Our response to the Royal Navy's Digitisation Programme DSEI 2019

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What is a Combat System?


Sonar


Radar


METOC


Shared Infrastructure


Combat Management Systems


EGOCS


Gun Fire Control


Sea Ceptor


Sting Ray


Decoy

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Royal Navy – Future Combat System "Requirements"

Open Systems Architecture

- Royal Navy to have the capability to integrate new functions flexibly
- Needs to be cheaper and faster to introduce new capability
- Reduced through life cost of support

Digital Improvements

- Better access to, and use of, combat systems data (both on and off platform)
- Improved Command Decision Support (including AI)

Capable of countering current and future threat scenarios

- Supporting the integration of Autonomous Capabilities
- Supporting the introduction of Force Level Functions

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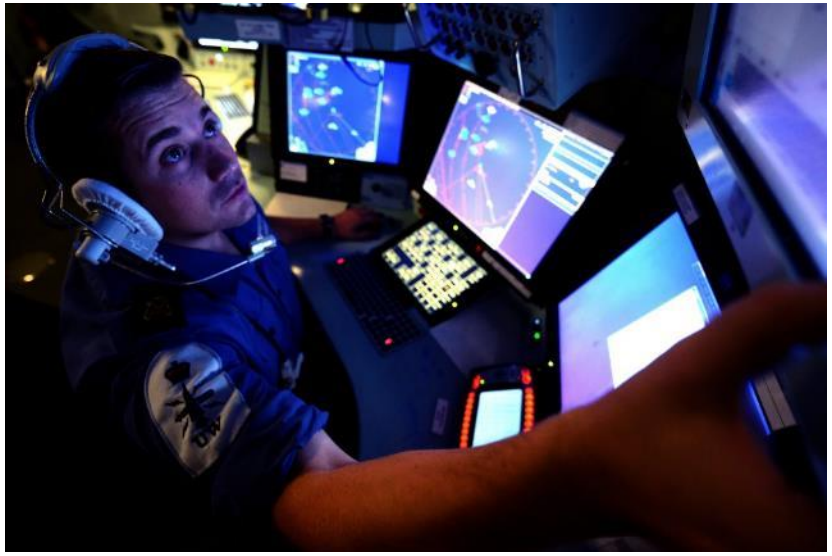
Current RN Digitisation Strategy

- Get the best out of our partners
  - Seek better access to data on Royal Navy assets
  - Encourage and support industry to swiftly explore options for introducing open architecture solutions
  - Introduce a policy of greater accessibility to RN data in all areas in a more coherent, comprehensive and assured manner.

- Open by default
  - RN needs to add, upgrade, combine and swap components easily
  - We have developed a navy vision for the framework and delivery of open architecture
  - We will now as a matter of priority, publish this open architecture strategy

- Making more of our operational data
  - Partner with key suppliers to explore the potential opportunities for disaggregating
  - Make better use of operational data of lower sensitivity, without interfering with the effectiveness and integrity of core combat platforms and systems.

Current Combat Systems



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The Ongoing Combat System Evolution

Introduction of Shared Infrastructure

- Enables co-hosting of software applications on the same hardware
- Makes data sharing between software applications much easier
- Many Combat System Equipment upgrades now become software only updates (improves agility)
- Greatly reduces the through life costs of Combat System hardware

The "Opening Up" of the Combat Management System (CMS)

- New versions of the CMS will be able to share data easily with other software applications via open standards
- The CMS will migrate from a single application to a federated set of accredited software applications
- 3rd party applications will be able to be seamlessly integrated with the CMS via open standards

The introduction of new architectures to "join up" the Combat System with other Software Applications

- Planned new architectures such as New Style of IT (for C2 applications) and Nelson (for improved data utilisation)

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BAE Systems Product Investment
Project Host

- Project Host is an internal investment programme exploring the future exploitation of the Royal Navy's Shared Infrastructure.
- Project Host will:
  Develop a more effective Mission Systems enterprise by introducing modern architectures and building an Enterprise Model to enable diverse participation driving innovation and value to the Royal Navy.
- The resultant Shared Infrastructure will be enhanced with new capability in the service layer mirroring capability developed in the commercial world.
- Project Host will work alongside Royal Navy Programme Nelson to design and build the next generation of Mission Systems architecture.

Hosting - the transfer of dedicated Mission Systems equipment to Shared Infrastructure. Improving Space, Weight and Power requirements and reducing through life costs.

Remote Diagnostics & Deployment - the expansion of the SI network off-platform through dynamic over the air interconnectivity.

Software Architectures - building future architectures & tools to enable SMEs and Academia to easily enter the Mission Systems market.

App Market - a pan-enterprise Mission Systems App Market enterprise model to revolutionise the procurement, development, integration and assurance of Combat Systems.

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Current Status of the CMS

Command Team

Near Future Status of the CMS

Command Team

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BAE Systems Product Investment
Project Dragonfly

- Project Dragonfly is an internal investment in the INTeACT Combat Management System
- Project Dragonfly will:
  Enhance and modernise the Combat Management System by exploring how the incorporation of technology can provide operational benefit
- This investment is aligned to the Royal Navy's future fighting capabilities as identified in their Maritime Strategy 2035
- INTeACT will be open, readily extensible and offer enhanced functionality whilst ensuring that it is easy to operate, maintain and provides real operational advantage
- Project Dragonfly will deliver an enhanced Combat Management System ready for deployment on Naval Platforms

Modern User Interfaces – that are intuitive and easy to operate and that implement novel ways of interacting with the combat management system

Open & Standard Architecture – to readily accommodate technology insertion, host third party applications and facilitate the rapid deployment of increments in operational capability

Data & Information Exploitation – to collect and analyse data and present this as useable information to support on-board and at shore staff

Artificial Intelligence – that will provide the command teams with reliable and trusted advice to help them make timely decision in increasingly diverse and complex situations

Cyber Security & Resilience – providing capability to meet future Information Warfare requirements and to be resilient and secure to evolving Cyber threats

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Bringing It All Together

The following initiatives are all informing the thinking about the evolution of the Combat System

- Shared Infrastructure Exploitation (Project HOST)
- Combat Management System Evolution (Project DRAGONFLY)
- Data Management and Exploitation (Project NELSON)
- C2 Application Harmonisation and Evolution (Project NSoIT)

Using these projects (and others), the Combat System is evolving into something different

- Agile
- Modern
- Still Safe and Secure

Using these Projects as a springboard, future combat systems could look very different in the future

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Thank You

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