

Deploying The First Wave Of MAS On Operations

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Scope

RN MCM Autonomous Transition

The synchronised approach to USV / UUV adoption

Experience in the Gulf

Force Integration

Complexity

Consistency

Managing the transition from crewed to uncrewed platforms

Host Vessel Evaluation

S-UUV / M-UUV Adoption

USV Progression

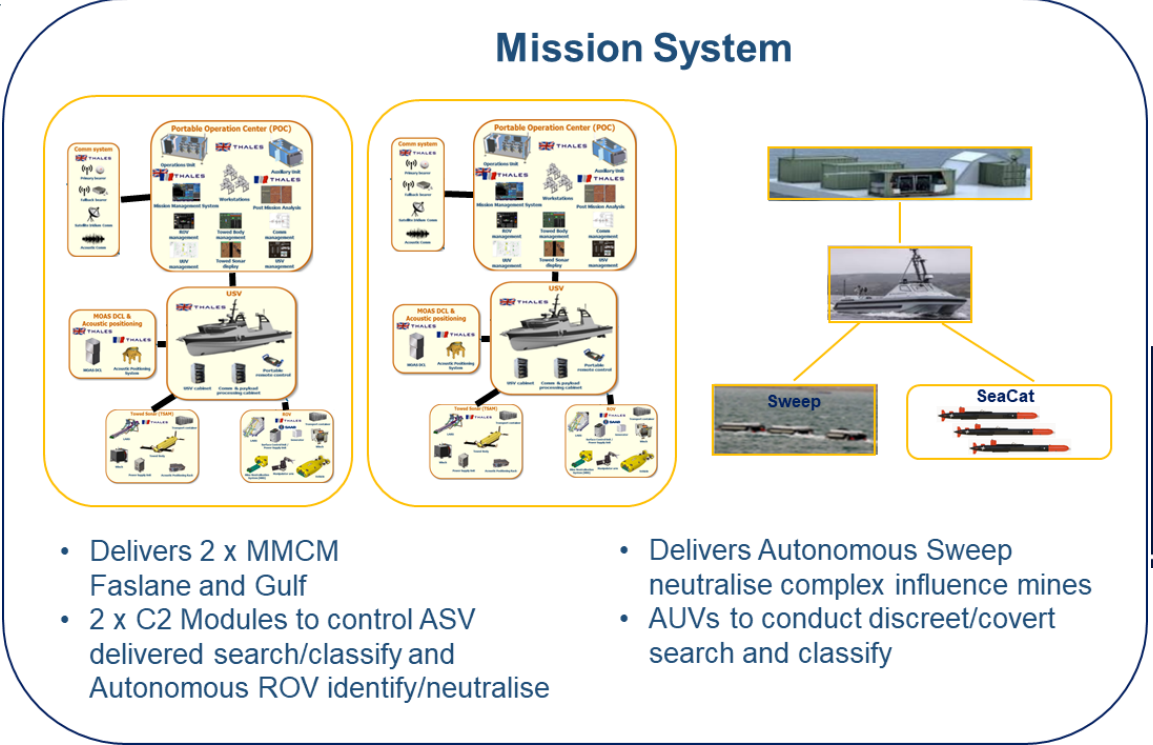
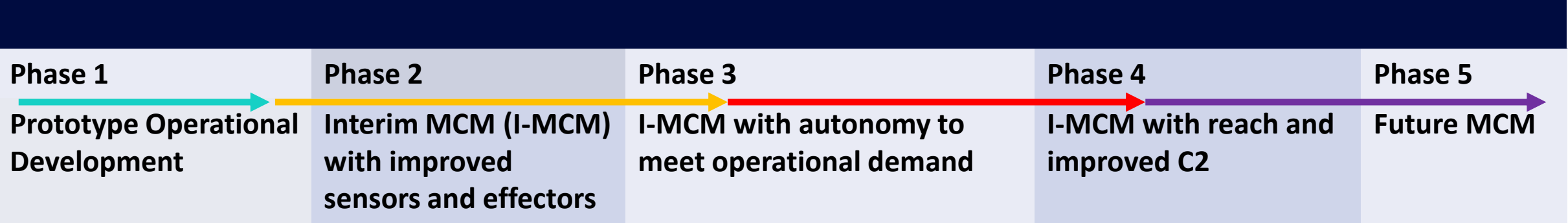
Deployed uncrewed systems

Challenges

Opportunities



RN MCM Capability Transition





Experience in the Gulf - Force Integration

MTXG X-Ray Squadron deployed Jan 23 – Current

Operational trials in the Gulf operating under the theatre commander and UKMCM force structure.



Successful Completion Op Eval of USV / TSSS / ROV

Generation of LfE through concept development systems has enable the implementation of future procurement increments, shaping the incorporation of USVs in UKMCM structure.

Key partners LfE understanding

Incorporation RN MAS alongside those of partner nations in an operational theatre continues to drive closer interoperability resulting in a faster and more agile incorporation of new concepts into operational employment.



MAS as a toolkit

To ensure longevity and wide capability employment adopted MAS need to form part of a flexible tailorable package that are scalable to the commanders mission effects.



Experience in the Gulf – Complexity

Removal of crew drives SA demand

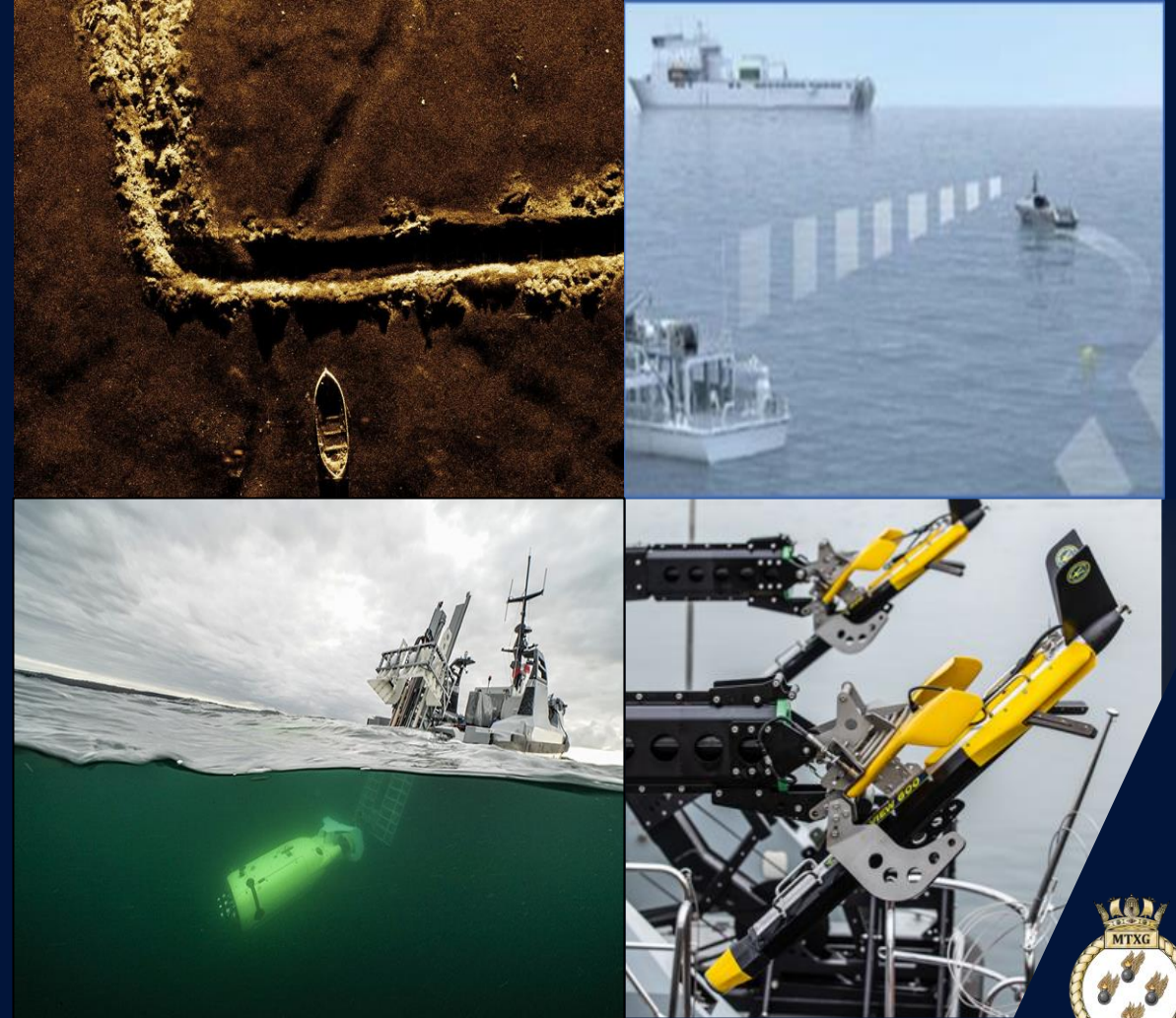
- Pre mission area assessment.
- Sensor saturation for mission monitoring.

Security of MAS

- ISAR to enable early picture compilation.
- Attrition of UUV / USV understanding.

Robust secure communications

- USV - UUV control.
- IFF - Blue Force Tracker.





Experience in the Gulf – Consistency

Expectation vs Reality of USV operations

- To ensure adoption of MAS accuracy and consistency are fundamental.
- Confidence can only be built through successful repetition.

Using MAS to enhance and develop doctrine

- New technologies are helping to open traditional MCM doctrine.
- Increased clarity of new sensor systems pushing doctrinal norms of object classification.

USV success relies on simple functionality

- Sailor driven success is not an option for successful MAS.
- Systems complexity drives a reliance on crewed operations.

USV delivery and recovery of payloads

- Proved to be one of the most complex aspects of USVs.
- Highlights importance of user community feedback.



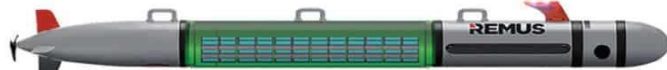
MAS Transition: Host Vessel Evaluation

- RFA STIRLING CASTLE was procured from the commercial market in Feb 23 and entered service in Dec 23. It is being used as an Offshore Support Vessel (OSV) 'mothership' for deploying MCM Maritime Autonomous Systems.
- RFA CARDIGAN BAY is a Bay-Class Landing Ship Dock (Auxiliary) and is supporting the MHC Operational Eval in the Gulf.
- The learning from experience from both platforms will be used to develop the concept for the OSV.



MAS Transition: DW UUV Adoption

S-UUV



Long Endurance Configuration
4.5 kWh for up to 30 hours of endurance



Small Payload Configuration
3.0 kWh for up to 20 hours of endurance



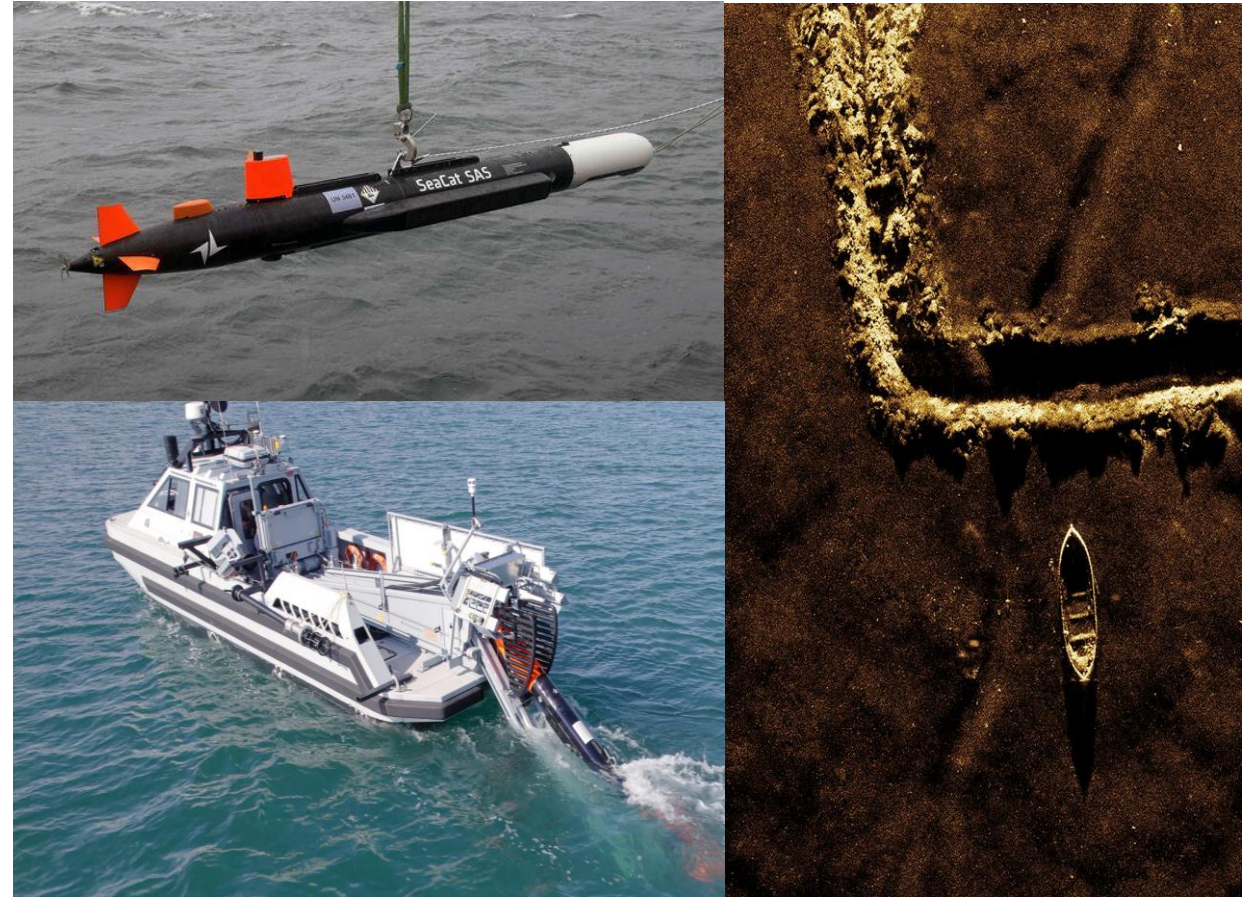
Large Payload Configuration
1.5 kWh for up to 10 hours of endurance



Base Configuration
1.5 kWh for up to 10 hours of endurance



M-UUV

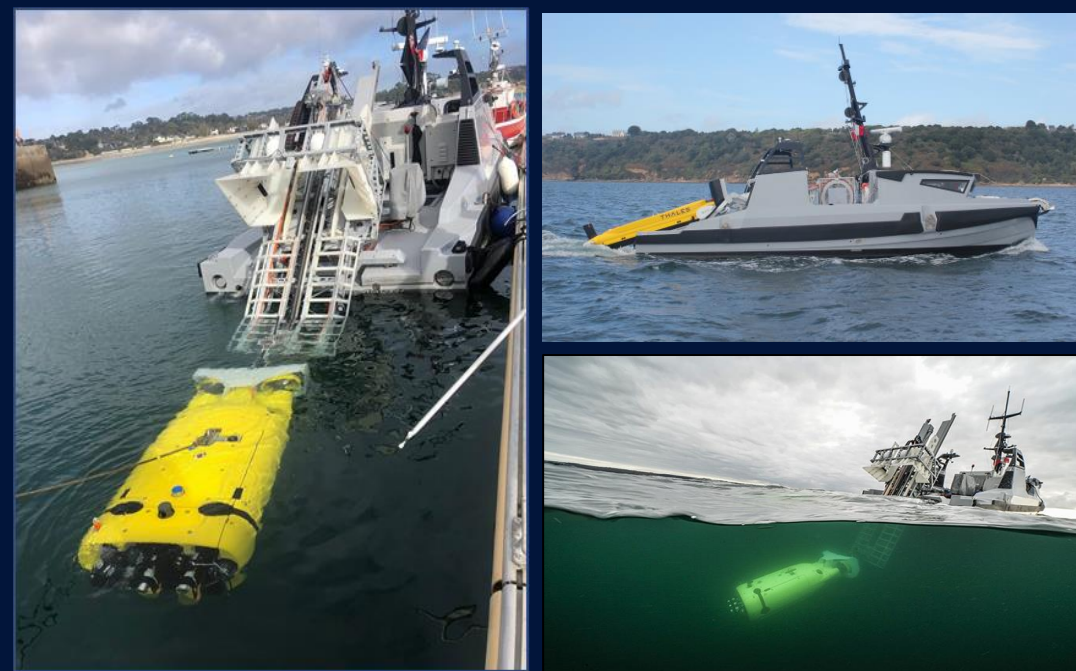


MAS Transition: USV Progression

Autonomous SWEEP trials



Autonomous USV and UUV trials



USV LfE from X-Ray operational trial deployment feeding wider RN progress



Deployed uncrewed systems

Challenges

- Attrition vs mass of USV / UUV.
- USV / UUV Operations in an EM restricted or denied area.
- Training / Workforce development.
- Performance in detrimental weather.
- Data bandwidth and USV range



Deployed uncrewed systems

Opportunities

- Significant reduction in risk to life.
- Decrease in tasking time through speed and persistence.
- Flexibility of force approach achieved through scalability.
- Interoperability opportunities.





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