

**BAE SYSTEMS**

BAE Systems and MoD specify the Royal Navy's next generation of warships

We have helped BAE Systems:

- Engage a wide range of stakeholders in a structured systems design process
- Make strategic decisions on the configuration of the Type 26 GCS
- Demonstrate value for money and affordability to the customer

Background

The multi-mission Type 26 Global Combat Ship, which is due to come into service after 2020, will be used by the Royal Navy in combat and counter piracy operations and to support humanitarian and disaster relief work around the world.

With a basic displacement of around 5,400 tonnes, the Type 26 Global Combat Ship will be around 148m in length (the equivalent of around 15 double decker buses), and one of the most advanced vessels in the Royal Navy's fleet. It is expected to feature: vertical missile silos capable of housing a range of different weapons; a medium calibre gun; a hangar to accommodate a Merlin or Wildcat helicopter and a flexible mission space for unmanned air, surface and underwater vehicles, or additional boats; and the most advanced sensors available to the fleet.

The challenge

Since 2010, the MoD has been working with BAE Systems to determine the ship's key capabilities and baseline design. This has required a large number of strategic decisions to be made, such as cost tradeoffs and capability requirements for systems and equipment onboard; how many people need to be accommodated onboard; and how best to maintain the ship through-life. Decisions taken at this point have implications for many decades to come.

“The Type 26 Global Combat Ship will be a multi-mission warship designed for joint and multinational operations... and will play a major role in the defence of this country for many years.”

Admiral Sir Mark Stanhope,
First Sea Lord (20 August 2012)

“I am delighted the programme has been endorsed by the investment approvals committee.”

Peter Luff, former Minister for Defence Equipment, Support and Technology (20 August 2012)

The design was partitioned into 38 decision areas, each of which had between 2 and 7 choices. The challenge then was to optimise those choices to produce a configuration that meets the needs of the customer, provides value-for-money, and is affordable. A large number of stakeholders and technical experts needed to have their perspectives represented, and no decision could be taken in isolation given the overall budget constraints. All decisions taken needed to be justifiable and transparent, and subjected to a high degree of scrutiny.

How Catalyze helped

Multi-criteria decision processes are already well established in the design and procurement of military systems. Building on previous experience, BAE Systems and MoD had conceived an overall process which would allow the different types of stakeholder to contribute their specific expertise. Catalyze advised on the design of the process, facilitated the implementation, and ensured the overall process validity and coherence, working in close partnership with the BAE Systems Engineering team. The staged process involved hundreds of participants, achieving alignment and buy-in as it progressed step-by-step.

A series of multi-stakeholder workshops were held for each decision area, to define the choices well enough to model them, and to establish how their performance would be measured against delivering the customer requirements. Initial multi-criteria models were developed, further data and information was collected, and then a second set of workshops were held several months later. These workshops allowed customers (both Fleet and end-users) to express their requirements; engineering staff to explain what was possible and practical; and operational analysts to explain how each choice contributed to military effect.

Subsequent workshops brought all of the decision areas together into a single model, including costs and using a common scoring system with a weighting scheme covering the whole ship. This was combined with an independent weighting representing the overall customer requirements expressed in terms of naval doctrine and maritime capability. The result was a model in which potential configurations could be explored and optimised.

Enabling Effective Decisions

The process resulted in a small number of potential configurations, with key trade-off choices highlighted. The customer had the final say on the configuration selected, and could see the effect of their decisions.

A key milestone was the Configuration Decision Point (CDP), a meeting with 160 stakeholders, at which the proposed configuration was presented and agreed. The whole team worked hard prior to CDP to ensure it would be an event with ‘no surprises’. Subsequently the programme has been approved by the MoD Investment Appraisals Committee. The major capability drivers are now fixed and detailed design is underway.

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At Catalyze we help organisations create and execute decision-making processes which focus on the best possible outcome; engaging people, breaking down barriers, creating understanding of different perspectives, and making best use of resources.

Catalyze was founded in 2001 in conjunction with the London School of Economics and Political Science, applying techniques built on robust and validated decision theory. We support global clients from offices in the UK, USA and New Zealand.