



House of Commons  
Defence Committee

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**Defence Equipment  
2008: Government  
response to the  
Committee's Tenth  
Report of Session  
2007–08**

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**Seventh Special Report of Session 2007–08**

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## The Defence Committee

The Defence Committee is appointed by the House of Commons to examine the expenditure, administration, and policy of the Ministry of Defence and its associated public bodies.

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Derek Conway MP (*Conservative, Old Bexley and Sidcup*)  
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### Powers

The Committee is one of the departmental select committees, the powers of which are set out in House of Commons Standing Orders, principally in SO No 152. These are available on the Internet via [www.parliament.uk](http://www.parliament.uk).

### Publications

The Reports and evidence of the Committee are published by The Stationery Office by Order of the House. All publications of the Committee (including press notices) are on the Internet at: [www.parliament.uk/defcom](http://www.parliament.uk/defcom).

### Committee staff

The current staff of the Committee are Mike Hennessy (Clerk), Eliot Wilson (Second Clerk), Ian Rogers (Audit Adviser), Lis McCracken (Inquiry Manager), Richard Dawson (Committee Assistant), Christine McGrane (Secretary) and Stewart McIlvenna (Senior Office Clerk).

### Contacts

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# Seventh Special Report

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The Defence Committee published its Tenth Report of Session 2007–08 on *Defence Equipment 2008* on 27 March 2008, as House of Commons Paper HC 295. The Government's response to this Report was received on 2 June 2008. This is appended below.

## Government response

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**1. (Recommendation 1) The merger of the Defence Procurement Agency and the Defence Logistics Organisation was a major undertaking made more challenging by the need to support two major operations. We commend the Chief of Defence Materiel and his staff for ensuring that the merger was achieved to the timetable set and for the progress achieved in the first year of operation of the Defence Equipment and Support organisation. (Paragraph 14)**

We are grateful for the Committee's recognition of the hard work undertaken in the build up to establishing Defence Equipment and Support (DE&S), and the continued progress that has been made since then in the delivery of equipment to the Armed Forces.

**2. (Recommendation 2) We note that the MOD considers that reasonable progress has been made in implementing the Defence Acquisition Change Programme. A key benefit expected to be delivered from this programme is to deliver defence capability more quickly. The former Minister for Defence Equipment and Support set a challenge of reducing the acquisition time for defence equipment by 50%. In its response to our report, we expect the MOD to set out what specific action it is taking to meet this challenge, how it is measuring its performance in reducing acquisition time, and when it expects to be acquiring equipment in a timescale which meets the challenge. Similarly, we expect the MOD to provide us with details of the progress it has made in producing an affordable and balanced budget and in creating a set of metrics by which through life acquisition performance can be judged. (Paragraph 20)**

To reduce acquisition cycle time, the MOD has identified a range of alternative acquisition approaches including incremental and evolutionary acquisition, greater use of modified commercial and military off-the-shelf equipments, although traditional 'big bang' acquisition will remain an option where this is most appropriate. Technology risk will be reduced through greater use of open system architectures, with distinct technology development programmes. Employing these approaches, together with earlier engagement of industry at the requirements setting phase of the acquisition cycle to generate realistic and industry-achievable capability delivery plans, will reduce the time taken to introduce new or modified capabilities to the Front Line.

Performance measures are being established that will track the time taken in the various stages of the acquisition cycle. Allied with the use of alternate acquisition approaches, this will enable the MOD to determine which approaches generate the greatest time savings, and in which phase(s) of the acquisition cycle. It may then be appropriate to set targets.

The development of measures to demonstrate the effective delivery of capability through life is a key component of the Defence Acquisition Change Programme; they continue to be developed. DE&S is a major contributor to Through Life Capability Management, and the metrics already put in place seek to measure its contribution to acquisition performance relating to the delivery of specified outputs within agreed parameters and the effectiveness of the organisation in doing this. Examples include the measurement of equipment project performance, cost and time measured out to Initial Operating Capability (covering the Demonstration and Manufacture phases of the CADMID cycle),

and the success of Joint Business Agreements with Front Line Commands covering the support phase.

The Departmental Strategic Objective '*Procuring and Supporting Military Equipment Capability Through Life*', negotiated as part of Spending Review 2007, will take a broader view than the former Public Service Agreement target by focusing on delivery of an Initial Operating Capability (IOC), rather than In Service Date (ISD), thus taking account of delivery of all the lines of development associated with capability delivery. This measure will be rolled out as new projects are approved and appropriate baselines established for existing projects.

In terms of progress in producing an affordable and balanced budget, the Department continues to consider a number of issues in the current planning round (PR08). A number of decisions have been taken: these are largely lower profile, routine reprioritisations, but where necessary announcements will be made in due course. In addition, the MOD is undertaking an examination of our planning assumptions for equipment over the next ten years, which will reflect our aim of shifting the overall balance of defence procurement to the support of operations. This will provide an input into to our 2009 planning round.

**3. (Recommendation 3) We note that Through Life Capability Management should lead to the MOD getting the benefit from defence equipment more quickly by focusing attention on issues such as doctrine and training rather than just equipment and equipment support. We welcome the MOD's assurance that this approach should greatly reduce the chances of the sort of problems seen on the Apache helicopter programme. (Paragraph 27)**

We note the Committee's comments on Through Life Capability Management.

**4. (Recommendation 4) We note that the MOD considers that the merger of the Defence Procurement Agency and the Defence Logistics Organisation should improve through life management planning and ensure that it becomes embedded in the new organisation. We agree. In its response to our report, we expect the MOD to set out what proportion of its equipment programmes currently have through life management plans of an acceptable standard and when it expects such plans to be in place for all its programmes. (Paragraph 30)**

The MOD has a Through Life Management (TLM) team which assesses projects against a TLM standard, of which the Through Life Management Plan (TLMP) is one part. Assessment also looks at how teams are using this plan and whether they are using best practice for TLM. Last year, all Category A-C projects were assessed to ensure they had an acceptable TLMP executive summary. The corporate target for this year is to have all Category A and B programmes achieving the TLM standard prior to Initial and/or Main Gate. If a project is successful against the TLM standard, then it follows that it will have an acceptable TLMP.

**5. (Recommendation 5) It is crucial that DE&S has a highly skilled workforce, particularly in areas such as engineering, project management, logistics, finance and commerce. DE&S appears to have made some progress in upskilling staff in a number of these areas. However, its skills audit needs to be completed as soon as possible. We note that training and upskilling had not progressed as quickly as hoped because staff**

had been too busy to be released. We believe that it is probably the intention within DE&S that, once the current tempo of operations and the need to support them reduces, staff should be given adequate time to undertake the required training and upskilling. We are not satisfied that so important a programme can wait for such an eventuality. We consider that it is inexplicable for the MOD both to be reducing the numbers of staff and to be telling those that remain that there is no time to train them. Every week that passes without staff adequately skilled and equipped to do their vital jobs has the potential of damaging the work that they do and the projects they are running. We call on the MOD in its response to this report to set out what urgent actions it will put in train to overcome the constraints on training and upskilling caused by the high operational tempo. While we note that the Chief of Defence Materiel has ringfenced funding for training and upskilling, this is of little value if staff have insufficient time to take advantage of it. (Paragraph 42)

We continue to focus on the key areas of Commercial, Finance, Project and Programme Management, Engineering and Logistics. In addition, DE&S has Skills Directors appointed to improve skills and capabilities across a further five job families—Human Resources, Information and Corporate Support /Comms and Media/Business Management. Each of the 10 job families has detailed skills plans—which include planned skills audits—and websites through which to communicate with individuals and line managers about the upskilling programme. We are also driving the use of post and personal skills profiles in order to monitor the requirement against capability and improve the qualifications, skills and competence of the entire workforce.

Upskilling is taken very seriously in DE&S and is being driven by the Chief of Defence Materiel (CDM) and the DE&S Board in order to meet critical business needs defined in the DE&S Business Strategy and Blueprint. It is crucial to the success of the business that everyone is equipped with the right skills, both those they need for their current jobs and those they will need in the future to meet the changing needs of the organisation. The upskilling programme set a target for all DE&S staff to complete a minimum of six training days in financial year 2007/08 with a further target of four days for Continuing Professional Development in the key acquisition disciplines of Commercial, Finance, Programme and Project Management, Engineering and Logistics. Most business units within DE&S met the targets for the financial year 2007/08. The targets have been rolled forward into 2008/09 and are being written into the personal objectives of all DE&S staff to ensure that everyone has a personal commitment to improving their skills and those of their teams.

A blended learning approach is being adopted in recognition of the fact that in a fast moving environment, with ever increasing demands on staff time, skills development needs to be flexible and responsive to the needs of the individual and the business. New development programmes are being devised as part of the DE&S upskilling programme to deliver the skills interventions more flexibly and on an 'as required basis'. Very often this is through e-learning and by taking training delivery into the workplace so that teams and individuals can benefit in ways that best suit their personal circumstances and the needs of the business.

**6. (Recommendation 6) The upskilling and training of DE&S staff in specialist skills, such as project management, will be crucial to the future effectiveness of DE&S.**

**However, it will be some time before these staff will have the broad experience that can only be gained from using their training on a range of programmes. DE&S needs to identify the key posts where good experience in the various specialist skills is required now, and develop a strategy for drawing in such experienced staff from outside DE&S. (Paragraph 43)**

Identification of professional posts continues in the five key skill areas of Commercial, Finance, Project and Programme Management, Engineering and Logistics. The Skills Directors that have been appointed for each of these disciplines have drawn up skills plans that outline how to improve the skills capability in each of the functions. In addition, the MOD is exploring the feasibility of tagging these posts on the MOD's Human Resource Management System in order to improve the tracking of progress made in filling these key positions.

DE&S is producing a Workforce Strategy during 2008, consistent with the MOD Skills Strategy, and introducing Workforce Plans in support of Business Plans to identify opportunities for recruitment, interchange and partnering with industry in order to develop a strong and sustainable skills capability.

**7. (Recommendation 7) We were unable to visit DE&S at Abbey Wood, Bristol. We remain concerned about the skills mix made available to DE&S. We will want to explore further the whole question of skills generation and development in DE&S in a future report. (Paragraph 44)**

We note the Committee's concern about the skills mix available to DE&S. We look forward to discussing skills generation and development with the Committee in the future.

**8. (Recommendation 8) It is vitally important that DE&S can recruit and retain staff with the skills that match those in industry. To do so, DE&S has to have a reward structure that makes it an attractive employer to professionals in areas such as project management and systems engineering. In its response to our report, we expect the MOD to set out the progress it is making to introduce a more flexible reward structure and the barriers that are hindering its efforts to do so. (Paragraph 45)**

DE&S pay is determined by the MOD's pay award. There are, however, flexibilities within MOD's pay arrangements which allow business areas, such as DE&S, to address specific recruitment and retention issues. DE&S has delegation to approve Recruitment and Retention Allowances where there is evidence of specific skills shortages, and may also use Higher Starting Pay where it is appropriate and justified to do so. MOD's performance management system also allows exceptional performers to be targeted with appropriate rewards.

In April 2007 DE&S was granted several new flexibilities by MOD Centre, which contribute to increased flexibility on reward, including: a Specialist Fellowship scheme, with a significant Recruitment and Retention Allowance, to help develop and retain deep specialist skills; and a pilot High Performance Package, that is currently being evaluated and is designed to establish evidence that making a direct link between achieving key milestones and financial reward for key leadership posts would actually have an impact on performance. DE&S was also given delegation to approve Milestone Related Retention Allowances, which are one off payments to individuals with key skills who remain in post

until specific delivery milestones. To help incentivise and reward the acquisition of skills, staff are paid a one-off bonus on the attainment of qualifications which are of value to the business.

DE&S is working with MOD Centre to ensure that the recruitment and retention difficulties experienced by DE&S are included in the business case to HM Treasury for the next pay award effective from August 2008 to assist in any movement on basic pay. MOD's pay strategy since 2006 is to develop pay spines which are significantly shorter, and which are more aligned to the market rate for the job level. Under the strategy, where there is evidence that specific skills shortages, particularly in deep specialist areas, which are not addressed by the base pay offered, a Market Skills Supplement will be available. Such an allowance should help DE&S to compete in the areas mentioned by the Committee.

While MOD's pay strategy, and the flexibilities within it, support DE&S aims, there are constraints on public sector pay levels, as well as other pressures on pay funding, such as the need to reduce the risk of equal pay claims. The scope for introducing further new flexibilities, which require additional funding, is, therefore, limited.

**9. (Recommendation 9) The UOR process has delivered substantial amounts of vital equipment to our Armed Forces operating in Afghanistan and Iraq. We commend DE&S for the speed at which it is getting urgently needed equipment into theatre, the procurement of Mastiff vehicles being a good example of this. (Paragraph 50)**

We appreciate the Committee's recognition of the success of the Urgent Operational Requirement (UOR) process.

**10. (Recommendation 10) We note that the MOD has initiated a study to assess the impact of current operations on equipment, such as vehicles, and the subsequent costs of recuperation. We see the costs of recuperation as a cost of operation to be funded from the Reserve and not from the defence budget which is already under substantial pressure. In its response to our report, we expect the MOD to set out the terms of reference for this study and, once the study is completed, to provide us with a copy of it. (Paragraph 56)**

Our examination on the impact of current operations on equipment is in an early stage. No terms of reference have been set.

When the study has been completed, the results will be made available to the Committee.

**11. (Recommendation 11) We are disappointed to learn that DE&S is unlikely to meet its Key Target relating to programme slippage in 2007–08. Seven of the largest equipment programmes which featured in the Major Projects Report 2007 have experienced in-service date slippage in 2007–08 totalling some 6.5 years. Once again, the MOD has failed to control slippage on key equipment programmes. In its response to our report, we look to the MOD to provide an explanation of the in-service date slippage on each of the major projects in terms of the three reasons for such slippage set out by the Chief of Materiel in evidence to us; and we expect the MOD to set out the specific actions being taken to limit further programme slippage. (Paragraph 64)**

## **A400M**

At Main Gate approval (in May 2000), the UK A400M ISD was December 2009. The ISD forecast was revised at contract award (in May 2003) to March 2011 following a delay in securing national funding approvals from each of the launch nation customers. This is symptomatic of delays that can be imposed on international projects by the need to gain consensus amongst member nations on programme decisions.

More recently, Airbus military has announced that initial aircraft deliveries will be six to 12 months late relative to the specified contract delivery dates, and we now forecast that the UK ISD will be achieved in December 2011. This latest delay is the result of aircraft development and production falling behind industry's original programme plan, most notably with respect to the engine and major fuselage/wing assemblies.

EADS commissioned a substantial technical assessment of the A400M programme and has put in place improved measures, which aim to address the most critical areas of risk, to help prevent further ISD slippage. Specific details of these measures are, however, commercially sensitive.

## **Nimrod MRA4**

Nimrod MRA4 is a complex and demanding programme, where slippage is principally due to technical factors. Time and cost variations from the original project approval were largely caused by resourcing and technical problems at BAE Systems (BAES) associated with the original fixed price contract that was let in 1996; these problems were exacerbated by the design & development and production programmes being conducted concurrently. The agreement reached with BAES in February 2003 placed a stop on MRA4 series production work until the design had reached adequate maturity and acceptable production costs were forecast. These criteria had been met when the contract for full production was placed in July 2006.

The project remains under financial pressure and has experienced a three month slip to the ISD in 2007/08 as a result of the need to embody those essential changes that have emerged from the flight trials programme in the production aircraft, prior to delivery. Work is continuing with BAES to de-risk the programme by concluding the flight trials programme as early as possible and the production contract includes incentives for the early delivery of aircraft. The ISD remains 2010.

## **Soothsayer**

Soothsayer is an integrated vehicle-mounted Land Electronic Warfare (EW) which will replace the Odette and Ince systems and provide MOD with an enhanced capability. The forecast ISD slippage is due to technical issues with development and testing. However, in this instance the MOD took a conscious decision to slip the programme, as opposed to cancelling, in order to address the programme's performance shortfalls, thereby trading the project's timescale performance for improved military capability. The key actions MOD is taking to prevent further slippage centre on reducing technical risk and we are working closely with the prime contractor to resolve these issues.

### **Watchkeeper**

Watchkeeper will be the new tactical Unmanned Air Vehicle (UAV) system for the British Army. Its approved IOC date remains unchanged at February 2011. For technical reasons there has been some slippage to the 50 per cent confidence date of June 2010. Since November 2007 the Tactical Unmanned Air Vehicle (TUAV) IPT and Thales UK have developed a range of risk reduction measures and these have led to a progressive recovery in the predicted 50 per cent confidence date.

### **Terrier**

Terrier is an armoured earthmoving vehicle and will replace the current in-service Combat Engineer Tractor. In testing, the prototype vehicle achieved 73 per cent anticipated reliability. This is the single largest contributing factor to the project delay. Another major contributor was the lower than expected availability of the prototype caused by a high incidence of quality problems and a major failure of the steering system. These quality problems were compounded by a lack of effective processes for controlling quality within BAES' supplier base. The delays to the project are therefore primarily due to technical problems.

A thorough review of the Terrier programme is being undertaken, including a re-assessment of risk and uncertainty to ensure that the forward programme will be realistic. The results will be subject to independent review within DE&S and the wider Department, including independent reliability engineering experts. Furthermore, a series of confidence-building measures are being developed to assure the MOD that BAES can deliver against the revised plan. These measures should provide confidence that the enabling activities, such as the establishment of new working practices, necessary for completion of the project will be in place and will provide early warning of potential issues. These confidence-building measures will be updated on a rolling basis to provide a continuous and joint MOD/BAES measure of progress. Further key performance milestones will be added to the contract to ensure that progress is being made in line with the revised plan and that BAES is incentivised to deliver.

### **Next Generation Light Anti-Armour Weapon**

Next Generation Light Anti-Tank Weapon (NLAW) is a man-portable, short-range anti-armour weapon capable of defeating moving main battle tanks and light armoured vehicles and, as a secondary role, structures. The project is collaborative with the Swedish MOD equivalent (FMV) and the prime contractor is Saab Bofors Dynamics (SBD).

The delay to NLAW's ISD is due to reliability problems encountered by SBD in the completion of sub-system and system qualification. The main issues were: inadequate watertightness; poor reliability of the warhead arming function, including the Safe Arming Device; and trajectory variations. In order to resolve these issues, the MOD has adopted a range of measures to arrest the delays, agree requirement trade-offs where appropriate, drive realism into the company's estimates and incentivise the Contractor; this included SBD's President and CDM (and his predecessor) personally agreeing anchor milestones, and withholding progress payments and other such measures under the contract that was re-baselined in November 2007. While the problems with the project have been caused by

technical performance issues, an interim capability was available to cover current operations; this enabled the Department to extend the programme to address performance shortfalls.

The project has been subject to a number of independent technical reviews which confirmed that the design concept is sound. In addition, the DE&S Project Rehabilitation Unit will shortly be reviewing NLAW to ensure that the project is well placed to deliver its future challenges.

### **Precision Guided Bomb**

The Paveway IV (PWIV) is the MOD's Precision Guided Bomb. Its ISD slipped beyond its declared 90 per cent date as the result of technical issues, namely a fuze reliability problem encountered during Operational Evaluation (OPEVAL) Trials. The MOD, in conjunction with the prime contractor, Raytheon Systems Limited, is giving Thales Missile Electronics (TME), the fuze sub-contractor, every opportunity to deliver a reliable fuze at the earliest opportunity. In order to mitigate the risk of a further and protracted slip to ISD, however, parallel activity has been undertaken with an alternative fuze supplier.

A revised programme has been developed which will result in PWIV Full System Acceptance by March 2009 (50 per cent) and recent success during trials at Pendine has increased confidence that the fuze will perform to specification when tested during the re-scheduled PWIV Operational Evaluation trials in June 2008. The operational consequences of the slippage have been mitigated by the introduction of the Enhanced Paveway 2 Plus UOR for Op HERRICK.

**12. (Recommendation 12) We are concerned to hear that the MOD has little control over time slippage on international equipment programmes, given that many of the MOD's equipment programmes including Typhoon and the Joint Strike Fighter are international programmes. We call on the MOD to set out in its response to this report what conclusions it draws from this problem about the nature of international programmes, what steps it has taken in the past to limit these disadvantages and the extent to which these steps have been successful. (Paragraph 65)**

The development and subsequent manufacture and delivery of defence equipment is technically challenging and often involves leading edge technologies. Undertaking programmes with international partners involves many of the same risks associated with programmes pursued independently. A key issue is to ensure the risks are well understood and sufficient provision is made for them at the outset to secure a good foundation. It also requires an appreciation by all the participating nations of the broader risks associated with collaborating, for example, differing budgetary and approval regimes or technical clearance requirements, and allowing for these.

Collaboration is a very powerful vehicle for sharing non-recurring costs, risk, technologies and knowledge as well as leveraging the benefits of economies of scale associated with larger numbers. It also allows nations to pursue a capability that would be beyond its means to pursue independently.

The UK has collaborated with other nations for many years on defence programmes and we have sought to learn and apply the lessons from these as new opportunities have

emerged. For example, recognising our experience in previous collaborative programmes where there have been cost overruns and delays in bringing equipment to the front line, we continue to work with OCCAR (Organisation conjointe de coopération en matière d'armement) to bring greater rigour to the management of certain programmes. A key lesson we have sought to apply is to lay down the foundations for success early by being clear about the requirement of each nation and seeking to identify and effectively manage the key risks to delivery.

A robust Memorandum of Understanding and associated governance structure is also a key enabler to both protect national interests as well as support effective delivery of the requirements of the participating nations. The Joint Combat Aircraft programme is a good example of where we and our partners have clearly understood and bounded risks associated with the development of the capability being sought.

**13. (Recommendation 13) We note that in 2006–07 the MOD reduced the forecast costs of major equipment programmes by reducing quantities of equipments, reassessing requirements and by re-allocating expenditure to other equipment programmes or budget lines. In its Major Projects Report 2007 the NAO expressed concerns about this approach and did not expect to see “this level of re-allocation in existing projects in future reports”. We share the NAO’s concern. In reporting its performance against the Key Target relating to cost growth in 2007–08, we do not expect to see the MOD shifting expenditure between different budget lines to give the impression of good cost control on equipment programmes. We plan to follow this up to check that the MOD has not done so. (Paragraph 68)**

We note the Committee’s intention to follow up this point in the future.

**14. (Recommendation 14) We note that, as with the MOD Head Office, DE&S is to be streamlined with the loss of some 7,500 staff—27% of its workforce—by 2012. As with the streamlining of the MOD Head Office, we remain to be convinced that improved economy, agility and responsiveness will follow from the reduction in staff. We look to the MOD to provide adequate support for those DE&S staff who are to lose their jobs. The MOD must monitor closely staff morale during the streamlining of DE&S and ensure that it continues to deliver the services which our Armed Forces require. (Paragraph 77)**

Implementation of the DE&S Leadership strategy and activities to improve line management capability will be including a particular focus on managing and maintaining morale and managing performance through this period of change. We are also working with the Cabinet Office to pilot an employee engagement survey, and will be utilising the results from this survey to focus activities in areas which will engage those we need to maintain and improve performance within DE&S. We are also monitoring a range of other people related metrics to ensure that we retain individuals with the right skills, and that we are providing the working environment which engenders their commitment.

Through the implementation of the DE&S Change Programme—PACE—which is aligned to MOD’s Streamlining initiative, we will transform DE&S business over the next four years. Characteristics of this change include a strategic intent to move all office based staff to the Bristol area and the need for fewer staff through the development of a more highly

skilled workforce. Throughout this period, support will be offered to those staff leaving the Department, and DE&S will maintain its mission to support to the Armed Forces with the aim of ever improving the effectiveness of the support we provide.

The Departmental Early Release Scheme is one of the main mechanisms available to the MOD, including DE&S, to reduce staff numbers. It provides opportunities for early departure to those affected by DE&S changes and streamlining. In determining how it will operate, we have ensured that the criteria for selection only provide early release for those individuals whose skills are not needed in the future. Those who take early release under this scheme will be offered a full support package to assist their transition out of the Department.

**15. (Recommendation 15) Military equipment acquired by DE&S must be reliable and available for use by our Armed Forces. We note that the MOD is seeking to push back onto the manufacturer the risk of unreliable equipment by contracting for availability. We consider this to be a promising approach and we look to the MOD to evaluate whether these new arrangements deliver the expected benefits in terms of improved availability and, if so, to consider how they might be used more widely. (Paragraph 82)**

We are examining the current composition of MOD's support portfolio across the Department and considering both future and current contracts. We propose to address a range of options for individual programmes and capability sectors in the light of our experience in negotiating and delivering against availability contracts and of other innovative commercial approaches.

**16. (Recommendation 16) In its response to our report, we expect the MOD to set out the reasons why the current Planning Round is so challenging given the real terms increases to defence expenditure set out in the Comprehensive Spending Review 2007. (Paragraph 89)**

All planning rounds are challenging given the opportunities for spending money on desirable defence outputs inevitably exceed the budget available. Hard judgments about priorities, therefore, need to be made. The rolling programme of equipment modernisation and improvement, which is the subject of the Committee's report, constantly needs to be sequenced and prioritised to ensure an affordable programme. We also need to absorb cost growth in individual equipment projects and, beyond the equipment programme, to manage new cost pressures, for example from fuel and utilities (though the net additional costs of fuel for operations are covered by the Treasury Reserve).

**17. (Recommendation 17) We note that the MOD is preparing advice to Ministers about the defence budget for the three years 2008–09 to 2010–11 and that the MOD acknowledges that there are likely to be cuts or delays to projects in the Equipment Programme. The MOD needs to take the difficult decisions which will lead to a realistic and affordable Equipment Programme. This may well mean cutting whole equipment programmes, rather than just delaying orders or making cuts to the number of platforms ordered across a range of equipment programmes. While it is the natural inclination of all governments and departments to avoid bad news by “moving programmes to the right” rather than by cutting out an entire capability which has many supporters, such an approach can cause in the long run more financial and**

**operational damage than confronting the perennial problem of an over-ambitious Equipment Programme. A realistic Equipment Programme will give confidence to our Armed Forces that the equipment programmes that remain will be delivered in the numbers and to the timescale required, and will also allow industry to make informed investment decisions. This is an issue we plan to return to. (Paragraph 94)**

MOD will shortly be embarking on planning round 09 which will help in ensuring that the equipment plan is realistic, affordable and matched with our priorities for the coming years. In advance of this, we are undertaking an examination of our planning assumptions for equipment over the next ten years. The examination will focus on two issues above all: bearing down on cost increases to equipment programmes; and rebalancing the equipment programme to better support the frontline. The outcomes of the examination will feed into the planning round.

**18. (Recommendation 18) We note that the merger of the DPA and DLO will contribute to generating annual net cash-releasing savings of some £250 million by 2010–11 and that there will be further savings in the future as most of DE&S business is collocated in the Bath and Bristol area. (Paragraph 98)**

We confirm the Committee's understanding, and note the Committee's comment about the delivery of future savings.

**19. We are concerned to learn that the new performance targets for DE&S will not be validated by the NAO, as was the case for the Key Targets of the DPA, now merged with the DLO to form DE&S. Independent validation of reported performance against Key Targets provides Parliament with assurance that the reported performance is accurate. In its response to our report, we expect the MOD to set out the reasons why it has no plans for the targets to be validated by the NAO and how independent validation will be achieved. (Paragraph 102)**

There is no mandate for Top Level Budget Holders within the MOD, such as DE&S, to have their performance validated by the National Audit Office (NAO) (the exceptions are Public Service Agreement and Defence Resource Account results) or any other independent organisation. DE&S performance is reported to the Defence Board and informs results published against the Department's Public Service Agreement/Departmental Strategic Objective. In addition, those projects that appear in the Major Projects Report will continue to be subject to NAO validation.

**20. (Recommendation 20) We note that the MOD is benchmarking its performance against its allies in delivering equipment into theatre. We consider this to be a useful exercise and, given our on-going interest in current operations, look to the MOD to inform us of the results and the lessons identified. (Paragraph 103)**

We continue to examine the opportunities for benchmarking our acquisition and logistic support activities against those of allies and industry, although finding comparable data is not straightforward. Work is at a preliminary stage and no conclusions have yet emerged. We will keep the Committee informed of progress on this activity.

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**21. (Recommendation 21) We note that the Major Projects Report is to be revised to provide a broader view of equipment acquisition. However, we remain concerned that the revised Major Projects Report may not provide visibility of the performance of programmes against their acquisition targets covering time, cost and performance, and that poor performance against these targets might be difficult to identify within the broader view provided. In its response to our report, we expect the MOD to provide us with a summary of the key changes expected to the Major Projects Report, the categories of equipment programmes that will be covered, and when the revised format is likely to be approved. We also expect the MOD to continue to provide the key information in respect of the performance of individual programmes. (Paragraph 106)**

The revision of the Major Projects Report, which is being undertaken in close consultation with the NAO and with the agreement of the Public Accounts Committee, will build on the existing report's time, cost and performance focus, both deepening and broadening the coverage, giving the opportunity for closer scrutiny. There will be no dilution in the information available for Parliamentary scrutiny.

The major short-term changes are likely to: increase the focus on maturity, in risk and technology terms of those programmes which are pre the major investment decision point; widen the post major investment decision point programmes exposure to include all the Lines of Development such as training, manning and infrastructure; include in the population major upgrades; and move away from the rather narrow focus on in-service date, to the wider Initial Operating Capability measure, with aspirations to indicate progress towards Full Operational Capability. In the longer term we have a desire to include a small number of in-service capability reviews aimed at underlining how previously acquired capabilities are being used and are performing. It is expected that this approach will give a more rounded feel to the report, covering the whole acquisition cycle, including through life upgrades and will, therefore, give a more useful view of the Department's activity.

We are currently trialling the scope of the new report with an expectation that, with the agreement of the Public Accounts Committee, the report produced in 2009 will start to reflect the changes. With the pressures on staff, we will need to make sure, through the trials, that the additional overhead associated with gathering the information is not excessive and that it has utility for broader management use.

**22. (Recommendation 22) We note that the MOD has identified key lessons from the problems experienced to date on the Astute submarine programme. We consider it vital that these lessons are taken into account when the MOD acquires the successor to the current Vanguard class submarines and look to the MOD, in its response to our report, to set out how it plans to ensure this is done. (Paragraph 120)**

Both the MOD and the UK submarine industry are starting from a very different point with Successor than with Astute. When work to acquire Astute first started, neither MOD or industry had recent experience of the complex and challenging work of designing and building submarines. Both now have much better understandings and experience of the cost drivers and strategic risks that face the submarine enterprise.

Plans are in place to ensure that relevant Astute experience and lessons learnt have been and are being shared; this will continue to be the case going forward. These include: the use of experience to inform the creation of the Successor risk registers and mitigation actions; the use of Astute lessons learnt to inform the development of both procurement and commercial strategy; ensuring that there are former team members from the Astute programme, from both MOD and industry, working within the Successor team; and the use of independent peer reviews that should address if lessons learnt, not just from Astute but across the wider Acquisition community, are being applied.

Both the Astute and Successor project teams are part of DE&S' Submarine Cluster, so are part of a common senior management group and benefit from close working relationships with each other at all levels.

**23. (Recommendation 23) The Type 45 destroyer programme experienced a further forecast cost increase of £354 million and a further 11 month time slippage during 2006–07. We note that the MOD did not change the specification for the Type 45 Destroyer, so this was not the reason for the further forecast cost growth and time slippage. In its response to our report, we expect the MOD to set out the key lessons identified from this programme and to provide us with an update on how the programme is currently performing against its Approved Cost and In-Service Date. (Paragraph 123)**

In the Major Projects Report 2007, T45 reported an in-year cost growth of £354 million and 11 months in-year slippage to the ISD. The increased costs were attributable to an increase in the costs of ship build, mitigated partly by savings including a change in overheads resulting from the Maritime Industrial Strategy. The ISD slipped as a result of a realistic reassessment of remaining schedule risk. A number of lessons have been learnt from our experiences to date on the T45 programme. The project has essentially suffered from a combination of two factors. First, the project contained a high degree of technical risk (for example, new gas turbine engines, radars and weapon system). While this will give the T45 military superiority it is clear, in hindsight, that some of the systems were not at a sufficient level of maturity at the time the design and manufacture (D&M) contract was placed. The second factor was the nature of the D&M contract itself which was placed relatively early in the project cycle and was based on delivery of performance, not on a technical specification; this left industry holding a significant amount of risk that was not adequately bounded. Furthermore, MOD held the integration risk between the ship build and the main engines and weapon systems. Taken together, these factors left significant risk, without sufficient contingency, lying with the MOD.

The lessons from T45 have not only been fundamental to the contracting strategy for projects such as CVF, but have also been fed back into a major renegotiation of the T45 contract in 2007/08. The new contract recognised where the remainder of the risks in the project actually lay, and moved responsibility for these risks, including the contingency funding associated with them, to the party best placed to manage the risk. We have also adopted an innovative approach to customer handover and trials that allow all parties to assess any issues that arise during trials and determine the level of risk contingency that is desirable for mitigation, and what can be tolerated. In this way MOD has very considerable control over these decisions and a greater visibility and ability to minimise any time/cost growth in the project. The trials of First in Class, Daring, have exceeded expectations in

terms of the performance of the ship. This year is key for the weapon systems trials and we are cautiously optimistic that the major expenditure on de-risking throughout the project will now pay dividends.

**24. (Recommendation 24) Since the DE&S Chief Operating Officer, Mr Gould, told us that the problems being experienced on the Nimrod MRA4 programme were not considered unusual, that they had been experienced on the MRA2 programme and that “it was predictable”, we are deeply concerned that they nevertheless seem to have come as such a surprise to the MOD. His comment that, until the prototype had been built, “that is the first time you can test it against reality” may be true, but for the MOD to have failed to have provided for the risk turning into reality cannot in the circumstance be excused by the suggestion that “it would have been a low probability”. We accept his contention that, because of the long gap between the MRA2 conversion programme and the MRA4 programme, some 20 years, the experience from the earlier programme had been lost, but we are disappointed that this had not been recognised at a much earlier stage of the programme. (Paragraph 126)**

The stability problem experienced by the MRA4 is not a legacy issue from the MR2. It is primarily caused by the revised wing and tailplane configuration of the MRA4.

The problem did not come as a surprise. It was recognised from the start of the programme that the MRA4 would, like the MR2, exhibit a tendency to instability in pitch in some areas of the flight envelope. It was also predicted that this instability was likely to be more pronounced than that of the MR2.

From the outset, the design of the MRA4 included a device called the “Speed Trim System” (STS) to counter the predicted level of instability. Extensive wind tunnel testing was undertaken on the design, however, primarily as a result of the complexity of the inner wing design, the correlation between the wind tunnel and aircraft handling characteristics was less close than envisaged. Flight testing has shown that the instability is more severe than anticipated and that the STS alone is insufficient, hence the need to develop a more sophisticated Stability Augmentation System.

The loss of experience between the end of the MR2 programme and the commencement of the MRA4 programme is not relevant. The increased instability of the MRA4 is a consequence of its re-designed wings and tailplane. The requirement for a Stability Augmentation System could not have been identified by further analysis of the MR2 design.

**25. (Recommendation 25) At the end of 2006–07, the Nimrod MRA4 programme had experienced a forecast cost increase of some £687 million, almost 25% greater than the approved cost, and has experienced further cost growth in 2007–08 of some £100 million. Given the huge cost growth seen on this programme, we are concerned that the MOD does not appear very alarmed by the additional cost growth in 2007–08, referring to it as “just a little less than three per cent of the total programme cost”. The programme has also experienced further slippage in 2007–08 which now totals 92 months, some 7.5 years. (Paragraph 129)**

Time and cost variations for the Nimrod MRA4 programme are discussed at paragraph 11 of this document (in response to paragraph 64 of the Committee’s report).

**26. (Recommendation 26) In our report on the Ministry of Defence Annual Report and Accounts 2006–07 we recommended that the MOD undertake a review of the Nimrod MRA4 programme in order to ensure that best value for money is achieved in maintaining this important capability, both in quality and quantity of platforms. This is a programme that has been beset by one problem after another and neither the MOD nor the contractor appears to be able to get a grip on it. We hope that the new Minister for Defence Equipment and Support will look closely at this programme and consider whether it is ever likely to deliver the capability our Armed Forces require in the timescale needed. If it is not the MOD should withdraw from the programme. (Paragraph 130)**

The Nimrod programme is kept under continual review, as are all projects, to ensure that we obtain the best value for money. The MOD expects the aircraft to enter service in 2010. There has been a review of capability and Nimrod MRA4 remains the most cost-effective means of meeting the requirement in the stated timescale.

**27. (Recommendation 27) It is disappointing that the in-service date on the A400M transport aircraft programme has slipped a further nine months in 2007–08 and it is now expected to enter service some two years later than the original approved in-service date. As we recommended in our report on the Ministry of Defence Annual Report and Accounts 2006–07, we look to the MOD to work closely with the contractor for this programme to reduce the risk of any further delays and, where possible, to identify ways to recover some of the forecast slippage. (Paragraph 135)**

We currently assess that Airbus military has a very limited opportunity to recover the delays to A400M aircraft development that have been experienced to date. Given that the UK is not, however, the first nation scheduled to take aircraft delivery, and that delivery of our 25 aircraft (as specified in the contract) spans from 2010 to 2015, we are working with the company to examine potential opportunities to recover delay through increased production delivery rates.

**28. (Recommendation 28) We recommend that in its response to our report, the MOD sets out the key findings of the review of the A400M programme undertaken by the DE&S project rehabilitation unit. (Paragraph 136)**

The DE&S Chief Operating Officer commissioned a review of the programme last year, which was carried out by the MOD's Project Rehabilitation Unit. It provided an independent assessment of the programme's schedule status, which confirmed the position reported to MOD by industry at that time, together with recommended actions that DE&S could take to improve the management of the programme. These actions related to Certification and Qualification (CQ) planning for System Acceptance (including UK-specific Test and Evaluation), and the Assessment Phase for In Service Support.

In the case of CQ, DE&S has had some success in increasing multinational attention on associated planning and driving forward the need to increase the efficiency of the interface between the multinational CQ Committee and industry. Current work is now focussed on the production of a comprehensive schedule for all CQ activities. For System Acceptance, DE&S has completed a review of its requirements and how these will be demonstrated. We have identified the resources required for UK-specific aspects and have started to identify

the most appropriate arrangements for addressing these. While there is more to be done, the associated risk has been successfully reduced to a level that is typical for the current stage of the programme.

In regard to In Service Support, DE&S has completed a review of the activities required in support of the Assessment phase it is running and has produced an updated programme plan. The IPT structure has also been adjusted to better align resources with key tasks. While further work is ongoing to test the plan with associated stakeholders (in order to ensure that all requirements for service delivery, including expenditure approval and contract award, have been successfully captured and that resources are available to meet a demanding schedule of activity), the plan is now being implemented.

**29. (Recommendation 29) We note that the Army, as the front line user, has been closely involved in the process of identifying the preferred FRES Utility Vehicle design and that the design which has been recommended is the Army's preferred option. (Paragraph 142)**

We confirm the Committee's understanding.

**30. (Recommendation 30) We note that the FRES Utility Vehicle design which has been recommended is a "developmental vehicle" and that the MOD considers that this is the best option as it can be upgraded and its capability increased over time. We also note that the MOD considers that acquiring an "off-the-shelf" vehicle would not provide scope for increasing capability and would have a very limited life. While we recognise that these are strong arguments for acquiring a developmental vehicle for the FRES Utility Vehicle, such an option is also likely to involve higher costs and increased risks to the in-service date because of unforeseen problems during the further development. If the recommended design is approved, the MOD needs to ensure that it identifies the key risks on the programme and how these are to be managed. (Paragraph 144)**

The Committee has correctly noted that the Department decided to base the FRES Utility Vehicle family on a vehicle design currently in development. The Committee also noted that one of the key factors in this decision was that there was no 'off the shelf' vehicle design currently available (defined as an armoured vehicle currently in service that would not need further modification) with the growth potential to increase its capability over time. The other key factor is that there is no 'off the shelf' vehicle available that is capable of meeting the UK protection requirement.

Accordingly, we selected three development vehicle designs (BOXER (Artec), PIRANHA (General Dynamics (UK) Ltd and Vehicule Blinde Combat d'Infanterie (Nexter)) to participate in the Utility Vehicle Trials in 2007. It was subsequently announced, on 8 May 2008, that we have provisionally selected the Piranha 5 as the preferred design to be taken forward to the next stage of the Utility Vehicle programme. Piranha 5's confirmation as the preferred design will be subject to the completion of a package of work on risk reduction to ensure it provides the MOD with the best possible capability at the right price and at the earliest opportunity.

**31. (Recommendation 31) We find it an issue of concern that the MOD appears to be at an advanced stage with regard to selecting the FRES Utility Vehicle design yet has still**

**to clarify what the planned In-Service Date is. In its response to our report, we expect the MOD to provide clarification on this matter. (Paragraph 146)**

Our policy not to formally release the ISD for new equipment programmes until all the relevant factors have been taken into account and the main investment decision has been taken was outlined by the previous Minister for Defence Equipment and Support, Lord Drayson, to the Committee on 19 December 2006.

As Lord Drayson explained, right up to the point when we take the main investment decision, there is a debate both internally and with industry aimed at defining the optimum balance between performance, time and cost. Only when we have concluded this debate are we in a position to define the level of performance we want to achieve, what it will cost and when it will enter service—premature release of cost, timescale or performance forecasts can lead to pressure to conclude projects within unrealistic constraints.

We are, however, implementing a strategy that is designed to achieve the earliest ISD of a vehicle which meets the Army's needs and offers the potential for sustained operational effectiveness through life.

**32. (Recommendation 32) In its response to our report we expect the MOD to set out how many Mastiff vehicles are being procured for operations in Iraq and Afghanistan, how the acquisition of armoured vehicles for these two operations impacts on the FRES requirement, and how the MOD plans to use these vehicles when they return from current operations. (Paragraph 147)**

Following the announcement by the Defence Secretary on 24 July 2006, 108 Mastiff vehicles were ordered from Force Protection Industries Inc. of Ladson, South Carolina. Deliveries of the first tranche (Mastiff 1) are: 49 delivered to Op TELIC; 36 delivered to Op HERRICK; 18 delivered to UK Training; one reference vehicle remains in UK; and four have been re-roled to Ambulance variant (of which three have been delivered to Iraq and one has yet to be deployed). For the second tranche (Mastiff 2), a total of 174 further Mastiffs are now on order from the same company. Upon receipt, we are planning that the base vehicles will undergo UK integration by a UK provider to fit them with Bowman radios, electronic countermeasures, an infra red 360 degree camera system, a protected weapon platform/turret and significant additional armour. Some of these vehicles are to be configured as Ambulance variants or Command vehicles.

There is no impact on the FRES programme resulting from the procurement of Mastiff. The Department has previously outlined a coherent two track approach to meeting its Armoured Fighting Vehicles (AFV) needs. The strategy makes a clear distinction between the urgent, short term need for Protected Patrol Vehicles, such as Mastiff, designed for Peace Support Operations, and those AFVs needed to provide an effective FRES capability across the full spectrum of future operations. The introduction of Mastiff, along with a range of additional measures including upgrades to protection equipment, vehicle upgrades and introducing other new equipment such as Vector is designed to address the risks faced by our service personnel in the short term. These measures, however, are not, and never were, intended to meet the Army's longer term requirement for new medium weight armoured fighting vehicles. That requirement will be met by FRES. While these

separate needs are part of a single, coherent strategy, they are distinct requirements, managed entirely separately within the Department.

The Mastiff vehicle has been procured to support current operations and its future role will be confirmed when the commitment has finished.

**33. (Recommendation 33) When we held our oral evidence session on 29 January 2008, the Manufacture contract for the Future Carriers had yet to be signed. We find it a cause of concern that the MOD did not seem to know what was holding up the signing of the Manufacture contract. It appears that the formation of the Joint Venture between BAE Systems and VT was a factor behind the delay, but the MOD's view on why this had not happened did not appear to match that of industry. (Paragraph 159)**

We announced in Parliament on 20 May 2008 that we have written to industry to confirm our intention to sign the Manufacture Contract once the proposed BAES/VT Joint Venture Company BVT Surface Fleet has formed. We have completed the necessary alignment of planned annual expenditure, work schedule and commercial arrangements in relation to the CVF's and are pressing ahead with work to support the start of manufacture.

**34. (Recommendation 34) We note that the MOD expects the Manufacture contract for the Future Carriers to be signed by the end of March 2008. We found unsatisfactory the responses from the MOD on the reasons for delay in signing the contract. We think it likely that much of the cause relates to the current difficulties in the Planning Round, but there must come a point where delays in letting the contract will affect the programme schedule and the expected in-service dates of 2014 and 2016. Further delays are also likely to lead to increased costs on the programme. We plan to monitor this closely. (Paragraph 162)**

The Future Carrier programme remains on schedule and there has been no change to the ISDs of 2014 and 2016, which were announced at the time of the Main Gate Announcement in July 2007. We are now ready to place the Manufacture Contract and in the intervening period have continued to make progress towards manufacture. For example, we have placed a number of sub-contracts with the supply chain for design and engineering data and for materials, equipments and infrastructure in support of manufacture.

**35. (Recommendation 35) We also call on the MOD to set out what roles the two Future Carriers will perform when they come into service and what capabilities these expensive ships will give us that could not be provided in other ways. Since the 1998 Strategic Defence Review there have been reductions in the number of current and planned surface ships, such as the Type 45 destroyer. We therefore look to the MOD to confirm that the two new carriers will have sufficient protection to undertake the roles expected of them while not removing from other tasks the naval cover that the country will continue to need. (Paragraph 163)**

The two Aircraft Carriers (CVF) are at the heart of, and key enablers for, the UK's expeditionary capability articulated in current Defence policy. They offer both a coercive presence worldwide contributing to conflict prevention as well as providing a flexible and rapidly deployable base during operations to deliver increased strategic effect and influence around the world at a time and place of our choosing. CVF, together with embarked

aircraft, will assure the provision of combat airpower from an independent sovereign base that is not reliant on another nation's support when access, basing and overflight cannot be guaranteed, or when the UK may wish to act alone through military or political advantage. This analysis was endorsed by the New Chapter work of 2002 and reinforced in the 2003 Defence White Paper.

The protection of high value units such as CVF in a multi-threat environment involves the coordination of layers of air, surface and sub-surface defence from within the carrier task group. The Type 45 destroyer will provide a key part of this force structure, working in concert with other ships, submarines and aircraft and utilising network enabled capability as a force multiplier for the weapons and sensors available to the task group.

**36. (Recommendation 36) We note that the MOD expects the Future Carrier programme to be delivered below the approved cost of £3.9 billion as a result of the incentive arrangements that it plans to put in place. While it is important to acquire the two carriers within the Approved Cost, the MOD must also take account of the through-life costs of the carriers which will be many times greater than the acquisition costs. The MOD needs to make the necessary investment when acquiring the carriers so that substantial savings through-life will be delivered. In its response to our report, we expect the MOD to set out the forecast through-life costs of the two carriers and how its investment to date in the programme is expected to reduce the through-life costs. (Paragraph 166)**

Through life costs of the two Future Carriers were considered as part of the CVF Main Gate investment decision and, on an annual basis, were estimated to be broadly comparable with those of the three CVS carriers currently in-service. A more precise and mature forecast of through life costs is being developed and refined as part of the Assessment Phase of the Carrier In-Service Support Solution and will not be set until this support project achieves Main Gate approval.

The CVF Project's strategy for reduction of through life cost is made up of three strands. First, a 'Design for Support' approach to building supportability and human factors into the design which has been incentivised, in part, by making the Aircraft Carrier Alliance (ACA) the preferred bidder for the support solution. For example, the adoption of integrated electric propulsion reduces the number of high maintenance prime movers and transmission systems whilst improving fuel efficiency. As another example, our investment in the development of a Highly Mechanised Handling System will significantly reduce the number of operators required and thereby, through-life manning costs. Second, we are ensuring, through careful specification and investment in the design and procurement processes, that the ships will be delivered with the right 'support products' to enable the ship's company to correctly operate and maintain the ships. Third, we are investing in the development of a value for money and affordable In-Service Support Solution. Starting with a thorough understanding of in-service support costs and with the nomination of the ACA as the preferred bidder, the intention is to have a solution in place to meet the ships' in-service dates. Once the ships have generated a support history, it should then be possible to further develop the solution to share with industry the risk and reward, on availability and thereby increase incentives for performance and cost savings.

**37. (Recommendation 37) We note that the MOD is content with how the restructuring of the UK surface ship sector is progressing. This is an issue which we plan to monitor closely. (Paragraph 167)**

We note the Committee's intention to monitor this issue closely.

**38. We note that a contract to upgrade Rosyth dockyard, where the final assembly of the two aircraft carriers will take place, has been signed. (Paragraph 168)**

We note the Committee's statement.

**39. (Recommendation 39) We acknowledge that cost has to be a factor in determining the procurement of major equipment, but we would expect the number of JSF aircraft to be primarily determined by what the UK needs for its defence capability. In its response to our report, we look to the MOD to set out the different roles which JSF aircraft will be required to undertake and how many aircraft will be required to fulfil each of these roles. (Paragraph 174)**

**40. (Recommendation 40) We note that the MOD considers that one of the benefits of the JSF programme is that it does not have to decide on the number of JSF aircraft it will acquire "at the start". While we acknowledge that UK participation in the programme provides this flexibility, we are surprised that the MOD does not consider it an issue that it does not know how many JSF aircraft it requires because it is "at an early stage in the programme". We take issue with the term "early stage", as the MOD has already spent in the order of £1 billion on the JSF programme and the first aircraft carrier, which the JSF aircraft will operate from, is expected to enter service in 2014—just six years away. (Paragraph 175)**

Joint Strike Fighter (JSF) is a fifth generation supersonic, low observable aircraft. It can undertake air to ground missions in heavily defended airspace with secondary roles of close air support and air defence. Alongside the new aircraft carriers, it will form the cornerstone of the UK's future carrier strike capability.

JSF numbers are driven by a range of factors including training needs and pilot numbers, the anticipated airframe life, attrition considerations and the number of JSF we might anticipate deploying in a range of operational scenarios.

**41. (Recommendation 41) The acquisition of two new aircraft carriers and Joint Strike Fighter (JSF) aircraft to operate from them will provide the core elements of the MOD's 'Carrier Strike' capability. We are disappointed and concerned to learn that JSF aircraft will not be available to operate from the first new aircraft carrier which, on current plans, is expected to enter service in 2014. We recommend that, in its response to our report, the MOD sets out the reasons why JSF aircraft will not be available to operate from the first new aircraft carrier when it enters service and the latest estimate of when sufficient JSF aircraft will be available to operate from both carriers. (Paragraph 178)**

We are still finalising our transition plans from the Harrier to JSF and have not yet set the JSF In-Service Date. We will, however, initially fly GR9 from CVF and are planning for the incremental acquisition of JSF. We continue to ensure the coherency of both programmes

and throughout the transition we will seek to retain the ability to deliver capability for operations from land or sea using CVS, Harrier, CVF and JCA.

MOD has never planned to operate both carriers with a full complement of JSF simultaneously. There may be occasions where both carriers are deployed on operations at the same time, but this will involve a mixture of air assets including the JSF.

**42. (Recommendation 42) We note that Harrier GR9 aircraft are to be operated from the first new aircraft carrier and that these aircraft will remain in-service until around 2018. We look to the MOD to undertake an assessment of how the ‘Carrier Strike’ capability would be maintained if JSF aircraft were not available to operate from the two aircraft carriers in 2018 when the Harrier GR9 goes out of service. (Paragraph 179)**

Although we have not yet set an ISD for JSF, based on our current assessment the incremental introduction of JSF would be underway well before GR9 is preparing to go out of service. We expect the initial operating capability of JSF to be established in time to ensure a seamless transition for the two aircraft types to maintain our carrier strike capability. We will not speculate about missing an ISD which has yet to be set.

**43. (Recommendation 43) We consider that there is a strong case for having a general procurement contingency held centrally by the Equipment Capability customer rather than at the individual equipment project level. We look to the MOD, in its response to our report, to set out what consideration it has given to a general procurement contingency and whether and how it plans to introduce such a system. (Paragraph 182)**

The 2006 Enabling Acquisition Change report recommended that a positive contingency should be introduced within the defence programme. We have introduced positive contingencies against a number of specific projects, but introducing a more general contingency has been constrained by competing pressures in the equipment programme. It remains our intention to introduce such a contingency as soon as practicable. We are also seeking increasingly to manage projects by portfolio, where there is more scope to balance pressures across a range of capabilities.

We are looking at how a more general contingency could be introduced into our programme. It is likely that it would be introduced incrementally into the later years of the programme.

**44. (Recommendation 44) Substantial in-service date slippage on major equipment programmes has often been a result of over-optimistic estimates by contractors of the likely programme schedule. It is, therefore, worrying to learn that the MOD only now acknowledges that it needs to include in the project management skills of its staff the ability to examine a contractor’s programme schedule and consider whether it is credible. In its response to our report, we look to the MOD to set out how it plans to up-skill its staff working in defence acquisition, so that they are able to examine critically the estimates provided by contractors both in relation to a programme’s schedule and cost. (Paragraph 185)**

As part of a wider skills development programme, DE&S project management staff are encouraged to complete a range of training courses as part of a corporate commitment to complete six days training and four days continuous professional development each year.

The training builds towards achieving Project Management (PM) licences, which start at Level 1 for posts that require at least an Awareness level PM functional competence, rising to Level 2 for posts that require Practitioner level competence: experience is also a major factor in their award. These licences are underpinned by the Association for Project Management qualifications and test competence against the PM Body of Knowledge which includes an understanding of the tools and methods used by contractors to estimate a programme's schedule and cost. More broadly across the Department's acquisition community, a major investment was made during 2007/08, via the Defence Academy, to deliver new classroom training and e-learning that focuses on project management and commercial skills, including risk management, scheduling, estimating and assessment of contractor's proposals.

**45. (Recommendation 45) We note that the MOD is introducing techniques, such as Earned Value Management, to improve its visibility of the progress on equipment programmes and to identify potential problems as early as possible. We look to the MOD to assess whether the expected benefits are delivered by such techniques and, where they have been, to ensure that they are adopted on other programmes. We also expect the MOD to learn from the experience of the US Department of Defense in using Earned Value Management, such as on the Joint Strike Fighter programme. (Paragraph 188)**

We have recognised the considerable benefit of implementing Earned Value Management (EVM) as part of a rigorous Project Performance Management regime, learning lessons from experience in the US. There has been a growth in the number of equipment based projects adopting such an approach, most notably Astute and T45 in the maritime sector, and a wide variety of projects in other sectors, for example Falcon. Effective implementation has led to a far more constructive relationship with key suppliers, undertaking joint planning, using a common set of project performance data, and joint analysis of metrics. DE&S continues to promote EVM as a key component of further improving Project Management, with an increased focus on implementing effective Integrated Project Controls and Performance Management.

The use of EVM for JSF has been a key management process since the start of the programme in 2001 to monitor the cost, time and performance metrics of the contract. The EVM System data attained during the System Development and Demonstration phase is one of the key indicators used to monitor programme health on a monthly basis and has provided the JSF Programme Office sufficient insight to the Estimate at Completion which initiates re-plan activities to ensure programme success, and provides the necessary data to determine system maturity prior to major programme milestones (Interim Design Review, Critical Design Review). EVM data has been the basis for key programme decisions, most notably the decision in 2004 to add 18 months and \$8Bn to the programme time and cost to resolve aircraft weight and performance issues.

**46. (Recommendation 46) We note that the MOD is paying more attention to the date at which equipment can deliver initial and full operating capability, rather than just the in-service date. Starting the training of the users of equipment, even where there is some further development work to be completed on an equipment programme, should allow the equipment to enter operational service more quickly. (Paragraph 190)**

MOD is developing principles and processes which are intended to ensure that the Training Defence Lines of Development (DLoD) are considered and supported as early as possible in and subsequently throughout the development of a new capability. The full consideration of training early in the development of a capability, even before it relates to a specific equipment or suite of equipment, will mean that the most efficient and effective training solution is integrated with the programme's equipment and personnel requirements. In order to support this programme, MOD is aiming to develop a Training Solutions Envelope to guide other practitioners.

Efficient and effective delivery of the Training DLoD is an integral aspect of Through Life Capability Management (TLCM). It is the intent that MOD policy will mean a proposed capability becomes a reality that has been developed holistically, including the full range of related training (operator, maintainer and higher tiers of training), will deliver the desired effect and value for money. In addition, by addressing concurrently all DLoDs elements of training should be ready as they are required. This could mean the delivery of an equipment programme into service more quickly.

**47. (Recommendation 47) Cost increases on equipment programmes have often arisen from 'requirement creep'—additions and changes to the specification of equipment already ordered. We note that the MOD is seeking to address this by acquiring equipment which meets the vast majority—around 80%—of the military customer's requirement, but which also has an 'open architecture' allowing incremental upgrading and innovation to be added later. This appears to be a sensible approach, but DE&S must ensure that staff who work in project management have sufficient training in key skills such as good change control. (Paragraph 193)**

In addition to the answer provided to Recommendation 44 above (in response to paragraph 185 of the Committee's report), the Project Management Licensing qualifications measure individuals' competence across the whole of project management including change control.

