



CASE STUDY

BAE Systems and Royal Navy

> A SERVICE MANAGEMENT APPROACH BASED ON ITIL®



1. INTRODUCTION

BAE Systems is a British defence, aerospace and security company which operates in worldwide markets including the USA and Australia.

The company partners with academia and industry and develops new technologies for the design, manufacture, upgrade, and support of combat and trainer aircraft, combat vehicles, complex surface ships, and submarines. Additionally, it provides ammunition, precision munitions, artillery systems and missile launchers.

It is a leading supplier of cyber, intelligence and security capabilities and develops a wide range of advanced technologies for the commercial and military electronics market. Its support services include engineering, information management plus commercial, financial and human resources.

2. CREATING VALUE FOR A NEW ROYAL NAVY FRIGATE – ONSHORE AND OFF-SHORE

In 2017, BAE Systems won a contract to deliver three new warships for the UK's Royal Navy. The Type 26 (T26) City-Class Frigate is designed to fulfil three core roles in the Royal Navy: combat, maritime security, and international engagement (including humanitarian and disaster relief).

It was the first Royal Navy warship with a highly resilient virtualized network infrastructure designed to operate the Combat System and services, including navigation, sensors, weapons, communications and meteorology.

To ensure the systems and services are integrated effectively when the ship becomes operational, BAE Systems had to create the Type 26 Land Based Integration Facility (LBIF) in Portsmouth, UK. This representative facility is used to test and prove the capability of and de-risk the vital operating systems in advance of implementation on the live infrastructure on the ship.

Therefore, the company developed a service management approach based on ITIL v3 best practice (with the intention to transition to ITIL 4) to run the LBIF and subsequently apply the framework to the build phase of the ship, including harbour and sea trials.

Simon Scannell, who is the Engineering Manager for Type 26 Combat Systems Integration, Test & Trials at BAE Systems said: "The LBIF is the first opportunity to bring all of the systems together on a representative network infrastructure to confirm they all behave and interact as designed, as this is a more complex combat system than the Royal Navy has operated before from the perspective of virtualized network infrastructure."

"The company developed a service management approach based on ITIL best practice to run the LBIF and subsequently apply the framework to the build phase of the ship."

Simon Scannell, Engineering Manager, BAE Systems

"Our focus is to check the 'warranty' – i.e. will it work with everything else – but also the 'utility' so we understand the outcomes of trials onshore before conducting trials on board. This is how we create value and de-risk systems before implementing them on the ship itself."

"Doing this aligns with our strategic approach, which is about driving operational excellence and continuously improving competitiveness and efficiency."

3. CREATING A PROCESS LANDSCAPE WITH ITIL

BAE Systems' T26 Combat Systems Integration Test & Trials team (a mixture of integration engineers and network administrators based primarily at the LBIF), developed a process landscape, where ITIL and other processes described below were needed to do the job.

This combined service management elements with other necessary business processes and governance to provide a holistic way to operate and use the network infrastructures within the team's remit.

The process landscape initially included process/function levels such as change, access, service asset and configuration management, service desk, operations management, information security and continuity. From there it developed into continual service improvement, service level management, service validation and testing, incident, request and event. This was also merged with other business processes such as business continuity, human resources, audit, risk and process management used to support BAE Systems' normal operations.

Figure 3.1 Primary operations room on a Type 26



4. ADOPTING ITIL TO MEET ROYAL NAVY STANDARDS

The Royal Navy's focus on safety and quality demands a need for robust approvals and certifications. Therefore, adopting ITIL-based processes and procedures was important for BAE Systems to ensure the finished product was fit for purpose and use.

The LBIF team used an ITIL Expert with extensive experience of ITIL best practice in both commercial and military operational environments to drive the initiative. This included ITIL education, training and strategic communication across all stakeholders within the Royal Navy and BAE Systems.

Therefore, the core team studied and certified in ITIL Foundation, with more training planned to formalize their knowledge and adoption of ITIL.

Simon Scannell added: "This ITIL-based approach has enabled our team to track and manage the systems infrastructures and ensure they are operating as required. That means the integration testers always know exactly what they are using for their tests and what to expect from the infrastructure, guaranteeing that it works."

"Adopting ITIL's standardized processes and terminology allows us to integrate with key stakeholders and our Ministry of Defence customer at the service and delivery levels. This shows how ITIL works just as effectively in the military environment as in the commercial world."

"With the release of ITIL 4 we will – in time and with process maturity – adjust our approach to reflect the continual improvement potential in the new guidance."

This initiative in BAE Systems is also recognized as a way to enable best practice in future programmes, creating a globally-recognized approach for the organization.

"Adopting ITIL-based processes and procedures was important for BAE Systems to ensure the finished product was fit for purpose and use."

Simon Scannell, Engineering Manager, BAE Systems

5. RESULTS AND BENEFITS

BAE Systems' LBIF has proven the importance of having robust, ITIL-based service management to support the operation of the T26 Combat System.

The same challenges will be faced when the ship moves into service, involving a new set of stakeholders (the ship's crew), processes and tools that have not operated on a Royal Navy ship before.

The key benefits delivered by the programme are:

- › **Increasing confidence in the network infrastructure**
- › **Having a network ready for use when needed, at the required security levels, with the right data in place and accessible to carry out activities**
- › **De-risking systems before on-board implementation and operations**
- › **Minimal loss of trials capacity and capability support, despite a rapidly-changing build programme**

Simon Scannell said: "Release and deployment – including an automated toolset – is the key step to get the infrastructure working on a ship. However, it takes service management to make it happen while providing the controls and checks needed."

"With the number of safety checks required for Royal Navy ships, everything we do needs the correct approvals and authorizations. For harbour trials, this means making sure things work before the ship leaves the dockside; and at sea, where it really matters, we need to know that everything is working as designed."

Figure 5.1 Type26 Bridge



6. METRICS AND MEASUREMENT

Other metrics and measurement captured and reported during the initiative included:

- › The number of successful changes, user requests, system availability time, testing activities carried out, reduction in time to implement new capabilities
- › Volume of testing activity carried out by test teams
- › Demonstrating that services are working as required
- › Consistent stability and accessibility for the test team to carry out its tasks

7. LESSONS LEARNED

The LBIF team is now using monthly quality meetings to document and share information to drive the continual improvement process.

Simon Scannell explained: "The key challenge to realizing initiatives is really to engage all stakeholders – some of whom may not be fully recognized in the early stages – and to demonstrate the value of what we are doing and how it supports the programme outcomes."

"Along with the importance of licence management in a complex, virtual network world and keeping control of assets, it's clear that using globally-proven frameworks like ITIL is much more effective and quicker than trying to build or update in-house solutions."

8. THE FUTURE – DRIVING CHANGE IN WAYS OF WORKING

BAE Systems anticipates the T26 LBIF initiative will drive a change in ways of working across the organization as it uses virtual, networked infrastructures more across other platforms. The approach will also enable and support other technological advances the company is developing.

Simon Scannell added: "We are acting as the vanguard for this way of working through operating a Combat System that is more complex, from a network and capability perspective, than the Royal Navy has operated previously."

"And as other people see how we are operating and the success we're having, it's giving the team an increased level of visibility in the organization."

Figure 8.1 The Type 26 flight deck is capable of landing a Chinook helicopter



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