

MOD AND THE DEFENCE INDUSTRY

In 2005, the Defence Industrial Strategy attempted with some success to lay down a strategy for maintaining a thriving onshore defence industry. One of the initiatives was the setting up of Team Complex Weapons and Steve Wadey reports on progress since then. One of the major issues in the MoD–industry relationship is the management of risk in programmes. This is not done well, to some extent because too many do not understand quite what they should be trying to do. Chris Maughan looks at the latest evidence on how risk is being managed and states what still needs to be done. Culture is another major problem in both UK MoD and industry, and Dr Charles Kirke examines the large number of different cultures within MoD and says that any attempts to change the culture of MoD acquisition itself should be mapped against the framework of the existing culture, with the intention of not disturbing what is represented by the deep layers in the onion model.

Progressing Team Complex Weapons

By *Steve Wadey*

In 2006, Lord Drayson announced the formation of Team CW, and in 2008 Baroness Taylor announced commencement of the Team CW Assessment Phase. Steve Wadey, MBDA's Executive Group Technical Director and Managing Director UK, outlines progress to date and looks ahead.

It was the publication of the UK MoD's Defence Industrial Strategy (DIS) in December 2005 that encouraged the UK Complex Weapons (CW) industry and counterparts in MoD to face up to the need for a different approach to the acquisition and support of CW in the future. The combination of declining investment in CW, the stated need to retain appropriate operational sovereignty of CW through the retention of sovereign industrial capabilities, together with new requirements for enhanced military capabilities, demanded a new sector-wide approach. Team CW was formed by industry in 2006 in response to the challenge, and is now under the joint leadership of UK MoD and MBDA, with Thales Air Defence, Thales Missile Electronics, Roxel and QinetiQ as members.

In the two years of the Team CW Assessment Phase (AP), significant progress has been made both on the six launch projects, and in testing the benefits of a Portfolio approach towards the acquisition of CW, through the development of a family of weapons. The benefits from commonality, modularity and technology re-use, amongst other initiatives, have been measured to provide evidence to inform an MoD Main Gate investment decision relating to partnering in the CW sector.

This innovative approach towards acquisition has required different ways of thinking across MoD, MBDA, its partners and suppliers at a technology, programme and commercial



Signature of the Interim Portfolio Agreement between MBDA and MoD: (standing left to right) Steve Wadey (MBDA) and Alan Nicholl (MoD); (seated left to right) Richard Smart (MoD), Mary Shoobridge (MoD), Keith Garden (MBDA) and Andy Thorp (MBDA) [MBDA]

level – from the development of requirements through to new approaches to supporting weapons in service.

Recent Developments

Following Main Gate approval, UK MoD and MBDA signed a long-term partnering arrangement for the development and supply of new Complex Weapons to the UK Armed Forces to counter current and future threats. Under the interim Portfolio Management Agreement (PMA-I), MBDA will lead the transformation of the UK's CW capability through the management of a portfolio of complex weapon projects potentially worth up to £4Bn over the next 10 years. To launch this arrangement, MBDA has signed a contract, worth some £330M, for the first package of projects focused on deployment of new military capabilities into Afghanistan.

Over the next 10 years, as further military capabilities are added, this portfolio approach will deliver efficiencies assessed at £1.2Bn for the UK MoD.

In this first package, the contract covers demonstration and manufacture of the first batch of Fire Shadow Loitering Munition (LM) and the Selective Precision Effects at Range (SPEAR) Capability 2 programme based on a development of the current Brimstone anti-surface weapon. The contract also covers further AP work on later variants of the SPEAR programme and further work on the Future Local Area Air Defence System (FLAADS) project.

Portfolio Approach

The PMA-I sets out the way in which MoD and MBDA will work together to deliver a range of CW capabilities in order to provide long-term assured Military Capability, Operational Sovereignty and Value-for-Money via a sustainable UK industrial base, underpinned by a broadly stable funding allocation. Through the AP, the approach demonstrated the potential for savings and benefits over a conventional procurement methodology whilst increasing the level of agility and flexibility that is needed to meet today's operational demands.

Commonality, Modularity and Re-use. Key elements in delivering the benefits is through commonality, modularity and re-use, where commonality is providing one weapon to meet multiple requirements and modularity and re-use is designing common sub-systems that can be used across different weapons. For example, the Common Anti-air Modular Missile (CAMM), which will be used in the FLAADS programme, is being developed for use across all domains (land, sea and air) for all three UK Armed Forces and also has sub-systems in common with other weapons. It will initially enter service as a replacement for Seawolf on the T23 frigates as part of the FLAADS (Maritime) system and is later planned to transfer on to the T26 Future Service Combatant (FSC). The second application will be as a replacement for Rapier by FLAADS (Land), and in the future it will also provide technology insertions for the Advanced Short Range Air-to-Air Missile (ASRAAM). In the past, the MoD would have held competitions to meet each of these requirements separately, and industry would have responded accordingly. By working jointly with MoD in a partnering environment across these stovepipes, MBDA has been able to extract significant financial benefits through reduced development costs, and through improved stockpile management and support planning.

Flexibility and Agility across the Portfolio. By taking a Portfolio approach, MBDA can, with the MoD, and as part of the overall governance arrangements, manage and redeploy resources across a number of separate programmes. This flexibility can be delivered in a controlled and timely manner allowing reprioritisation and rebalancing between projects in response to evolving priorities and circumstances. In this way, MBDA as part of the Team CW approach, will be able



Fireshadow in flight but with the sensor rolled back for protection during transition to the area of operation [MBDA]

to respond to the outcome of the Strategic Defence Review (SDR), if it impacts current plans, without automatically resorting to penalties or contracts being cancelled.

Changed Behaviours. Since the formation of Team CW, MoD and MBDA, together with the other Team CW members, have worked hard to improve the ways they work together. These changed behaviours include joint working at project and portfolio level, and openness and transparency on all issues, including budgets, estimates and outturn costs. Aligned objectives, joint incentivisation and joint technical and progress reviews between the DE&S and Industry teams have created a much more constructive, trusting and supportive problem-solving environment. As an example, every quarter Alan Nicholl, Director Weapons DE&S, and I jointly review the MBDA programmes and Portfolio performance with our joint management teams.

Rapid development and early entry into service is all about providing a more responsive support to operations

Rapid Development. Rapid development and early entry into service is all about providing a more responsive support to operations. On the Fire Shadow LM this challenge was taken up by an MBDA-led industry team – to provide the land component with an affordable, all-weather Indirect Fire Precision Attack weapon system able to strike at ranges of more than 100km. The recent approval, noted above, to demonstrate and manufacture the initial batch of Fire Shadow munitions will give the Army the opportunity to deploy this capability on operations after deliveries commence in late 2011. Techniques such as rapid prototyping and best-practice collaborative working with DE&S, Users and Industry have enabled a significant shortening of the development cycle, and with its modular design, the results of early deployment will be fed into later batches as upgrades.

European cooperation. In the past, MBDA has shown that European cooperation on Storm Shadow, Principle Anti-Air Missile System (PAAMS) and Meteor can be compatible with meeting UK sovereign requirements whilst delivering significant financial savings for those involved in the cooperative projects. As part of the Team CW AP, we commenced a joint AP with France for the assessment of the Future Anti-Surface Guided Weapon (Heavy) FASGW(H) and the Anti Navire Legere projects in 2009, and work continues on a similar cooperation on the Storm Shadow Capability Enhancement Programme (SSCEP) and its French counterpart, SCALP. Separately the Materials and Components for Missiles Innovative Technology Partnership (MCM ITP), run by MBDA for UK and French MoDs, are pursuing technology developments that are at low-to-medium Technology Readiness Levels. The commencement of partnering through the PMA-I, in line with Team CW principles, will allow more effective and early consideration of future opportunities for collaboration.

Technology Innovation. As well as the MCM ITP programme, technology innovation is targeted by the CW Centre for Defence Technology (CDT) which is managed by QinetiQ on behalf of the MoD. It was created to provide an integrated



The Common Anti-air Modular Missile (CAMM) is being developed for all three UK Armed Forces and has sub-systems in common with other weapons [MBDA]

planning and delivery focus for MoD-sponsored research in support of CW technology needs. Membership comprises a wide grouping of organisations who deliver research including primes, sub-system suppliers, SMEs and academia. The use of modular and open systems architectures will enable in-service upgrades through life, and supports the MoD Through Life Capability Management (TLCM) principles.

Cost-effective Platform Integration. Cost-effective platform integration is important and Team CW, together with the platform suppliers and platform IPTs, are building on previous studies to align programmes to achieve economies associated with aircraft trials, using more simulation data and standardised interfaces to reduce the cost of integration.

As part of the portfolio approach, MBDA is moving towards a more flexible and agile manufacturing process

Manufacturing and Support. The benefits of commonality, modularity and re-use will read across into the manufacturing and support domain. As part of the portfolio approach, MBDA is moving towards a more flexible and agile manufacturing process where common missiles will enable shared stockpiles, and support and manufacturing systems will be designed to allow recuperation of the stockpile in shorter timescales. MBDA and MoD are evaluating the benefits of a Unified Support Environment (USE): a single support solution to enable the streamlining of in-service support services, infrastructure and the associated staff. Recent support contracts have moved to a Contracting For Availability (CFA) approach, but based on individual project requirements. The USE approach would provide a single support solution compatible with the portfolio, allowing the most efficient use of resources as support priorities change.

Benefits of Exportability. Together with MoD and UKTI DSO, MBDA are evaluating the benefits of exportability when defining the weapons that make up the CW Portfolio. Longer production runs, resulting in lower unit production prices and reduced obsolescence for the MoD, will be targeted.

Next Steps

The PMA-I is the culmination of MBDA and UK MoD joint-working since the launch of Team CW in 2006 to transform the procurement arrangements for Complex Weapons reflecting the principles of the DIS and defence acquisition reform. Focus within UK MoD and MBDA is now on delivery – delivering the programmes to performance, time and cost



Dual Mode Brimstone (DMB) being checked pre-flight by a GR4 aircrew. DMB was developed under a UOR but is a precursor to SPEAR Capability 2 Block 1, which also received a Development and Manufacture contract under the Interim Portfolio Management Agreement. DMB is currently deployed on operations in Afghanistan [Crown Copyright]

and also delivering the benefits in the portfolio approach outlined above. We have a responsibility to widen the supply base involvement in this approach and meet our obligations in support of UK Armed Forces. Continued successful implementation of Team CW is keenly anticipated within MoD, and undoubtedly lessons learned will be evaluated for other Sector partnering initiatives.

Through this partnering arrangement, I am convinced that MBDA will continue to deliver and support world-class weapon capabilities, directly relevant to today's warfighting environment, in a way that is affordable, responsive and flexible to the needs of the UK MoD. Complex Weapons are a fundamental component of UK military capability, providing our Armed Forces and their platforms with the assured battle-winning edge in operations.

The Team CW projects launched in 2008 are:

Fire Shadow Loitering Munition, now entering Demonstration and Manufacture (D&M) for the first batch of munitions with the aim of early introduction into operations.

Future Anti-Surface Guided Weapon (Heavy), currently in the Assessment Phase (AP) under a joint programme with the French for Anti Navire Léger. FASGW (H)/ANL will provide

the main armament for the Royal Navy's AW159 Lynx Wildcat helicopter and the French Navy's NH90 and Panther helicopters.

Selected Precision Effects At Range (SPEAR). SPEAR Capability 2 builds on the Brimstone DM UOR as a 50kg-class weapon and is entering the D&M phase with further assessment work for subsequent variants. SPEAR Capability 3 is a new, longer range 100kg weapon and has recently commenced the AP.

Future Anti-Surface Guided Weapon (Light), being developed by Thales Air Defence under the AP to arm the Royal Navy's AW159 Lynx Wildcat helicopter.

Future Local Area Air Defence System/Common Anti-air Modular Missile – in the AP for FLAADS (Maritime) to upgrade the Type 23 frigate and subsequent deployment on Future Surface Combatant and also to meet the FLAADS (Land) requirement.

Storm Shadow Capability Enhancement Programme. A UK/French joint programme currently in the AP to enhance the Storm Shadow and SCALP weapon systems.

The AP projects, FASGW (H) and (L), FLAADS and SSCEP are the subject of future Main Gate approvals before proceeding into D&M. ■