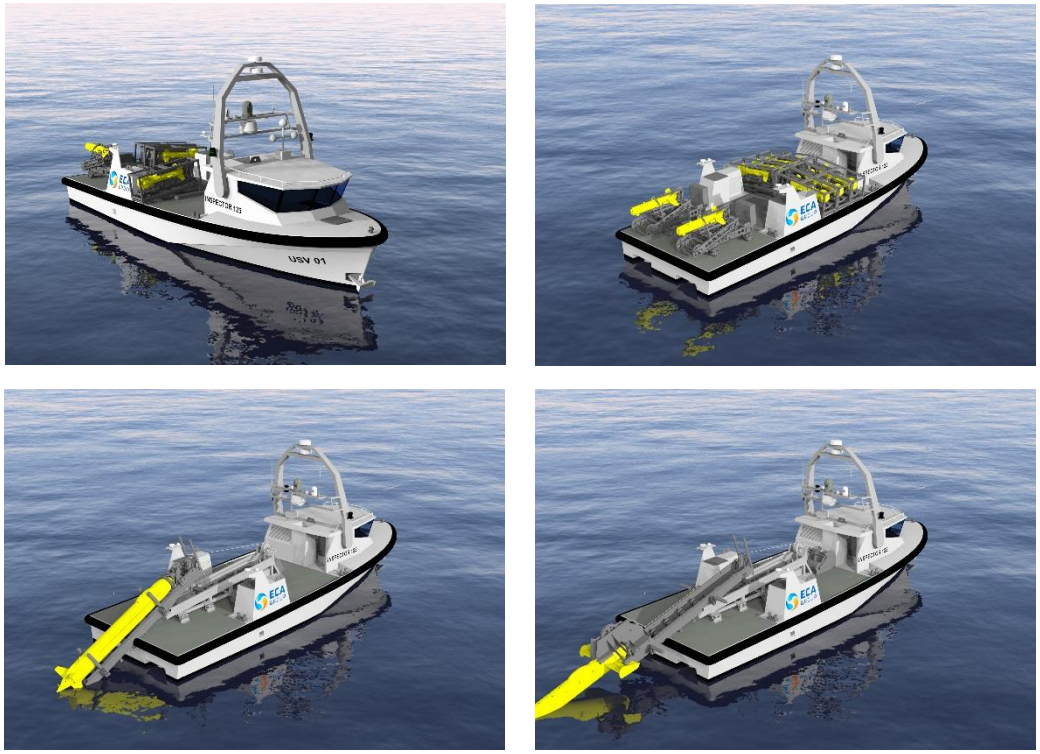
FOCUS ON MAIN COMPONENTS

INSPECTOR 125 UNMANNED SURFACE VEHICLE

A NEW GENERATION OF NAVAL SURFACE DRONE

INSPECTOR 125

- Derived from the sea proven V2NG SAR crafts for SNSM (French lifeboat institution)
- Fitted with anti-roll system for launch and recovery of payloads in rough seas
- Operated and deployed from ships or shore
- Air-transportable
- High carrying capacity (up to 3 tons of payload)
- Towing capacity for mine-sweeping system



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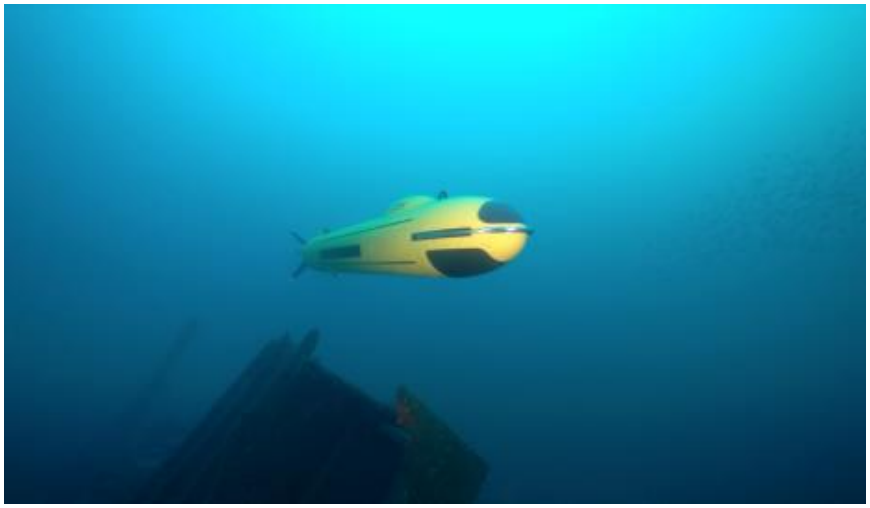
A18-M AUTONOMOUS UNDERWTAER VEHICLE

THE LASTEST GENERATION AUV

A18-M AUTONOMOUS UNDERWATER VEHICLE

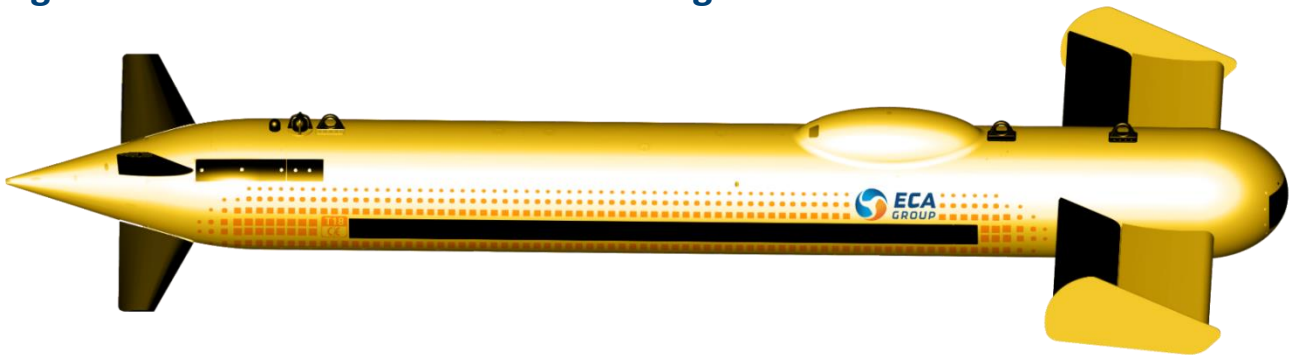
- Latest AUV from ECA benifitting from 20 years of experience in AUV design and manufacturing (A27, A9…)
- Fitted with latest technology sensors and components (batteries, low consumption electronics & sensors…)
- Rapid battery replacement (1hour)
- Compact with high performance
- Low signatures (STANAG)
- Designed to be launched and recovered from a USV as well as from a mothership



A18 in its « cage » from mother ship

T18-M – BATTERY POWER TOWED SAS

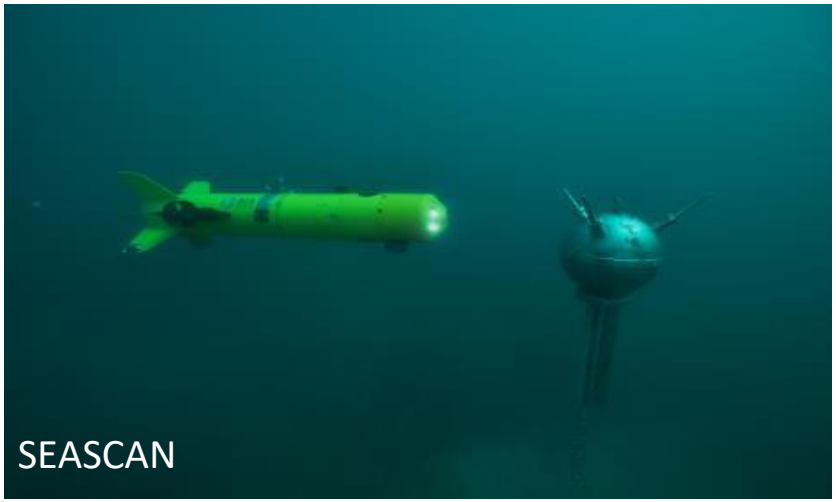
- **Derived from A18-M AUV**
- **Low signatures (STANAG)**
- **Smaller and lighter towing cable enabling:**
  - High towing speed
  - To reach greater depth
  - Smaller cable reduces winch on the carrier boat -> the boat's engines -> fits on more compact USV -> no need for a large MCMV
- **Same launching and recovery system (LARS) for deployment from USV**
- **Shared logistics with A18-M & reduced reconfiguration time of the USV**

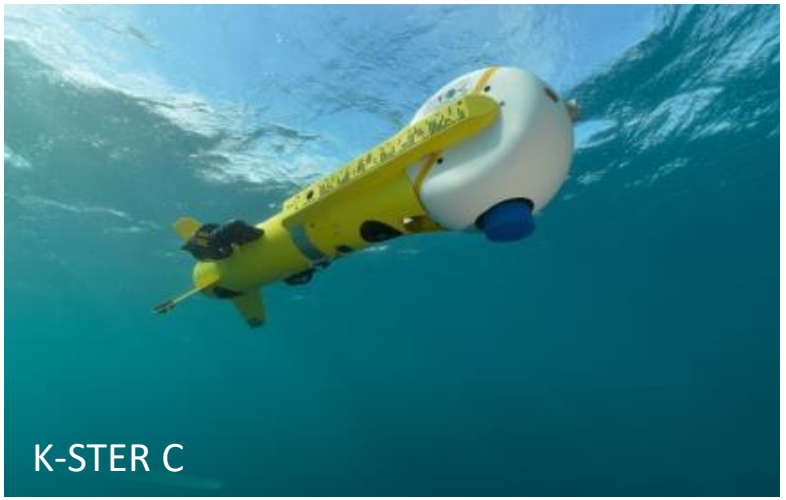


MINE IDENTIFICATION & DISPOSAL SYSTEM

QUALIFIED & IN-SERVICE AMMUNITION

SEASCAN & K-STER ROVs


SEASCAN


K-STER C

INSPECTION VEHICLE

- Battery powered
- High performance in current
- High Endurance enabling several identification
- Low signatures (STANAG)


K-STER canisters & SEASCAN LARS on USV

NEUTRALIZATION VEHICLE

- Battery powerd
- High performance in current
- Accurate aiming (rotating head)
- Insensitive explosive
- Qualified as an ammunition
- Low signatures (STANAG)

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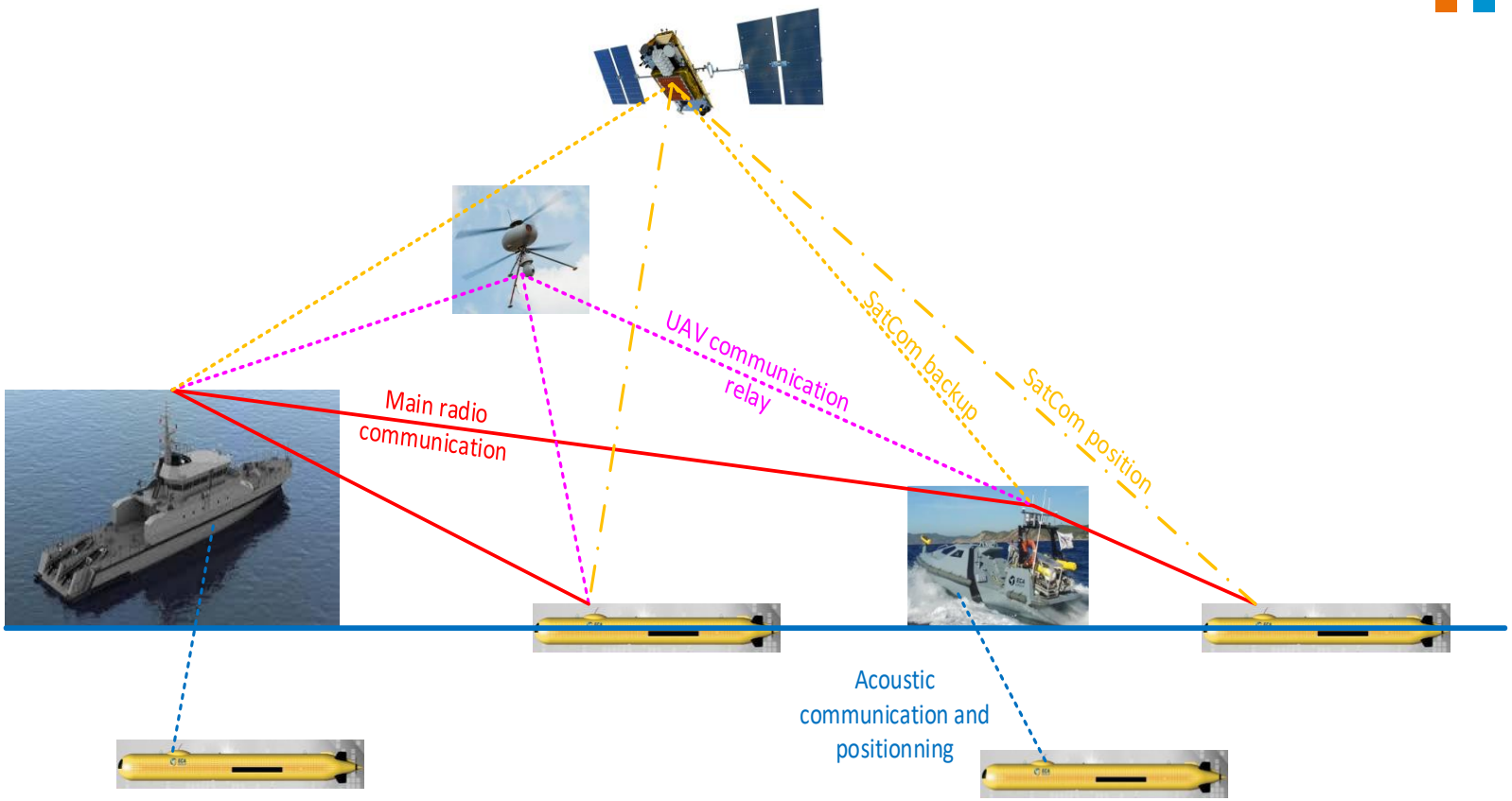
COMMUNICATION SYSTEM



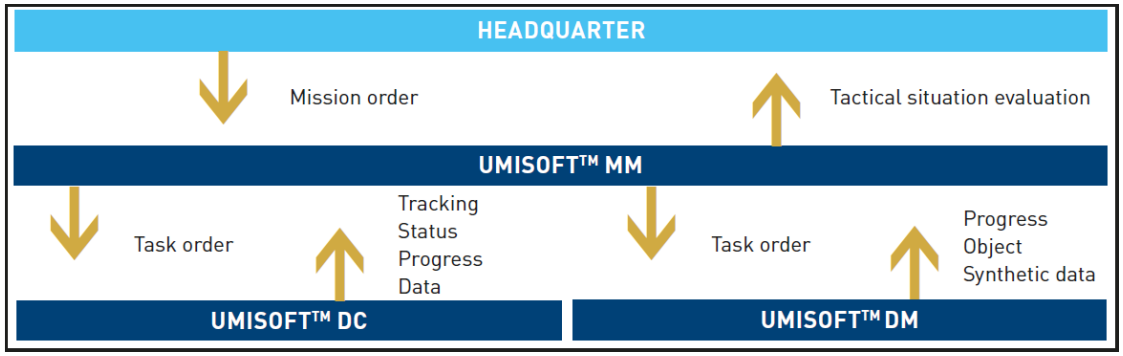
Communication system:

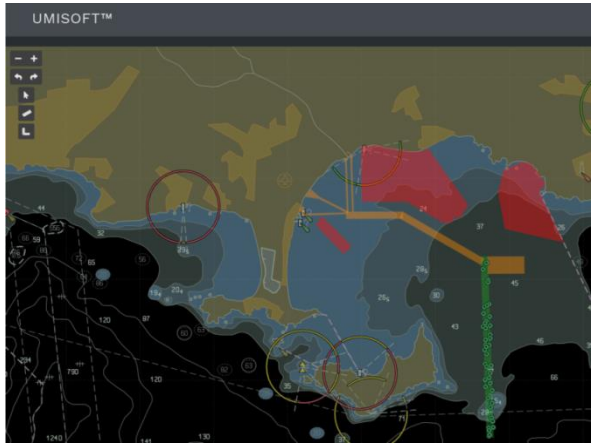
- Radio : up to ~20Nm LoS
- SATCOM (back-up)
- Underwater ACOMs
- UAV as radio relay

3 interconnected modules
gives a comprehensive management of the entire MCM mission

- **UMISOFT MM:** Mission Management, (planning, supervision, and evaluation),
- **UMISOFT DC:** Drone Control (programming, preparation and control of drones)
- **UMISOFT DM:** Data Management (payload data analysis and classification)

Can be connected/interfaced to the CMS of the mothership





UMIS VIDEO

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EXAMPLES OF UMIS CONFIGURATIONS

BELGIAN & DUTCH NAVIES SOLUTION

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BELGIAN & DUTCH NAVIES VESSEL

OPEN SEAS OPERATIONS

Ship designed around the integration, the deployment & maintenance of the Toolbox in high sea states:

- **LARS for the USVs (location and type)**
- **Hangar layout and equipment**

Naval Group and ECA Group worked closely in order to define an optimized solution

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OCTOPODA

COASTAL OPERATIONS

SEA PROVEN DESIGN

Length	50 to 60m
Hull Beam	11.50m
Draught	3.25m
Displacement	600t – 750t
Hull/Superstructure	Steel/Aluminum

Propulsion type	Electric Hybrid Bow thrusters

Accomodation	For 32 people
Platform crew MCM team incl. divers	16 16

Max Speed	20kts
Cruise speed	16kts
Max Electric speed	6kts
Endurance	2900nm@16kts 4000nm@12kts

ECA GROUP (MAURIC) DESIGN THAT CAN BE ADAPTED TO FULFILL SPECIFIC REQUIREMENT
e.g. OCTOPODA 300, OCTOPODA 500

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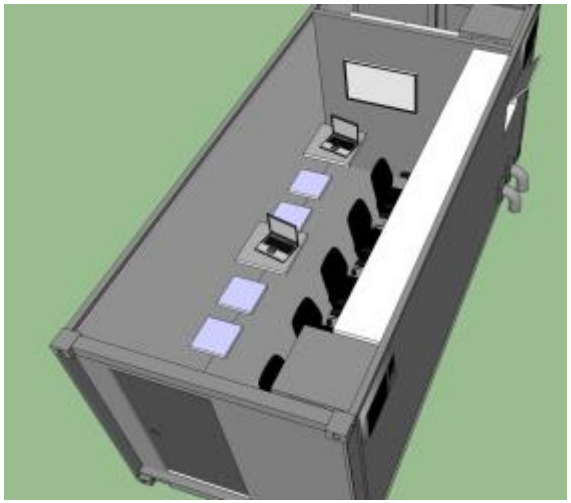
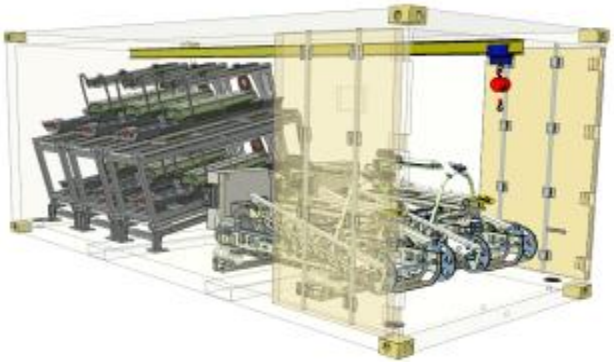
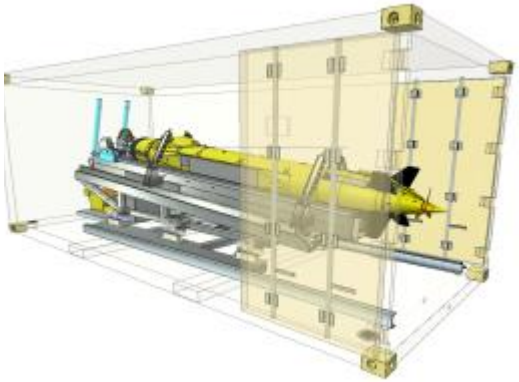
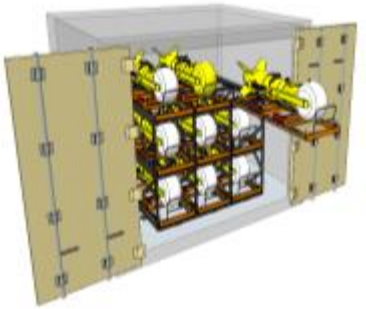
CONTAINERIZED VERSION



20’ UMIS C2 container







- Set of ISO containers, trailer and cradles for transportation and deployment
- Air transportable (A400M and larger aircrafts for INSPECTOR 125)

CONCLUSION

CONCLUSION

UMIS Unmanned MCM Integrated System:

- Is a solution optimized by using common building blocks (hardware & software)
- Reduces impact when integrated onboard a ship thanks to commonality
- Reduces cost of ownership
  - e.g. common spares & training
- Can be tailored to customer requirement
  - Deployed from a mothership, shore, COOP, containerized
  - Number and type of tools, USV size
- Scalable
- Enables to clear mine fields:
  - Faster (tasks can be conducted in parallel)
  - Safer (no need to enter the mine field)
- Will be the first ever MCM offboard system deployed from a mothership (for the Belgian and Dutch navies)
- Will evolve to integrate next generations of sensors (e.g. UW LIDAR) and technologies (e.g. A.I., next battery generation etc), for UMIS 2.0, 3.0….

THANK YOU FOR YOUR ATTENTION

Visit us

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