National Audit Office

REPORT BY THE
COMPTROLLER AND
AUDITOR GENERAL

HC 1520-II
SESSION 2010–2012

16 NOVEMBER 2011

Ministry of Defence

The Major Projects Report 2011

Appendices and Project Summary Sheets

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National Audit Office

Ministry of Defence

The Major Projects Report 2011

Appendices and Project Summary Sheets

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Amyas Morse
Comptroller and
Auditor General

National Audit Office

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Appendix Three

Reconciling of the 2010 and 2011 Major Projects Reports

A number of changes have been made in the *Major Projects Report 2011,* compared with the 2010 report. The 2011 report reflects the following developments since the 2010 report:

- HM Treasury has implemented its 'clear line of sight' policy, which has removed the cost of capital charge from the approved cost, forecast cost and historic cost variations.
- All approved costs are now on a 50 per cent 'budgeted for' basis, which brings them into line with the forecast cost. This means that the 'risk differential' variation is no longer required and has been removed from the project summary sheets.
- Support projects have been removed from the population in effect reducing the population from 30 to 25 projects.
- Unit production costs have been removed from the project summary sheets at section B.
- The Sentinel reporting system has been added to the project summary sheet at section D.1. This replaces the maturity measures metric used in the *Major Projects Report 2010*.

Implementing the clear line of sight policy

The Government announced in its July 2007 Green Paper *The Governance of Britain* (Cm 7170) that it would simplify its financial reporting to Parliament, so reporting is more consistent. As a result, the Government established the *Alignment Project* which included several changes to departmental reporting, including removing 'near cash' and 'non cash' from budgets, leaving a single resource budget for government projects.[1]

1 *High Level Parliamentary Memorandum* – Alignment Project, P. 3 para 1.

For the *Major Projects Report 2011*, the cost of capital charge has been removed from project approvals, forecast costs and cost variations.

- **Approved cost** Cost of capital has been removed from the approved cost by reviewing original main investment decision approval documentation. A reconciliation of this can be found at **Figure 1** overleaf.
- **Forecast cost** No cost of capital has been calculated in the forecast cost.
- **Cost variations** Cost of capital has been removed from historic cost variations where these can be identified in the project summary sheet. Also, where further documentation can identify cost of capital not explicitly stated on the face of the project summary sheet, this has also been removed.

Cost of capital was a notional opportunity cost of government using money in capital spending instead of on alternative investment opportunities. For the public sector, cost of capital was charged at a rate of 6 per cent when it was introduced on 1 April 1999 to 31 March 2003, and 3.5 per cent between 1 April 2003 and 31 March 2010.[2]

Removing risk differentials

In previous major projects reports forecasts for both cost and in-service dates have been measured against the projects 'not to exceed' approval limit. This was usually at a higher level of confidence than that used by the Department to produce its forecasts. This led to including a 'risk differential' within the project summary sheet to explain variations against both cost and in-service dates.

In the *Major Projects Report 2011*, approvals for both cost and in-service dates are now on the same basis as those of the forecasts, meaning there is no need for a 'risk differential'. The risk differential variations have thus been removed from all project summary sheets. A reconciliation between the approved cost and in-service dates shown in *Major Projects Report 2010* and 2011 can be found in Figure 1.

2 *Major Projects Report 2009*: glossary definition of cost of capital.

Figure 1

Reconciliation between the approved and budgeted for cost and in-service dates in Major Projects Report 2010 and 2011

a) Demonstration and manufacture approved and budgeted for cost

Project	MPR 2010 approved cost (£m)	Risk differential (£m)	Cost of capital (£m)	MPR 2011 budgeted for cost (£m)
A400M	2,744	116	130	2,498
Astute Class submarines boats one to three	2,578	–	345	2,233
Astute Class submarines boat four	1,610	86	245	1,279
Astute Class submarines boat five	855	81	151	623
Astute Class submarines boat six	351	23	73	255
Beyond Visual Range Air-to-Air Missile	1,362	122	104	1,136
Future Strategic Tanker Aircraft	12,536	210	19	12,307
Joint Combat Aircraft – System Development Demonstration	2,236	202	160	1,874
Joint Combat Aircraft – Production, Sustainment and Follow on Development	638	–	30	608
Lynx Wildcat	1,966	65	98	1,803
Merlin Capability Sustainment Programme	840	3	32	805
Queen Elizabeth Class aircraft carrier	4,359	274	544	3,541
Type 45 Destroyer	5,475	475	243	4,757
Typhoon	16,671	–	1,498	15,173
Typhoon Future Capability Programme	458	14	34	410
United Kingdom Military Flying Training System – Advanced Jet Trainer	497	7	19	471
Advanced Jet Trainer – Operational Capability 2	43	–	3	40
Advanced Jet Trainer – Ground Based Training Environments	344	–	–	344
United Kingdom Military Flying Training System – Rear Crew Stage 1	75	–	2	73
Watchkeeper	920	13	60	847
Airseeker	–	–	–	659
Puma Life Extension Programme	–	–	–	339
Specialist Vehicles	–	–	–	1,394
Total	**56,558**	**1,691**	**3,790**	**53,469**

Figure 1 *continued*
Reconciliation between the approved and budgeted for cost and in-service dates in Major Projects Report 2010 and 2011

b) Demonstration and manufacture approved and budgeted for in-service date

Project	MPR 2010 approved date (month)	Risk differential (months)	MPR 2011 budgeted for date (month)
A400M	December 2009	10	February 2009
Astute Class submarines boats one to three	June 2005	–	June 2005
Astute Class submarines boat four	August 2015	–	August 2015
Beyond Visual Range Air-to-Air Missile – Original in-service date	August 2012	11	September 2011
Beyond Visual Range Air-to-Air Missile – in-service date 1	August 2012	–	August 2012
Beyond Visual Range Air-to-Air Missile – in-service date 2	July 2015	–	July 2015
Future Strategic Tanker Aircraft	November 2014	6	May 2014
Lynx Wildcat – Battlefield Reconnaissance Helicopter	August 2014	7	January 2014
Lynx Wildcat – Surface Combatant Maritime Aircraft	August 2015	7	January 2015
Merlin Capability Sustainment Programme	September 2014	7	February 2014
Queen Elizabeth Class aircraft carrier	October 2015	3	July 2015
Type 45 Destroyer	November 2007	6	May 2007
Typhoon	December 1998	–	December 1998
Typhoon Future Capability Programme	June 2012	–	June 2012
United Kingdom Military Flying Training System – Advanced Jet Trainer	February 2010	9	May 2009
Advanced Jet Trainer – Operational Capability 2	–	–	–
Advanced Jet Trainer – Ground Based Training Environments – Ready for Training Use 1	July 2010	–	July 2010
Advanced Jet Trainer – Ground Based Training Environments – Ready for Training Use 2	September 2010	–	September 2010
United Kingdom Military Flying Training System – Rear Crew Stage 1	September 2011	2	July 2011
Watchkeeper	February 2011	8	June 2010
Airseeker	–	–	October 2014
Puma Life Extension Programme	–	–	November 2013

Figure 1 *continued*

Reconciliation between the approved and budgeted for cost and in-service dates in Major Projects Report 2010 and 2011

c) Support phase approved and budgeted for cost

Project	MPR 2010 approved cost (£m)	Risk differential (£m)	Approved cost of capital (£m)	MPR 2011 budgeted for cost (£m)
Astute Class submarines – Initial Astute Support Solution	331	–	16	315
Astute Class submarines – Astute Class Training Service boats one to three	182	31	–	151
Astute Class submarines – Astute Class Training Service boat four	260	–	–	260
Type 45 – Initial Spares	14	–	–	14
Type 45 – Full Support	968	–	164	804
Typhoon	13,100	–	–	13,100
United Kingdom Military Flying Training System – Advanced Jet Trainer (Support)	173	–	–	173
United Kingdom Military Flying Training System – Training System Partner and Headquarters	307	–	–	307
Watchkeeper	55	–	–	55
Airseeker	–	–	–	680
Total	**15,390**	**31**	**180**	**15,859**

Figure 1 *continued*
Reconciliation between the approved and budgeted for cost and in-service dates in Major Projects Report 2010 and 2011

d) Support phase approved and budgeted for in-service date

Project	MPR 2010 approved date (month)	Risk differential (months)	MPR 2011 budgeted for date (month)
Astute Class submarines – Initial Astute Support Solution	August 2007	3	May 2007
Astute Class submarines – Astute Class Training Service boats one to three	February 2004	1	January 2004
Astute Class submarines – Astute Class Training Service boat four	December 2013	–	December 2013
Type 45 – Initial Spares	June 2008	–	June 2008
Type 45 – Full Support	April 2009	–	April 2009
Typhoon	–	–	–
United Kingdom Military Flying Training System – Advanced Jet Trainer (Support)	–	–	–
United Kingdom Military Flying Training System – Training System Partner and Headquarters	March 2008	–	March 2008
Watchkeeper	January 2010	–	January 2010
Airseeker	–	–	–

NOTES

1 The *Major Projects Report 2010* approved costs and in-service dates are as stated in the 2010 project summary sheet.

2 The *Major Projects Report 2011* budgeted for costs and in-service dates are as stated in this year's project summary sheet.

3 Joint Combat Aircraft and Specialist Vehicles do not have any in-service dates approved.

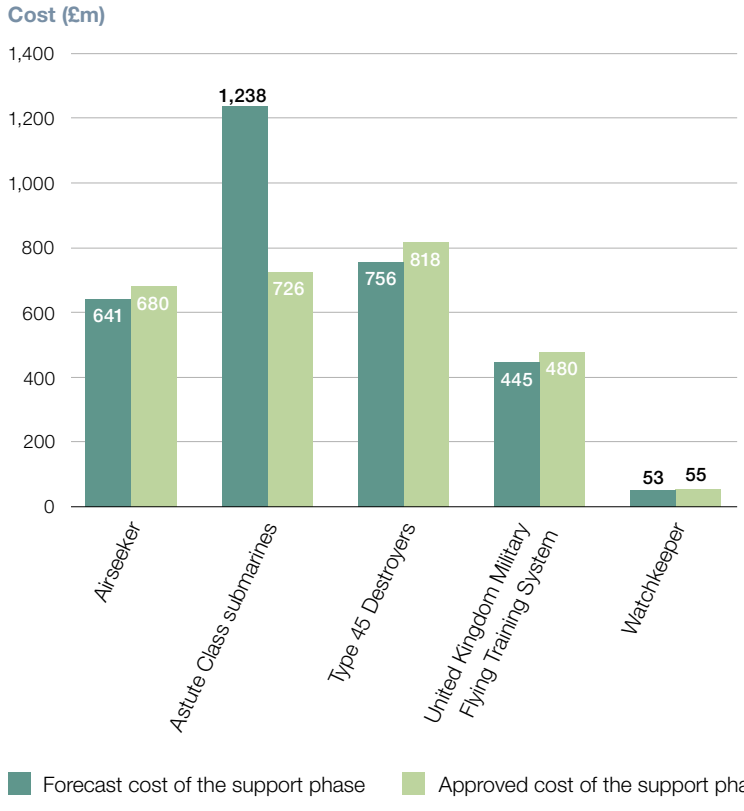
4 Risk differentials were entered in *Major Projects Report 2010* for Advanced Jet Trainer – Ground Based Training Environments – Ready for Training Use dates but these dates are the 'budgeted for' dates and do not need to be changed. No risk differential was entered for Advanced Jet Trainer – Rear Crew Stage 1 in *Major Projects Report 2010*.

5 Airseeker, Puma Life Extension Programme and Specialist Vehicles are new to the *Major Projects Report 2011* population and are included for completeness.

Support contracts

In the *Major Projects Report 2011* there is no separate population of support projects as there was in *Major Projects Reports 2009 and 2010*. There was no need for a separate population as there are a number of support contracts that are covered by the *Major Projects Report 2011*, which form part of the main (demonstration and manufacture) population. **Figure 2** shows how these contracts are performing against their approval.

Figure 2
Cost variation in support contracts



NOTES

1 Typhoon has been excluded from this chart. The approved cost and current forecast of the Typhoon support contract is £13.1 billion. However, we were unable to fully validate the forecast cost due to around £2.3 billion of this being managed by Air Command, which are not part of the Major Projects Report.

2 Astute Class submarines includes three contracts: Initial Astute Support; Astute Class Training Service boats one to three and Astute Class Training Service boat 4. It is the Astute Class Training Service boats one to three where significant cost growth has occurred (+£497 million), mainly due to the contract being extended by 11 years.

3 Type 45 Destroyers includes two contracts: Type 45 Initial Spares and Type 45 Full Support.

4 United Kingdom Military Flying Training System includes two contracts: Advanced Jet Trainer Support and Training System Partner and Headquarters.

Source: National Audit Office analysis of departmental data

Unit production costs

The Department does not measure the unit cost of a vehicle, aircraft or ship on a consistent basis and therefore we have removed this data from the project summary sheet. Instead, **Figure 3** shows a comparison between the unit cost of equipment and the unit production cost:

- **Unit cost** is calculated by dividing the total assessment, demonstration and manufacture costs by the total number of units to be built (as at 31 March 2011 for *Major Projects Report 2011*).
- **Unit production cost** is mainly calculated by dividing the total manufacture costs by the total number of units (as at 31 March 2011 for *Major Projects Report 2011*).

The notes column explains the different approaches each project has taken in calculating the unit production cost. Both the unit production costs and the notes have been provided by the Department and neither have been validated by the National Audit Office.

Figure 3
A comparison between unit cost and unit production cost for the 15 post-main-gate projects

Project	Current number of units	Unit cost (£m)	Unit production cost (£m)	Departmental notes
A400M	22	141	***	Unit production cost includes the main production contract only. This is calculated in line with previous Major Projects Report unit production cost calculations.
Airseeker	3	240	–	The provision of the Airseeker capability involves procurement of three aircraft together with ground exploitation and training systems. Additionally the aircraft are scheduled to be delivered to differing baseline standards and procuring them involves a complex mix of refurbishment, modification, equipment production and test. For these reasons the overall cost of the equipment is not easily expressed as a unit production cost. Unit cost is a more representative expression of the cost of the systems being procured.
Astute Class submarines	6	959	–	Only four Astute boats are in the full demonstration and manufacture phase, therefore unit cost shown here is misleading. Boat five is limited to initial build and long lead items only. Boat six is limited to long lead items only. They are not in the full demonstration and manufacture phase.
Beyond Visual Range Air-to-Air Missile	***	2.1	***	Number of units and unit production cost are confidential and commercially sensitive.
Joint Combat Aircraft	–	–	–	The number of units to be procured on Joint Combat Aircraft has not yet been determined.
Lynx Wildcat	66	26	13	The programme is to deliver 66 aircraft (28 Surface Combatant Maritime Rotorcraft, 30 Battlefield Reconnaissance Helicopter and eight Battlefield Reconnaissance Helicopter/Light Assault Helicopter) and Training Capital Equipment that consists of a building and Synthetic Training Devices. Unit cost is total assessment, demonstration and manufacture forecast divided by 66, while the unit production cost is total manufacture cost divided by 66 (manufacture cost excludes the value attributable to the Training Capital Equipment).

Figure 3 *continued*
A comparison between unit cost and unit production cost for the 15 post-main-gate projects

Project	Current number of units	Unit cost (£m)	Unit production cost (£m)	Departmental notes
Merlin Capability Sustainment Programme	30	27	8	Unit production cost is shown without the inclusion of Helicopter Electro-mechanical Actuation Technology in the demonstration and manufacture costings.
Puma Life Extension Programme	24	14	–	Unable to provide a breakdown of production costs.
Queen Elizabeth Class aircraft carrier	2	2,710	Ship 1: 4,257 Ship 2: 984	Based upon Cost Assurance & Analysis Services' estimate of the Non Recurring Engineering element of the Queen Elizabeth Class (£2,599 million of the Initial Target Cost estimate of £3,200 million). These proportions have been applied to the *Major Projects Report 2011* forecast estimate of £5,241 million (demonstration and manufacture £5,131 million plus assessment phase of £110 million), which reflects the development costs in the unit production cost for Queen Elizabeth Class.
Specialist Vehicle	–	–	–	Numbers, unit cost and unit production cost details are not provided due to the Specialist Vehicles programme having Investment Approvals Board approval for its demonstration phase only.
Type 45 Destroyer	6	983	651	Unit production cost audit trail based on the previously approved *Major Projects Report 2010* figures. There has been no significant change in the numbers related to Type 45, Medium Range Air Defence System for *Major Projects Report 2011*.
Typhoon	160	111	72	Unit cost equals the total assessment, demonstration and manufacture cost of £17,740 million divided by 160. Unit production cost equals total production cost of £12,148 million (less £623 million for role equipment and £20 million for the Laser Designated Pod) divided by 160.
United Kingdom Military Flying Training System	28	19	10	Both unit cost and unit production cost relate to Hawk Tmk2 only.
Watchkeeper	54	17	1	The unit production cost represents the cost of one air vehicle. Watchkeeper however, is a system delivering a capability through the use of a variable number of task lines which incorporate both air vehicles, sensors, data links and ground control stations. The unit cost of the demonstration and manufacture phase would therefore incorporate all of these elements plus training facilities and infrastructure as well as additional system development expenditure. This is therefore not included in the unit production cost as it would disproportionately assign the total Watchkeeper demonstration and manufacture phase costs against only part of the Watchkeeper programme deliveries.

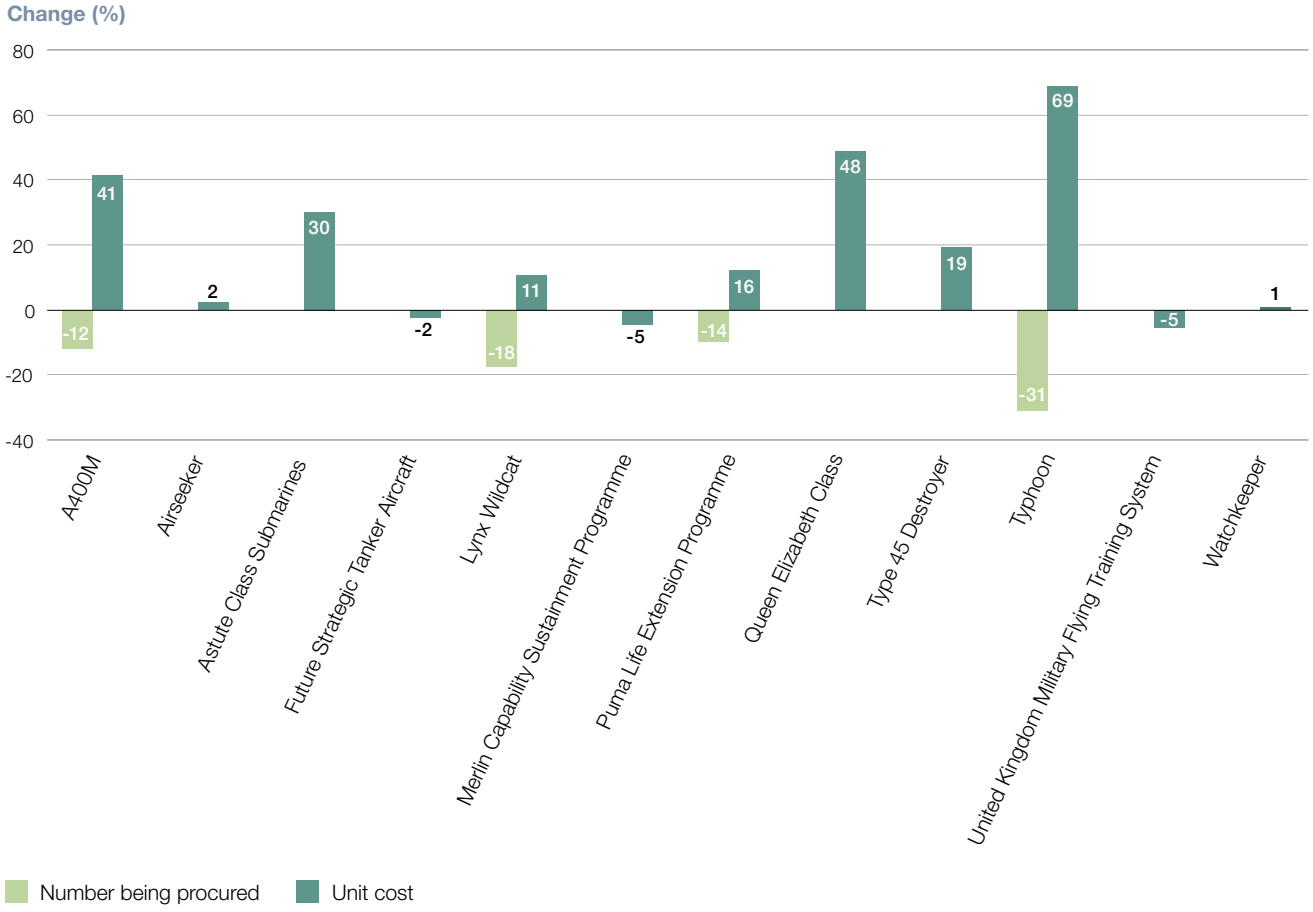
Private Finance Initiative project

Project	Current number of units	Unit production cost (£m)	Notes
Future Strategic Tanker Aircraft	14	189	Based on development and construction capital expenditure only.

Figure 4 compares the unit cost, calculated by dividing the total forecast costs for each project by the total number of units to be procured, against the change in numbers to be procured since the project achieved its main investment decision for the post-main-gate projects.

Figure 4

Percentage variation in unit cost and number of items being procured for the largest 15 projects



NOTES

1 The percentage change in unit cost has been calculated as: the total forecast cost at 31 March 2011 divided by the number of units being procured at that date versus the approved cost divided by approved number of platforms to be procured at the point of the main investment decision.

2 The calculation for Astute is for boats one to four as current costs for boats five and six relate to initial purchases only.

3 Three projects have been excluded from the analysis: Joint Combat Aircraft numbers were not specified in the project's main investment decision; Beyond Visual Range Air-to-Air Missile because the number of missiles being procured is classified, and Specialist Vehicles as numbers to be procured will not be specified until the manufacture phase of the project is approved.

Source: National Audit Office analysis of Departmental data

Sentinel

In the *Major Projects Report 2010* we reported on how the Department had begun to use a project monitoring system called Sentinel which is designed to assist senior management in quantitatively assessing the overall health of selected projects based on a set of metrics. The Sentinel score is now included within the project summary sheet for each of the post-main-gate projects at section D.1. A summary of the Sentinel score for each of these projects can be found in **Figure 5**.

Figure 5
Summary of the Sentinel scores reported in the project summary sheet

Project	Sentinel score
A400M	70
Airseeker	80
Astute Class submarines	61
Beyond Visual Range Air-to-Air Missile	69
Future Strategic Tanker Aircraft	88
Joint Combat Aircraft	81
Lynx Wildcat	78
Merlin Capability Sustainment Programme	95
Puma Life Extension Programme	88
Queen Elizabeth Class aircraft carrier	80
Specialist Vehicle	89
Type 45 Destroyer	82
Typhoon Future Capability Programme	80
United Kingdom Military Flight Training System – Advanced Jet Trainer and Ground Based Training Environment	100
Watchkeeper	67

NOTES

1 The Sentinel score for Lynx Wildcat is for the Battlefield Reconnaissance Helicopter variant only.

2 The Sentinel score for Joint Combat Aircraft is for the Short Take-Off, Vertical Landing variant of aircraft, and not the Carrier Variant.

3 A project is scored green if it has a score greater or equal to 75; amber if is more than 60; and red if 60 or less.

Source: National Audit Office analysis of Departmental data

On a quarterly basis each project team that is part of the Sentinel reporting system[3] updates 20 metrics covering performance, personnel, reviews and external factors for their project. These are adjusted using a departmentally agreed weighting mechanism for each metric, and then collated into an overall score, For example, performance against cost and time is weighted at 24 per cent of the total, while staff turnover is weighted at 4 per cent.

We plan to do a more in-depth assessment of the Sentinel reporting system within *Major Projects Report 2012.*

3 At the 31 March 2011 there were 50 projects reporting on Sentinel.

Appendix Four

Definitions and classifications of cost, time and performance causal factors

These classifications represent a broad categorisation of cost, time and performance variations in the project summary sheet. The Department attributes these categories to time, cost and performance variations in the project summary sheet. We validate the appropriate use of each category. For our analysis in Parts One and Two, we have grouped these classifications into three broad headings:

- **corporate decisions,** that is decisions that are taken at the top of the Department by senior management or ministers;
- **project/technical issues** reflect variations at a lower project level; and
- **macro-economic** or accounting adjustments, mainly resulting from changes the Department makes in assumptions regarding exchange rates and inflation.

Three classifications have been left out of these headings. This makes little difference to the analysis as the values attributed to these are small. None of these factors have been attributed to any variation in 2011.

Corporate decisions

Changed Capability Requirement (formerly Changed Requirement until 2009)	Variations from changes in the customer's requirement for the equipment, flowing from operational reassessment rather than budgetary factors or because of support to current operations.
Budgetary Factors (formerly Changed Budgetary Priorities until 2009)	Variations from changes in the customer's requirement for equipment, flowing from changed budgetary priorities.

Project or technical issues

Technical Factors	Variations from changes in technical ability to deliver the project.
Procurement Processes (formerly Procurement Strategy until 2009)	Variations from changes associated with the contractual process, for example: • time taken in contract negotiations and placing contracts; • international contract negotiations; • effect of comparing contractor bids to estimates; • variations due to changes in overall procurement strategy e.g. change to collaborative options, or from competitive to single source.
Procurement Processes – International Collaboration	Variations from international contract negotiations.
Capability Trading	Variations from reprioritising capability and capability trading between projects and programmes; based on operational assessments rather than budgetary priorities.
Contracting Process (not included from 2009 onwards)	Variations from changes associated with the contractual process, including time taken in contract negotiations and placing contracts, international contract negotiations and effect of comparing contractor bids with estimates.

Macro-economic or accounting adjustments

Inflation	Variations from changes made by the Department for inflation assumptions.
Exchange Rate	Variations from changes made by the Department for exchange rate assumptions.
Accounting Adjustments and Re-definitions	Variations that do not reflect any substantive change, including imported or exported costs from changes to accounting rules, or adjustments to reflect changes in defining terms.

Other (not classified into the three broad headings)

Receipts	Variations from changes in expectation of receipts, e.g. liquidated damages, commercial exploitation levy.
Change in Associated Project	Variations from change in an associated project e.g. availability of equipment from another project for trials.
HM Treasury Reserve (formerly Conflict Prevention until 2010)	Recovery of additional costs incurred in support of current operations.

NOTES

1 The risk differential classification has been excluded as is no longer applied – see Appendix Three for further details.

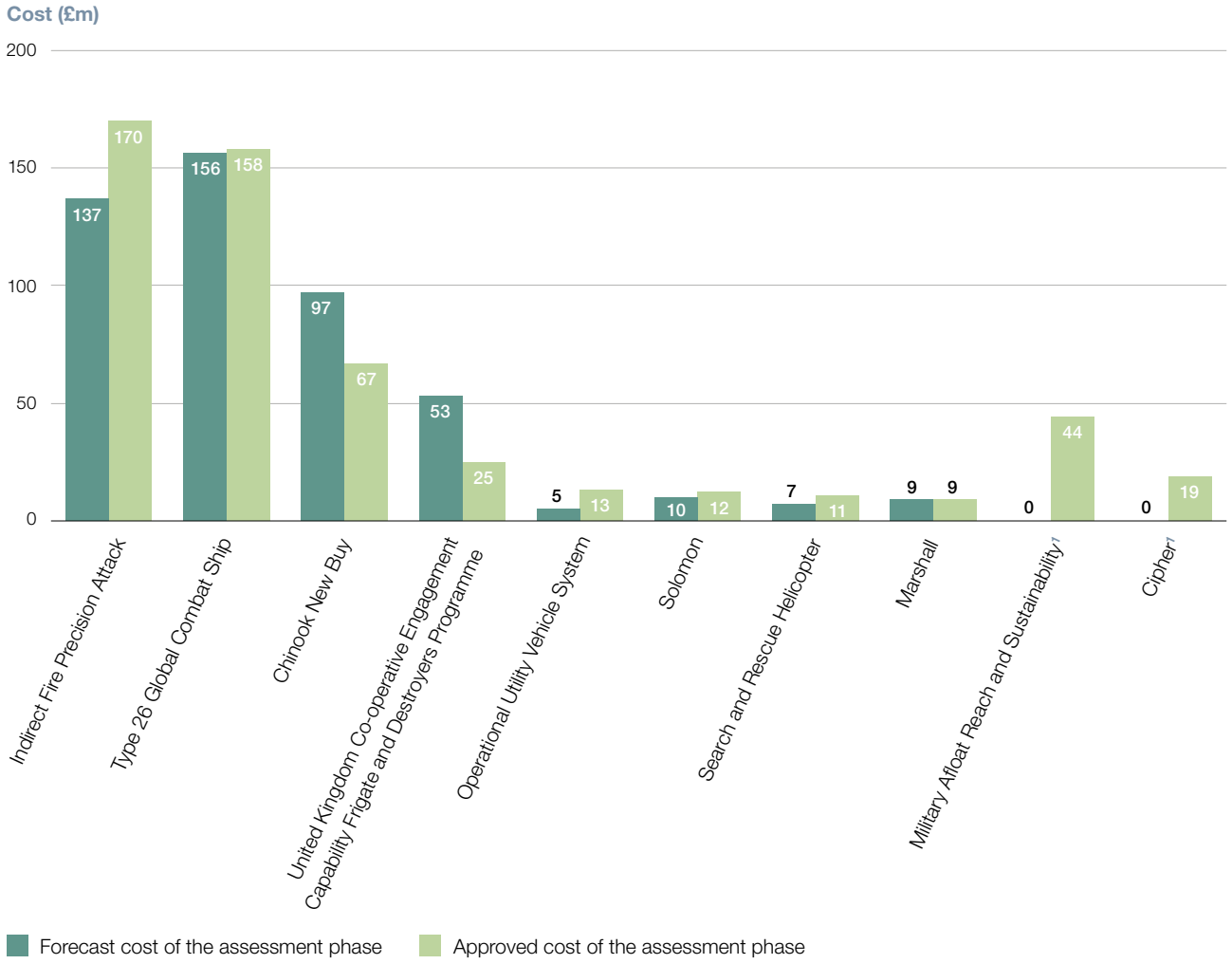
2 Variations are dated by the month in which they occurred where that is in 2010-11. All other variations are dated as 'historic'. The exception to this is variations occurring as a result of the Department's 2011 Planning Round, which did not conclude until April 2011. For this reason, variations as a result of the 2011 Planning Round have been dated 'April 2011'.

Appendix Five

Cost performance for assessment phase projects

Before the Department makes the main investment decision, forecast costs for demonstration and manufacture are for internal planning purposes only. Publicly declaring these costs limits the Department's ability to make trade-offs and conclude satisfactory commercial arrangements. These costs are classified but disclosed to the Committee of Public Accounts to maintain public accountability. **Figure 6** shows the approved and forecast cost of each assessment phase, where preliminary work is carried out before the main investment decision is made.

Figure 6
Forecast cost of the assessment phase



NOTE

1 The forecast costs of the assessment phase for the Military Afloat Reach and Sustainability, and Cipher have been classified as the information is commercially sensitive.

Source: National Audit Office analysis of departmental data

Appendix Six

Project summary sheets

Contents

Post-main-gate projects

Assessment phase projects

POST-MAIN-GATE PROJECTS

Project Title	
A400M	
Team Responsible	
A400M	
Senior Responsible Owner	

Project/Increment Name	Current Status of Projects / Increments
A400M	Post-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

A400M is planned to provide tactical and strategic mobility to all three Services. The required capabilities include: operations from airfields and semi-prepared rough landing areas in extreme climates and all weather conditions by day and night; carrying a variety of equipment including vehicles and troops over extended ranges; air dropping paratroops and equipment; and being unloaded with the minimum of ground handling equipment. The 1998 Strategic Defence Review confirmed a requirement for an airlift capability to move large single items such as attack helicopters and some Royal Engineers' equipment and concluded that this would be met, in the latter part of the first decade of the 21st Century, by Future Transport Aircraft. The A400M was selected to meet this requirement. It will replace the remaining Hercules C-130K fleet.

A400M is a collaborative programme involving seven European nations (Belgium, France, Germany, Luxembourg, Spain, Turkey and United Kingdom). The design phase is nearing completion and manufacture activities have commenced. Delivery of the first UK aircraft to the Royal Air Force is expected in 2014.

A.2 The Assessment Phase

The Government announced in December 1994 that it would replace its ageing C-130K Hercules fleet, in part by procuring 25 C-130J's from Lockheed Martin and in addition, subject to certain conditions, by rejoining the next phase of the collaborative Future Large Aircraft programme (now known as A400M). The Future Large Aircraft 'Initial Gate' approval was achieved in July 1997 and in the same year the solution assumed for costing purposes was changed to an initial lease of four C-17 and subsequent procurement of 25 Future Large Aircraft. A Request For Proposals was issued to Airbus in September 1997 on behalf of the seven Future Large Aircraft nations (Belgium, France, Germany, Italy, Spain, Turkey and UK). Subsequently, in July 1998, four nations (Belgium, France, Spain and UK) issued a "competitive Request For Proposals" for a Future Transport Aircraft to Airbus Military (A400M), Boeing (C-17) and Lockheed Martin (C-130J).

Proposals were received on 29 January 1999 and parallel national and international assessments were undertaken. These covered Combined Operational Effectiveness and Investment Appraisal, technical and commercial compliance, risk assessment, and an appraisal of the international dimensions. This work also led to parallel negotiations and clarification with the three bidders. At the direction of the Equipment Approvals Committee in December 1999, additional work was undertaken to inform the Main Gate submission. On 16 May 2000 the Government announced the decision to procure 25 A400M aircraft to meet the Future Transport Aircraft requirement.

A.3 Progress

In October 2010, the Strategic Defence and Security Review confirmed A400M as one of the components of the future RAF air transport fleet. It also announced that the Hercules C-130J tactical air transport aircraft would be withdrawn from service in 2022 rather than at the previously declared Out of Service Date of 2030.

In March 2010, agreement between A400M Partner Nations and Airbus Military on re-baselining the programme set the framework for negotiations to amend the development and production contract. The negotiations, led by officials from each Partner Nation, examined all aspects of the revised programme and continued until November 2010 when the A400M Programme Board (the senior multi-national governance body of the programme) indicated that they were content with the outcome of the negotiations and recommended that the tabled contract amendment be ratified by Partner Nations. A period of national staffing and approvals then commenced, which ended with the signature of the amended Design and Production Phase contract on 7 April 2011. As reported in the Major Projects Report 2010, the contract amendment means that the UK will receive 22 A400M, rather than the 25 expected under the original contract.

Positive achievements on the A400M development programme have included the addition of three more prototype aircraft to the flight trials fleet (making their maiden flights respectively on 8 April, 9 July and 20 December 2010). Together the trials fleet had amassed over 1404 flying hours by 27 March 2011. The A400M made its first visit to the UK, landing at its future Main Operating Base RAF Brize Norton on 16 July 2010.

A.4 Capability Risks

Not proceeding with this capability would significantly reduce the UK's tactical air transport capability due to having to rely solely on C-130J aircraft to provide support to operations after the C-130K Out of Service Date in 2012. Furthermore, not proceeding would mean that the UK will not have any tactical air transport capability after 2022, (the revised Out of Service Date for the C-130J declared in the Strategic Defence and Security Review) and less than the planned for Strategic lift capability, as it would be dependant solely on the current fleet of seven C-17 aircraft.

A.5 Associated Projects

A.6 Procurement Strategy

Post-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
A400M	Airbus Military Sociedad Limitada	Development, Production and Initial In Service Support	Fixed Price, subject to Variation of Price (VOP)	Competitive - International

A.7 Support Strategy

Description				
An Assessment Phase for the support strategy is currently underway.				
Support Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
-	-	-	-	-

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
A400M	2	1	-1	0.06%	0.03%
Total (£m)	**2**	**1**	**-1**	**0.06%**	**0.03%**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
A400M	-	2498	2614

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
A400M	2498	3105	+607	+150
Total (£m)	**2498**	**3105**	**+607**	**+150**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.1.1 A400M

Date	Variation (£m)	Category	Reason for Variation
April 2011	***	Changed Capability Requirements	A Planning Round 2011 Option to swap an early delivery aircraft with one due to be delivered later to ensure that the whole fleet has the same specification.
April 2011	***	Procurement Processes - International Collaboration	A Planning Round 2011 Option to reprofile payments to align them with the revised delivery schedule agreed in the six nation international collaborative contract (***) and associated risk (***).
March 2011	***	Procurement Processes - International Collaboration	A change due to a realignment of payments with the revised programme schedule agreed in the six nation international collaborative contract.
March 2011	***	Exchange Rate	Foreign Exchange increases due to changes in planning assumptions.

March 2011	***	Inflation	An increase due to changes in inflation assumptions in the 2011 Planning Round.
March 2011	***	Procurement Processes	Increase in estimated cost of Supplier Network Installations for the spares ordering system.
March 2011	***	Technical Factors	A reprofiling of initial support spares to align with the revised aircraft delivery programme.
March 2011	***	Accounting Adjustments and Re-definitions	Removal of Indirect RDEL (Foreign Exchange) in accordance with a change in Departmental policy.
Historic	***	Accounting Adjustments and Re-definitions	Removal of Cost of Capital due to Clear line of Sight policy implemented by HM Treasury.
Historic	***	Exchange Rate	An In Year gain due to the increase in the value of £ vs € due to the difference between the set planning exchange rate and actual outturn.
Historic	***	Changed Capability Requirements	A reduction in the need to use the International Training Centre facilities due to programme delays.
Historic	***	Procurement Processes - International Collaboration	A change due to programme rebalancing as a result of work undertaken in support of concluding an amended contract.
Historic	***	Exchange Rate	Loss due to the difference between the set planning exchange rate and forecast outturn.
Historic	***	Procurement Processes	Revised costing for Mission Planning System due to change from acquisition only to also include support.
Historic	***	Technical Factors	Increase due to the reassessment of the need for capital spares (two long deployment kits)
Historic	***	Exchange Rate	A loss in 2008/2009 due to the fall in value of £ vs €
Historic	***	Changed Capability Requirements	A reduction in the need to use the International Training Centre facilities due to programme delays.
Historic	***	Exchange Rate	An increase on payments for the training service

Historic	***	Accounting Adjustments and Re-definitions	Inclusion of VAT on payments for training service
Historic	***	Technical Factors	Increase due to the reassessment of the need for capital spares.
Historic	***	Changed Capability Requirements	Portable Removable On-Board Inert Gas Generation System fuel tank inerting system.
Historic	***	Inflation	An increase based on latest delivery schedule.
Historic	***	Accounting Adjustments and Re-definitions	Increase due to a revised estimate of the cost of training
Historic	***	Exchange Rate	An increase in 2008/2009
Historic	***	Technical Factors	Inclusion of additional airworthiness support to cover aircraft release to service.
Historic	***	Exchange Rate	Variation in 2008/2009
Historic	***	Inflation	An increase in 2008/2009.
Historic	***	Changed Capability Requirements	Reintroduction of one training simulator.
Historic	-94	Budgetary Factors	Departmental Reviews have identified savings to programme risks (-£23m). Changed delivery profile from that in the Business Case (-£61m). Minor realism adjustments, includes UK share of Organisation Conjointe de Coopération en matière d'ARmement (OCCAR) Programme Division costs (+£5m), QinetiQ Support costs increased (+£1m), unidentified variance (+£1m). Equipment Programme Measure deleting 1 Simulator (-£20m). Minor realism changes includes Certification, Special To Type equipment and Training Facilities (+£7m). Realism reprofile of Development Production Phase contract together with Directed Infra-Red Counter Measures and Cargo Hold Mock-up costs (-£4m)

Historic	-355	Changed Capability Requirements	Defer UK A400M National Training Facility by 2 years (-£2m). Fuel Tank Inertion System Pipe work (+£6m). Deletion of Centralised Crypto Management Unit requirement (-£12m). Deletion of Civil Pallets Configuration Item (-£5m). Addition of Propeller Brake (+£6m). Option to re-profile Training Facilities for realism(-£1m). Programme measure to move deferred configuration Items back into aircraft delivery profile (-£2m). Reduction in number of aircraft to be equipped with Defensive Aids Sub-System from 25 to 9 (-£238m). Programme option to delete and defer Configuration Items and to slip In Service Date by 12 months. (-£81m). Option bringing the Defensive Aids Sub-System forward onto aircraft 1-9 (+£9m). Delay of programme by 9 months (-£12m) Deletion of one training simulator (-£23m)
Historic	+353	Procurement Processes	Realism to reflect 3 month delay in 2000/01 to contract effectivity (+£52m). Slip of aircraft payments and associated equipment to reflect above contract let decision (+£15m). Improved costing data for Configuration Items available (+£160m). Contract Effectivity Date slipped from November 2001 - October 2002 (+£149m). Contract Effectivity Date slipped from October 2002 - April 2003 (-£59m). Adjustments in line with increased knowledge of Programme (+£66m). Contract Effectivity Date slipped from April 2003 - May 2003, includes redefinition of Asset Deliveries to align with aircraft delivery schedule (-£30m).
Historic	-10	Exchange Rate	A decrease in 2005/2006 (-£24m). Variation in 2004/2005 (+£39m). Variation in exchange rate assumptions used in the Business Case, 2000/2001, 2001/2002 and 2002/2003 (-£232m). Variation in 2003/04 (+£222m). Exchange rate changes (-£15m)

Historic	+12	Inflation	An increase in 2005/2006 (+£14m). An increase in 2004/2005 (+£8m). Changes between inflation rate assumed in the Business Case and yearly inflation indices resulting in a decrease 2000/2001 (-£6m), an increase 2001/2002 (+£6m), a decrease 2002/2003 (-£10m).
Historic	+65	Procurement Processes	Total number of aircraft ordered by participating nations higher than anticipated, and consequent reduction in Unit Production Cost (-£65m). Subsequent contract renegotiation due to German reduction in off take (+£130m).
Historic	+34	Technical Factors	Increase in Training costs, figures from industry indicated a shortfall in costing line (+£32m). Realism decrease to Support activities post aircraft delivery (-£3m). Programme realism with regard to costing Technical Publications (-£5m), Special To Type Equipment (-£5m), Aircraft Ground Equipment (-£4m), Government Furnished Equipment/Facilities (-£7m) and Codification of equipment/spares (-£1m). Training Needs Analysis identified the need for funding increase; Develop & Build Facilities (+£11m), Initial Training (+£7m), Develop & Build Training Devices (+£6m), and Develop & Build Training Facilities (-£3m). Identification of UK only certification requirements (+£6m).

Historic	+50	Technical Factors	Costing realism in line with better programme understanding including adjustment for actual sunk costs (-£6m). Costing re-adjusted with understanding of future programme – Certification (-£15m), Government Furnished Equipment (+£4m), Support (+£4m). Re-profiling deliveries for realism Build Facilities (-£1m), Initial Provision Spares (-£5m), Deployment Kits (-£1m). Reduction in the requirement for government procured items (-£46m). Improved understanding of programme requirement for Initial Provision Spares (+£83m), Deployment Kits (-£1m), Initial Training (-£13m) and Mission Planning & Restitution System (-£10m) Growth in estimates for training and Government Furnished Facilities (+£57m)
Net Variation (£m)	**+607**		

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	1	0	1
Demonstration & Manufacture Phase	849	20	869
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**850**	**20**	**870**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
A400M	July 1997	May 2000	34

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
A400M	-	February 2009	December 2009

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
A400M	In-Service Date defined as delivery of the seventh aircraft with Military Aircraft Release and Support arrangements.

C.3.2 Progress against approved Dates

Project/Increment Title	Budgeted For Date	Actual / Forecast Date	Variation (+/- months)	In-Year Variation (+/- months)
A400M	February 2009	March 2015	+73	0

C.3.3 Timescale variation

C.3.3.1 A400M

Date	Variation (+/- months)	Category	Reason for Variation
Historic	***	Procurement Processes - International Collaboration	A change due to programme rebalancing.
Historic	***	Technical Factors	Updated programme estimate based upon A400M Task Force outputs and Air Support Cluster assessment.
Historic	***	Technical Factors	Updated programme proposal received from Airbus Military, including revised production approach.
Historic	***	Technical Factors	Programme delays affecting engine and aircraft first flight.
Historic	***	Technical Factors	Reflects latest delay and risk assessment beyond first flight.
Historic	+9	Technical Factors	Contractor delay to aircraft delivery.

Historic	+16	Budgetary Factors	Change in the Customer's requirement flowing from changed budgetary priorities.
Historic	+9	Procurement Processes	Delay in bringing contract into effect as a result of delayed approvals in Germany.
Net Variation (+/- months)	+73		

C.3.4 Other costs / savings resulting from Timescale variation

Project/Increment Title	Date	£m (+ Cost / - Saving)	Category	Reason for expenditure or saving
A400M	Historic	+41		The Department has extended the service life of the Hercules C-130K until the end of 2012.
Total		+41		

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

Project/Increment Title	Operational Impact
A400M	The revised forecast A400M In Service Date no longer aligns with the C-130K Out of Service Date of 2012. This increases the pressure on existing tactical airlift capability from 2012 to 2015. Interim measures to mitigate this include action to increase the availability of the remaining C-130J fleet.

C.4. Full Operating Capability

D Section D: Performance

D.1. Maturity Measures

Sentinel Score	70 AMBER

D.2.1 Performance against Defence Lines of Development

Line of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1. Equipment	22 A400M aircraft, mission planning and ground support systems	Yes (with risks)	
2. Training	UK A400M training solution, including interim use of the International Training Centre in Seville.	Yes (with risks)	
3. Logistics	In-Service Support contract.	Yes (with risks)	
4. Infrastructure	A400M infrastructure projects, including an electronic warfare facility at RAF Waddington and necessary modifications at the Main Operating Base, RAF Brize Norton.	Yes (with risks)	
5. Personnel	Formation of squadrons and related Service pesonnel	Yes	
6. Doctrine	Agreed capability milestones, including aerial delivery and tactical operation concepts.	Yes	
7. Organisation	A400M is being overseen by Strategic Mobility (Air) Project Board & Future Brize Project Board.	Yes	
8. Information	Integration of the mission planning (including electronic warfare) and ground support systems into wider MOD operational and logistic support structures.	Yes	
Current forecast (with risks)		8 (4)	0
Last year's forecast (with risks)		8 (3)	0

D.2.2 Defence Line of Development Variation

Date	Defence Line of Development	Category	Reason for Variation
March 2011	Training	Technical Factors	Reflects that the Training Service Assessment Phase is still underway.
Historic	Equipment	Technical Factors	Reflects potential impact of the re-baselined programme, and that an amended contract is still to be concluded.
Historic	Logistics	Technical Factors	Reflects potential impact of depth maintenance facility risk on delivery of logistic support solution.

Historic	Infrastructure	Technical Factors	Reflects that the Support Assessment Phase is still underway.
Historic	Equipment	Technical Factors	Updated programme proposal received from Airbus Military, including revised production approach.
Historic	Infrastructure	Technical Factors	Reflects latest delay and the wider Future Brize Norton study.

D.3. Performance against Key Performance Measures

D.3.1 A400M

D.3.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1	1,2,6,8	Deployment Capability.	Yes	
2	1	Payload.	Yes	
3	1	Environmental Operating Envelope.	Yes	
4	1,6	Tactical Operations.	Yes	
5	1,6,8	Navigation Performance.	Yes	
6	1	Communication System.	Yes	
7	1	Defensive Aids Suite.	Yes	
8	1,2,6	Aerial Delivery.	Yes	
9	2,5,7	Crew Composition.	Yes	
Current forecast (with risks)			9 (0)	0
Last year's forecast (with risks)			9 (0)	0

D.3.1.2 Key Performance Measures Variation

D.3.1.3 Operational Impact of variation

D.4 Support Contract

Project Title	
Airseeker	
Team Responsible	
Airseeker Project Team	
Senior Responsible Owner	
Head of Capability Intelligence, Surveillance, Target Acquisition and Reconnaissance	

Project/Increment Name	Current Status of Projects / Increments
Airseeker	Post-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

Project Airseeker (formerly known as Helix) seeks to sustain the UK's airborne electronic surveillance capability provided by the Nimrod R1 aircraft and associated ground elements, against an evolving and increasingly complex target set up to 2025. It will provide a rapidly deployable capability to support operations where it will be able to collect, analyse, fuse and disseminate a coherent and readily interpretable electronic surveillance picture in support of national, joint and coalition operations. This information will support targeting and combat identification.

A.2 The Assessment Phase

Whilst the original concept of the Project was for the procurement of a modern mission system to fit into existing Nimrod R1 aircraft, in the run up to Initial Gate approval, other platform options were introduced and were subject to detailed assessment during development of the Main Gate Business Case. The assessment also considered ground analysis facilities, training facilities and a support solution to the planned Out of Service Date of 2025.

The Project received Initial Gate approval in August 2003 . Eight contractors were invited to participate in a capability-based assessment and three were chosen to go forward to a competitive-based three-stage Assessment Phase in April 2004.

The first stage required the contractors to show their understanding of the requirement, and resulted in a down-select to two contractors in April 2005.

In the second stage the remaining two contractors were required to define the system to meet the capability, proving their design through operational effectiveness modelling. This resulted in a down-select to a preferred contractor in April 2007.

When the down-selected contractor commenced the final stage of the Assessment Phase, a risk reduction exercise, it became evident that the cost of supporting the Nimrod R1, as the planned host platform, was likely to be significantly greater than anticipated.

Due to this cost escalation a change in strategy was made in 2008 to focus the remainder of the Assessment Phase on an investigation of an alternative to the Nimrod R1 as the host platform.

Work was undertaken to obtain a robust performance, time and cost envelope and a Main Gate Business Case was submitted to the Investment Approvals Board in December 2009 recommending procurement of the United States Air Force Rivet Joint System under a Foreign Military Sales arrangement.

After Defence Board consideration of the Project's cost and programme assumptions within the context of the Department's 2010 financial planning round, the Main Gate Business Case was updated through a Review Note and an Addendum. The Investment Approvals Board approved the updated Business Case in March 2010.

A.3 Progress

As from 1st April 2010 Helix became known as Airseeker.

A Letter of Offer and Acceptance was signed on behalf of the UK Government on 19 March 2010 which included a request for the USA Government to prepare and submit a revision to that letter reflecting the Planning Round 2010 settlement. Their formal response was received on 28 October 2010. Investment Approvals Board approval to sign the revised offer letter was received on 24 March 2011. The revised Letter of Offer and Acceptance was signed on behalf of the UK Government on 24 March 2011 . The revision to the offer letter has been augmented by additional information on how the USA Government Program Office, known as Big Safari, intends making contractual commitments on behalf of the UK. The US Government has been implementing the initial stages of the Foreign Military Sales agreement in accordance with a plan that is consistent with the Planning Round 2010 settlement. A major milestone was achieved on 14 December 2010 when the first donor aircraft for conversion to become the first UK Rivet Joint aircraft was taken into work at the USA facility in Texas.

In September 2010, Royal Air Force Headquarters Air Command signed an agreement known as the Co-manning Memorandum of Understanding with the operational wing of the US Air Force that operates the Rivet Joint aircraft and ground systems. This agreement makes provision for UK crews to be trained by the US Air Force, funded under the Foreign Military Sales case that is managed by the Airseeker Project Team, and then allocated to operational duties by the US Air Force Rivet Joint Commander. The first of the RAF personnel started training in January 2011, with the first graduates ready for operational Rivet Joint deployments in June 2011. This conversion training and operational experience will provide the required quantity of trained manpower to meet the Initial Operating Capability whilst significantly de-risking the Training Defence Line of Development.

A.4 Capability Risks

Loss of the capability to be provided by Project Airseeker would remove the UK's ability to conduct theatre-level airborne electronic surveillance in the future. UK forces would be denied the ability to acquire timely intelligence from increasingly complex and rapidly changing electronic sources in the theatre domain. This would significantly reduce the ability to acquire, process and disseminate signals, communications and electronic intelligence to UK and coalition partners. Critically, the principal source of tactical data essential to the nature of current operations would be lost, substantially reducing the ability to conduct effective targeting and information operations.

A.5 Associated Projects

A.6 Procurement Strategy

Post-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Airseeker	United States Government	Manufacture to Full Operational Capability	Letter Of Acceptance	Foreign Military Sales

A.7 Support Strategy

Description
All through-life support activities will be covered under a Memorandum of Understanding concerning sustainment and follow-on development. The conduct of the Co-operative Support programme under this Memorandum of Understanding will be governed by a joint Steering Committee. A Co-operative Programme Office will be established at the main contractor's facility in Greenville, Texas to manage day to day maintenance and support of the combined fleet together with management of the through-life upgrade programme. The UK and US will jointly man the Co-operative Programme Office on the basis of the proposed cost share. Depth maintenance will be based at the main contractor's facility in Greenville, Texas which currently forms the support hub for the US Air Force fleet of Rivet Joint aircraft. The Memorandum of Understanding is currently in a mature draft form and is being staffed within USA and UK government departments prior to signature.

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
Support and Follow-on Development	United States Government	In-service support	Co-operative agreement	Memorandum of Understanding

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Airseeker	44	38	-6	6%	6%
Total (£m)	**44**	**38**	**-6**	**6%**	**6%**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Airseeker	633	659	746

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
Airseeker	659	681	+22	+23
Total (£m)	**659**	**681**	**+22**	**+23**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.1.1 Airseeker

Date	Variation (£m)	Category	Reason for Variation
March 2011	+16	Exchange Rate	Exchange rate impact relating to base-lining Planning Round 2010 and Planning Round 2011.
November 2010	+2	Technical Factors	Long lead items being accrued earlier than previously forecast. Due to timings the planning round has not been updated to show the subsequent compensating reduction. This will be shown in Planning Round 2012.
August 2010	+2	Technical Factors	Long lead items on Foreign Military Sales being accrued earlier than previously forecast. Due to timings Planning Round 2012 has not been updated to show the subsequent compensating reduction.

June 2010	+1	Technical Factors	Two issues: Costs originally deemed to be Equipment Support costs recategorised as Equipment Capital due to being activities directly attributable to delivering the equipment (£0.378M); Long lead items on Foreign Military Sales being accrued earlier than previously forecast (£0.477M).
April 2010	+1	Technical Factors	Increase to in year forecast for airworthiness and safety activities (£0.276K) & Increase to Foreign Military Sales (£0.666K) for technical support activities including requests for information.This will be absorbed and offset during Planning Round 2012.
April 2010	+1	Accounting Adjustments and Re-definitions	In year forecast adjusted to correct error from the central adjustment made at the start of Financial Year 2010/2011.
Historic (March 2010)	-1	Exchange Rate	Central adjustment made as opening year figures did not take account of adjustment made during the Departments previous Planning Round.
Net Variation (£m)	**+22**		

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

Project/Increment Title	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Airseeker	680	641	-39	+11
Total (£m)	**680**	**641**	**-39**	**+11**

B.5.1 Cost Variation against approved Support / Service / PFI Cost

B.5.1.1 Airseeker

Date	Variation (£m)	Category	Reason for Variation
March 2011	+12	Exchange Rate	Impact relating to baselining Planning Round 2010 and Planning Round 2011.

April 2010	-1	Accounting Adjustments and Re-definitions	Resource allocation for equipment support was based on the programme prior to the 12 month slippage to initial delivery. Consequently there is no requirement for equipment support funding in Financial Year 2010/11 so it has been removed from the forecast.
Historic (March 2010)	-50	Exchange Rate	Variance between approval and Planning Round 2010 Stage 3 forecast cost.
Net Variation (£m)	**-39**		

B.5.2 Operational Impact on Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	38	0	38
Demonstration & Manufacture Phase	0	15	15
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**38**	**15**	**53**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Airseeker	August 2003	March 2010	79

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Airseeker	July 2014	October 2014	December 2014

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
Airseeker	In-Service Date The In-Service Date is the date at which the User will have a minimum deployable capability and would declare an Initial Operating Capability. Initial Operating Capability 1. Delivery of the following Equipment Defence Lines Of Development elements in accordance with the Project Airseeker Integrated Test, Evaluation and Acceptance Plan : a. One aircraft. b. Ground Support facilities at the Main Operating Base and ground analysis facility. c. One Modular Processing System (deployable ground station). 2. Provision of the following Training Defence Lines of Development elements: a. Declaration of Ready For Training date. b. Provision of two trained air crews. c. Provision of sufficient trained Groundcrew and Mission Support Personnel to support a *** deployment. 3. Provision of declaration of Logistic Support Date.

C.3.2 Progress against approved Dates

Project/Increment Title	Budgeted For Date	Actual / Forecast Date	Variation (+/- months)	In-Year Variation (+/- months)
Airseeker	October 2014	October 2014	0	0

C.3.3 Timescale variation

C.3.4 Other costs / savings resulting from Timescale variation

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

C.4. Full Operating Capability

C.4.1 Definition

Project/Increment Title	Full Operating Capability	Progress to date
Airseeker	Initial Operating Capability with the addition of: - Two aircraft (giving a total of three aircraft) - One modular processing system (giving a total of two) - One Airborne Capability Extension System - One Mission Crew Training System - One Maintenance Crew Training System - Two Trained Air Crews (giving a total of four) - Fully trained support and maintenance personnel.	Progress is on track to meet the Full Operating Capability via the Foreign Military Sales Case for the Rivet Joint procurement together with the Co-manning and Sustainment and Follow-on Development Memoranda of Understanding with the USA.

D Section D: Performance

D.1. Maturity Measures

Sentinel Score	80 Green

D.2.1 Performance against Defence Lines of Development

Line of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1. Equipment	The provision of the Rivet Joint aircraft and ground-based systems that sustain the UK's Airborne Signals Intelligence capability to at least 2025.	Yes (with risks)	
2. Training	The provision of sufficient quantities of competent and current Aircrew and Ground Operators and Maintainers to meet Airseeker In-Service Date, Full Operating Capability timescales and through-life support to at least 2025.	Yes (with risks)	
3. Logistics	Planning in detail the procurement, movement and maintenance all the support requirements that will be affected by the Airseeker acquisition and through life support for all the five elements of Airseeker systems, which are: Air Platform, Air Element, Ground Equipment, Training Element (Maintenance Training System, Field Exportable Training System) and Support Element (Forward Maintenance Equipment (Support Equipment, Test Equipment, Tools) and Ground Support Equipment (Power, Cooling, Jacks, Rigs)).	Yes (with risks)	
4. Infrastructure	The acquisition, development and management of fixed permanent buildings and structures, land, utilities and facility management services in support of the Airseeker programme to meet In-Service Date, Full Operating Capability timescales and through-life support to at least 2025.	Yes (with risks)	

5.	Personnel	The provision of sufficient quantities of competent and current Aircrew and Ground Operators and Maintainers to meet In-Service Date, Full Operating Capability timescales. The Airseeker Programme is adequately resourced to meet In-Service Date, Full Operating Capability timescales and the continued through-life support to at least 2025.	Yes	
6.	Doctrine	The development and endorsement of Rivet Joint Concept of Use and Rivet Joint Concept of Operations.	Yes	
7.	Organisation	Maintain 51 Squadron throughout co-manning. 51 Squadron has the ability to maintain and operate the Rivet Joint. Airseeker project team is sufficiently manned to manage the introduction of the Rivet Joint system into service and manage associated through life support activities.	Yes	
8.	Information	The provision of the Rivet Joint system to have connectivity to UK Communication Information System for Information Exchange Requirements. System is Security Accredited by UK / USA Authorities	Yes	
Current forecast (with risks)			8 (4)	0
Last year's forecast (with risks)			-	-

D.2.2 Defence Line of Development Variation

Date	Defence Line of Development	Category	Reason for Variation
March 2011	Equipment	Technical Factors	Risk of not achieving Aircraft Release to Service.
March 2011	Training	Technical Factors	The risk that the initial Operator and Maintainer training solution might not adequately meet UK requirements
March 2011	Logistics	Technical Factors	UK Supply Policy mandates the use of Management of Joint Defence Inventory for Airseeker but support arrangement with the US government precludes use of this logistic information system approach. UK Joint Support Chain authorities will have to be satisfied that the alternative approach based on the US Air Force system is acceptable.
March 2011	Infrastructure	Technical Factors	Fixed ground element at communications infrastructure site may not be complete in time for Interim Operating Capability.

D.3. Performance against Key Performance Measures

D.3.1 Airseeker

D.3.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
KUR 1	Equipment	Missions shall be capable of being mounted on a daily basis for a sustained period (represented by *** days) from any combination of the Main Operating Base and Deployed Operating Base with a *** probability of completion without mission failure, defined as an attributable failure that results in either a mission abort or loss of the mission objective.	Yes	
KUR 2	Logistics	The Ground Element shall complete follow-on exploitation of a mission within *** hours of the completion of each mission.	Yes	

KUR 3	Information	The User shall be provided with the secure interoperability necessary to deliver the required Military Capability, i.e. interoperability with all organisations, platforms and systems necessary to deliver all requirements associated with assured information exchange to the priority specified in the Helix Information Exchange Requirements Document	Yes	
KUR 4	Training	The means shall be provided to fully train all those personnel involved in the operation of the system.	Yes	
KUR 5	Training	The means shall be provided to fully train all those personnel involved in operational support of the system.	Yes	
KUR 6	Training	The means shall be provides to fully train all those personnel involved in the maintenance of the system.	Yes (with risks)	
KUR 7	Information	Detectable routine radio emissions upon selection shall provide electronic combat support to the military commander.	Yes	

KUR 8	Information	Detectable routine radar emissions upon selection shall provide electronic combat support to the military commander.	Yes	
KUR 9	Infrastructure	The Ground Element shall provide Operational Support.	Yes	
Current forecast (with risks)			9 (1)	0
Last year's forecast (with risks)			-	-

D.3.1.2 Key Performance Measures Variation

Date	Key Performance Measure	Category	Reason for Variation
March 2011	KUR 6	Technical Factors	The initial Operator and Maintainer training solution might not adequately meet UK requirements.

D.3.1.3 Operational Impact of variation

D.4 Support Contract

Project Title	
Astute Class Submarines	
Team Responsible	
Submarine Production	
Senior Responsible Owner	
Director Submarines	

Project/Increment Name	Current Status of Projects / Increments
Astute Boats 1-3	Post-Main Investment Decision
Astute Boat 4	Post-Main Investment Decision
Astute Boat 5	Pre-Main Investment Decision
Astute Boat 6	Pre-Main Investment Decision
Initial Astute Support Solution	Post-Main Investment Decision
Astute Class Training Service Boats 1-3	Post-Main Investment Decision
Astute Class Training Service Boats 4	Post-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

The military requirement is for up to 8 Astute Class Submersible Ship Nuclear to replace the existing Swiftsure and Trafalgar Classes of nuclear powered attack submarine.

Astute Class submarines are required to perform a range of military tasks; these unique requirements are combined within the Astute design to provide global reach, endurance, covertness, sustained high speed and the ability to conduct unsupported operations in hostile environments.

A.2 The Assessment Phase

In June 1991 (equivalent of Initial Gate) approval was given to proceed with a programme of studies at an estimated cost of £6m (1991/1992 prices) to define the Batch 2 Trafalgar Class Boat (now known as the Astute Class). This programme of studies led to the issue of an Invitation to Tender for the design and build of an initial batch of three Astute Class Submersible Ship Nuclear and a further approval of £2m (1992/1993 prices) for contractor and Defence Research Agency support to MOD during the tendering exercise in 1994.

In July 1994, as a result of concerns over the overall affordability of the programme, Minister (Defence Procurement) and the Treasury approved a further £24m (at 1993/1994 prices) for risk reduction studies to be undertaken in parallel with the formal bid phase of the project. To maintain an effective competition, contracts for risk reduction were awarded to both bidders, GEC Marconi (now BAE Systems (Submarine Solutions)) and Vickers Shipbuilding and Engineering Ltd.

GEC-Marconi was identified as MOD's preferred bidder in December 1995. Using the policy of No Acceptable Price No Contract, a Prime Contract was placed in March 1997 for the design, build and initial in service support of the first three of the Class.

A.3 Progress

For Astute Class Programme historical data please refer to previous MPRs

Planning Rounds
In 2009 a savings measure option was taken removing £139M of funding from Astute Boats 2-7 from 2009 to 2013. The savings resulted in delayed delivery of Boats 2-4, which were already in build and defer build start dates and the procurement of long lead items for Boats 5-7. As a consequence of this, cost growth occurs in later years as reported in more detail in MPR 2009. During Planning Rounds 2010 and 2011 Boats 2 to 7 were delayed further to align with the deferred Successor Deterrent Programme, culmunating in the Strategic Defence and Security Review and the Value For Money Review which delayed the Successor In Service Date to 2028 and further delayed the Astute Class Programme to sustain industry. Together these form the basis of next year's budget.

Boat 1 HMS Astute
HMS ASTUTE successfully completed first dive and initial series of dived trials during February and March 2010, and successfully completed full power trials and deep dive on 30 April 2010.

In Service Date based on meeting the above criteria was declared and agreed by Investment Appraisal Board in July 2010, retrospectively back dated to 30 April 2010. HMS ASTUTE continued with the Contractor's Sea Trials programme covering platform and initial capability proving trials, interspersed with planned maintenance and defect rectification periods.

HMS Astute was commissioned by the Duchess of Cornwall, the boat's patron, into the Royal Navy at Her Majesty's Naval Base Clyde, on 27 August 2010.

On 22 October 2010 HMS Astute was involved in a grounding and collision incident whilst on sea trials near the Isle of Skye and the British Underwater Test and Evaluation Centre on the west coast of Scotland. The submarine was floated off after 12 hours and following evaluation by the Head of Submarine Production Team and BAE Systems Engineers she returned to Her Majesty's Naval Base Clyde under her own power. The submarine was repaired on the Faslane Ship Lift and left the facility on 24 November 2010.

HMS Astute reached Contract Acceptance Stage 1 Platform Demonstration on 29 November 2010 from which point it is managed as an In-Service Submarine under MOD rather than contractor direction.

HMS Astute returned to sea in early December 2010 for training to re-validate its navigational certification. The sea trials programme has been delayed by ten months due to First of Class technical issues, including modification of the Internal Communication System and the actions required recovering from the grounding.

Boat 2 Ambush
Boat 2 reactor core load was completed in November 2010 with the submarine named on 16 December 2010 and launched on 6 January 2011. It continues systems commissioning and preparations for Power Range Testing planned for late 2011, and sailing on sea trials anticipated Spring 2012.

Boats 3 to 7
During 2007 to 2010 Boats 3 to 7 have been delayed due to Boat 1 holding on to scarce resource for longer to deal with the technical issues, and also due to the MOD slowing the programme down to realise early year savings.

Boat 3 (Artful) completed final hull unit welding in May 2010; she is now a closed submarine. Final stages of outfitting have continued throughout the year.

Since the launch of Boat 2 in January 2011 Boat 4 (Audacious) units and modules are being moved onto the build line.

In March 2010 approval for Initial Build activities for Boat 5 was given, and Long Lead Items were ordered for Boat 6. The Project Summary Sheet currently only reflects these costs which do not represent the full cost of procurement for Boats 5 and 6

ASTUTE CLASS TRAINING SERVICE
The Astute Class Training Service was established through a Private Finance Initiative arrangement, to deliver the unique training required following the introduction of the Astute Class Submarines. Contract award was in 2001, with training delivery commencing in 2006. The current contract covers training for Boats 1-3 only because, at the time of contract award, there was no approval for the build of later Astute Class Submarines. Further approval was received in 2007, to include provision for Boat 4 (Audacious) within Astute Class Training Service and work is underway to add this to the contract.

SUPPORT
In July 2006 an Astute Class Support Review Note was approved to implement an Initial Astute Support Solution for four years and 5 months elapsed time, up to the end of December 2012.

STRATEGIC DEFENCE AND SECURITY REVIEW
In October 2010, the Strategic Defence and Security Review endorsed the political, military and industrial requirement for a 7-Boat Astute Class Programme leading to the Successor Deterrent Programme First of Class In Service Date of 2028, based on a 36 month build programme. Part of the Astute Class Programmes objectives is to sustain industry for Successor; therefore the revised plan for Astute Class Programme extended timeframes by an average of 14 months per boat. A Review Note to secure approval for revised time and cost parameters will be submitted to Her Majesty's Treasury before September 2011.

A.4 Capability Risks

Delivery of Boat 1 is critical to attack submarine's readiness profile. Boat 1's delay will result in the delayed introduction of improved capability over current classes. The Astute Class will also de-risk capability essential for an affordable Successor Deterrent Programme.

A.5 Associated Projects

Title of Associated Project	Forecast In Service Date/ Initial Operating Capability	Approval Status
Swiftsure & Trafalgar Class Update Final Phase	2004	In Service

A.6 Procurement Strategy

Pre-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Procurement Route**			**Approval Status**
Astute Boat 5	-			-
Astute Boat 6	-			-
Post-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Astute Boats 1-3	BAE Systems (Submarine Solutions) (formerly BAE Systems Electronics Ltd – Astute Class Project and BAE Systems Astute Class Ltd)	Demonstration to In-Service	Boat One – Target Cost Incentive Fee Boats Two & Three – Target Cost Incentive Fee with Maximum Prices	Competitive - UK
Astute Boat 4	BAE Systems (Submarine Solutions)	Boat 4 and Design for Cost Reduction for Boats 4 to 7	Limit of Liability for 1st three years of seven year build programme. Working towards Inclusion of Target Costs Incentive Fee for whole Boat 4. A Revised procurement strategy for remainder of Astute Class is under development following the outcome of the Strategic Defence and Security Review.	Single Source
Astute Boat 5	BAE Systems (Submarine Solutions)	Boat 5 Long Lead items & Initial Build		Single Source

Astute Boat 6	BAE Systems (Submarine Solutions)	Boat 6 Long Lead Items	Limit of Liability placed for Minimum Long Lead Items Scope of Work	Single Source

A.7 Support Strategy

Description
The Initial Astute Support Solution was approved in July 2006; it follows a traditional support model, but recognises Astute's differences and introduces additional arrangements as appropriate. Provision has been made to employ the build contractor (BAE Systems) as the Astute Technical Authority; MOD will be the Approving Authority, with the Nuclear Propulsion Project Team responsible for the Nuclear Steam Raising Plant. MOD Equipment Project Teams will support specific equipments with Head of In-Service Submarine (Head of Submarine Production up to Operational Handover) maintaining a Platform focus and providing the flotilla wide single point of contact for Navy Command. Astute Class Maintenance at the waterfront will be conducted under existing Warship Support Modernisation Initiative arrangements. The Astute Class Training Service is a Private Finance Initiative contract, initially approved for 36 years to provide Astute Class specific training to the Royal Navy for Boats 1-3. Approval was given in 2007, to extend to a 38 year contract, to cover the life of Boat 4. Approval for later Boats will be considered during Financial Year 2011/2012 to support an Approvals strategy for training to be presented as part of Submarine Training and Education Programme during Financial Year 2012/2013

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
Technical Authority Support Contract	BAE Systems	Provision of Technical Authority services	Firm Price	Single Source
Astute Class Training Service Boats 1-3	FAST Training Services Limited; 47.5% owned by BAE Systems, 47.5% owned by L-3 MAPPS and 5% owned by VT Group.	Training	Private Finance Initiative	Competitive tender
Astute Class Training Service Boats 4	FAST Training Services Limited; 47.5% owned by BAE Systems, 47.5% owned by L-3 MAPPS and 5% owned by VT Group.	Training	Private Finance Initiative	Single Source

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Astute Boats 1-3	33	29	-4	1%	1%
Astute Boat 4	-	-	-	-	-
Total (£m)	**33**	**29**	**-4**	**1%**	**1%**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Astute Boats 1-3	-	2233	-
Astute Boat 4	1224	1279	1351
Astute Boat 5	571	623	668
Astute Boat 6	-	255	-

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
Astute Boats 1-3	2233	3480	+1247	+179
Astute Boat 4	1279	1404	+125	+71
Astute Boat 5	623	586	-37	0
Astute Boat 6	255	253	-2	-1
Total (£m)	**4390**	**5723**	**+1333**	**+249**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.1.1 Astute Boats 1-3

Date	Variation (£m)	Category	Reason for Variation
April 2011	+144	Budgetary Factors	An option was taken during the 2011 Planning Round to defer the Successor In-Service Date and modify build delivery rate. Astute build "drumbeat" was revised to match Successor revised In-Service Date. (+£144m).

April 2011	+28	Budgetary Factors	Non Prime increases (a mixture of combat systems, nuclear power management, safety platform and design and other non construction costs) (+28m). This is as a result of aligning the Non Prime costs to the revised deferred build programme issued under Planning Round 2011 option.
March 2011	+6	Technical Factors	Prime contract increases (a mixture of overheads, materials and labour). (+£6m).
October 2010	+1	Technical Factors	Cost of HMS Astute's grounding incident. (+£1m).
Historic	-412	Accounting Adjustments and Re-definitions	Removal of Cost of Capital due to Clear Line of Sight policy implemented by HM Treasury (-£412m).
Historic	+22	Technical Factors	Prime contract increases (a mixture of overheads, materials and labour). (+£31m). Non Prime decrease (a mixture of combat systems, nuclear power management, safety platform and design and other non construction costs) (-£9m).
Historic	-2	Receipts	Increase in receipt for Shipbuilders Relief (-£2m).
Historic	+9	Budgetary Factors	A savings option, Defer Successor (Future Deterrent) In Service Date and modify the build programme of later Astute hulls, was taken in Planning Round 2010 which increases the cost of Astute Boats 1-3 by £9m.
Historic	+40	Technical Factors	Prime increases (a mixture of labour, materials, sub-contractors and risk/indemnity/warranty and other construction costs) (+£76m). Non Prime decrease (a mixture of combat systems, nuclear power management, safety platform and design and other non construction costs) (-£36m).
Historic	+3	Receipts	Reduction in receipt for Shipbuilders Relief (+£3m).

Historic	+87	Budgetary Factors	A savings option was taken in the 2009 Planning Round which removed £139M of funding over the 4 years from 2009/10 from the Astute Boats 2-7 build programme, the consequent programme slippage results in additional cost growth in later years of £539m. Of this, £87m relates to boats 1-3.
Historic	-23	Accounting Adjustments and Re-definitions	Increase in shipbuilders relief (-£12m). Re-costing of Non-Attributable items since MPR06 (Items not Included in the original approval) (+£51m). Shipbuilders Relief (-£58m) and Sunk cost corrections (-£3m) made in project account. Decommissioning and Decontamination costs (-£1m).
Historic	+47	Accounting Adjustments and Re-definitions	Reallocation of Pension cost increases since MPR05 (-£5m). Re-costing of Non-Attributable items since MPR07 (i.e. those items not included in original approval) (+£28m). Shipbuilders Relief correction (+£6m). Recosting of Non-Attributable items since MPR05 (items not included in the original approval) (+£29m). Removal of items wrongly attributed to Astute Approval in previous years (-£11m)
Historic	-177	Accounting Adjustments and Re-definitions	Decrease reflects difference between anticipated resource profile at approval and current profile (Equipment Plan 2001) (-£74m). Removal of Astute Class Training Service costs that have been incorrectly included in previous MPRs – training not part of original Astute Main Gate approval (-£62m). Removal of items wrongly attributed to Astute Approval in previous Years (-£41m).
Historic	+257	Changed Capability Requirements	Includes change to fore end design, completion of land attack missile capability and improved tactical data link capability (+£32m). Additional Capability originally part of Astute second buy which has been brought forward into the first buy (+£225m).

Historic	+39	Procurement Processes	BAE Systems to forego any incentive payments on Boat One(-£13m). Reduction in Warranty to be provided by BAE Systems from three years to one year (-£3m). Planned Contract Amendments (+£55m).
Historic	+40	Inflation	Variation between anticipated rates for GDP and Variation on Price on contract (sunk costs only) (+£14m). Correction in previous Variation on Price calculation – incorrect split between labour and materials (+£26m).
Historic	+115	Technical Factors	Sustainability costs of maintaining submarine build capability removed (-£204m). Option E07UW178S – capability reduction to a 7 Boat Astute Programme, taken in Equipment Plan 2007 (-£29m). Option E07UW601S – compress Astute class Boats1-3 sea trials programme, taken in EP07 (-£3m). Cost Growth from Review Year 06 to EP07. Materials (+£164m), Labour (+£68m), GDP (+£65m), Risk (+£50m), Profit (+£7m), Non-Prime (-£66m), Overhead (-£12m), Shipbuilder Relief (+£58m). Cost growth in provision of some elements of nuclear safety cases (+£17m).

Historic	+272	Technical Factors	Departmental review identified savings opportunities within other elements of nuclear safety cases (-£20m). Increase in cost as a result of the reassessment of risk, specifically, Team Leader challenge in MPR05 (+£123m). Cost increase identified as part of the Integrated Project Team's internal review in 2005/06 Prime Contract Overheads (+£97m), Prime Contract Materials (+£61m), Prime Contract Labour (+£26m) and unallocated cost growth (+£21m). Changes in throughput assumptions between MPR05 and MPR06 (-£73m). Reduced Requirement for Technology Insertion post MPR05 (CDEL -£17m. Prime Contract pricing assumptions and changes to costing (+£19m). Reassessment of risk (+£51m). Reduction of risk on Sonar 2076 programme (-£16m).
Historic	+751	Technical Factors	Re-costing of land attack missile interface & integration (+£5m). Re-costing of External communications (+£5m). Increase in overall BAE Systems base costs (shipyard and sub contracts) reflecting a re-estimate as well as cost of delay (+£571m). Increase in risk provision owing to technical complexity (+£152m). Changed cost reflecting Astute Agreement of February 2003 (+£52m). Re-assessment of overhead rates used in costing (-£36m).Man-hour reduction on Prime contract (-£20m).Removal of Risk funding post Boat 3 delivery (-£2m). Expenditure not apportionable to specific elements of the programme due to 2007 budgeting baseline being overstated which has subsequently been corrected (+£25m). Prime increase (+£27m). Non Prime decrease (-£28m).
Net Variation (£m)	**+1247**		

B.3.1.2 Astute Boat 4

Date	Variation (£m)	Category	Reason for Variation
April 2011	+56	Budgetary Factors	An option was taken during the 2011 Planning Round to defer the Successor In-Service Date and modify build delivery rate. Astute build drumbeat was revised to match Successor revised In-Service Date.
March 2011	+15	Technical Factors	Prime contract increase, a mixture of labour overheads, materials and VAT (+£20m). Non Prime contract decrease, a mixture of Electric Boat, Government Furnished Materiel and Nuclear (-£5m).
Historic	-26	Technical Factors	Prime contract decrease, a mixture of labour overheads, materials and VAT (-£25m). Non Prime contract decrease, a mixture of Combat systems and Nuclear (-£1m).
Historic	+10	Budgetary Factors	A savings option to defer Successor (Future Deterrent) In-Service Date and modify the build programme of later Astute hulls, was taken in Planning Round 2010 which increases the cost of Boats 4-7 by £322m. Of this, £10m relates to Boat 4.
Historic	+102	Budgetary Factors	A savings option was taken in the 2009 Planning Round which removed £139M of funding over the 4 years from 2009/10 from the Astute Boats 2-7 build programme, the consequent programme slippage results in additional cost growth in later years of £539m. Of this, £102m relates to Boat 4.
Historic	+19	Technical Factors	Increase in Build, Nuclear Plant and Safety costs (+£19m).
Historic	-51	Receipts	VAT Receipt relating to sunk costs (-£51m).
Net Variation (£m)	**+125**		

B.3.1.3 Astute Boat 5

Date	Variation (£m)	Category	Reason for Variation
Historic	+11	Budgetary Factors	A savings option to defer Successor (Future Deterrent) In-Service Date and modify the build programme of later Astute hulls, was taken in Planning Round 2010 which increases the cost of Boats 4-7 by £322m. Of this, £11m relates to Boat 5.
Historic	-15	Budgetary Factors	Reduction in the expected cost of Boat 5 reactor core.
Historic	-33	Budgetary Factors	The variance of £32m generated between the expected cost outturn of Boat 5 and the relevant Boat 5 approval results from the Boat re-design activities, an element of which have been approved against Boats 4 and 5, as a batch solution, but are contracted for solely against Boat 4. As the re-design work is a batch solution BAE have not been able to provide costs on a Boat by Boat basis which would align with separate IAB approvals. Sunk Costs have therefore been scored against the Boat 4 within the Submarine Project Team accounts which has created the variation between outturn boat costs and boat approval for Boat 5.
Net Variation (£m)	**-37**		

B.3.1.4 Astute Boat 6

Date	Variation (£m)	Category	Reason for Variation
March 2011	-1	Budgetary Factors	Revised estimate of cost of the Nuclear Reactor Core for Astute Boat 6.
Historic	+1	Accounting Adjustments and Re-definitions	Removal of Cost of Capital due to Clear Line of Sight policy implemented by HM Treasury.
Historic	-2	Budgetary Factors	Revised estimate of cost of the Nuclear Reactor Core for Astute Boat 6.
Net Variation (£m)	**-2**		

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

Project/ Increment Title	Category	Explanation
Astute Boats 1-3		-
Astute Boat 4		-
Astute Boat 5		-
Astute Boat 6		-

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

Project/Increment Title	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Initial Astute Support Solution	315	272	-43	+0
Astute Class Training Service Boats 1-3	151	648	+497	+60
Astute Class Training Service Boat 4	260	318	+58	+51
Total (£m)	**726**	**1238**	**+512**	**+111**

B.5.1 Cost Variation against approved Support / Service / PFI Cost

B.5.1.1 Initial Astute Support Solution

Date	Variation (£m)	Category	Reason for Variation
Historic	-25	Technical Factors	Cost reduction due to not needing to support boats as a result of slippage (-£25m).
Historic	-18	Technical Factors	Cost reduction due to not needing to support boats as a result of slippage (-£18m).
Net Variation (£m)	**-43**		

B.5.1.2 Astute Class Training Service Boats 1-3

Date	Variation (£m)	Category	Reason for Variation
April 2011	+41	Budgetary Factors	An option was taken during the 2011 Planning Round to defer the Successor In-Service Date and modify build delivery rate. Astute build "drumbeat" was revised to match Successor revised In-Service Date which impacts on Astute training (+£41m).
March 2011	+4	Technical Factors	Re-assessment of costs relating to risk, future changes to Astute Class Training Service training and infrastructure (+£4m).

January 2011	+15	Budgetary Factors	Increase in amount of recoverable VAT due to re-assessment of costs (+£4m). VAT rate increase to 20% (+£11m)
Historic	-1	Technical Factors	Re-assessment of costs (-£1m).
Historic	-2	Budgetary Factors	Reduction in amount of recoverable VAT due to re-assessment of costs (-£2m).
Historic	+357	Technical Factors	Re-assessment of costs for training/policy changes.(+£14m). Re-alignment of Astute Class Training Service to the revised Astute Boat Programme and extending the contract from 25 to 36 years. (+£343m).
Historic	+83	Budgetary Factors	Addition of recoverable VAT to ensure that the forecast cost is consistent with the approved cost.
Net Variation (£m)	**+497**		

B.5.1.3 Astute Class Training Service Boats 4

Date	Variation (£m)	Category	Reason for Variation
April 2011	+48	Budgetary Factors	An option was taken during the 2011 Planning Round to defer the Successor In-Service Date and modify build delivery rate. Astute build drumbeat was revised to match Successor revised In-Service Date which impacts on Astute training. (+£48m).
March 2011	+3	Technical Factors	Re-assessment of infrastructure costs and refinement of Fleet training requirements (+£3m).
Historic	+7	Technical Factors	Re-assessment of Private Finance Initiative costs (+£5m). Extension of FAST Training Services Ltd infrastructure costs (+£3m). Other minor decreases (-£1m)
Net Variation (£m)	**+58**		

B.5.2 Operational Impact on Support / Service / PFI Cost

Project / Increment Title	Category	Explanation
Initial Astute Support Solution		-
Astute Class Training Service Boats 1-3		-
Astute Class Training Service Boats 4		-

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	29	0	29
Demonstration & Manufacture Phase	3582	453	4035
Support Phase / Service / PFI Cost	145	74	219
Total Expenditure	**3756**	**527**	**4283**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Astute Boats 1-3	June 1991	March 1997	69
Astute Boat 4		May 2007	-

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Astute Boats 1-3		June 2005	-
Astute Boat 4	February 2015	August 2015	103 months from contract signature
Astute Boat 5		-	-
Astute Boat 6		-	-

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
Astute Boats 1-3	**Original In-Service Date definition**: Contract Acceptance Schedule Stage 1 (safe operation and start of operational work up). **MPR2011 Definition**: Successful completion of deep dive and full power trials. **Reason for Change**: In-Service Date has been declared on successful completion of deep dive and full power trials and demonstrates that the submarine can operate safely and independently in the operational environment. HMS Astute is now a valuable training asset for Navy Command. There was also financial and commercial benefit to MoD removing the link between contract acceptance and In-Service Date.
Astute Boat 4	**Original In Service Date definition**: Platform and Weapons acceptance against all requirements as defined within the Astute Class Through Life Management Plan, issue 6 dated April 2006. **MPR 2009 definition**: Boat 4 Operational Handover to Fleet **Reason for change**: To align In Service Date with asset being utilised by Navy Command.
Astute Boat 5	-
Astute Boat 6	-

C.3.2 Progress against approved Dates

Project/Increment Title	Budgeted For Date	Actual / Forecast Date	Variation (+/- months)	In-Year Variation (+/- months)
Astute Boats 1-3	June 2005	April 2010	+58	-3
Astute Boat 4	August 2015	January 2018	+29	+13
Astute Boat 5	-	-	-	-
Astute Boat 6	-	-	-	-

C.3.3 Timescale variation

C.3.3.1 Astute Boats 1-3

Date	Variation (+/- months)	Category	Reason for Variation
July 2010	-3	Technical Factors	Re-definition of In-Service Date approved by the Investment Appraisals Board, giving retrospective achievement date of In-Service Date from July 2010 to April 2010. (-3 months).
Historic	+4	Technical Factors	Technical and programme difficulties with Boat 1 First of Class undertaking trials for the first time in 17 years. (+4 months).
Historic	+10	Technical Factors	Further delays have occurred during Astute (Boat 1) testing and commissioning phase. These were caused by technical factors the rapid resolution of which was hampered by the lack of skilled personnel with recent submarine testing and commissioning experience. (+10 months).
Historic	+47	Technical Factors	Risk analysis, taking into account opportunities to reduce construction time, predicts most likely In-Service Date of November 2008 (-1 month). Risk analysis, taking in to account opportunities to reduce construction time, predicts a most likely In-Service Date of December 2008 (-1 month). Exceptional difficulties arose with the introduction of a computer aided design system, the availability of trained staff and project management (+43 months). Effect of technical problems assessed a six month slip in In-Service Date (completion of the first phase of sea trials) (+6 months).
Net Variation (+/- months)	**+58**		

C.3.3.2 Astute Boat 4

Date	Variation (+/- months)	Category	Reason for Variation
April 2011	+13	Budgetary Factors	An option was taken during the 2011 Planning Round to defer the Successor In-Service Date and modify build delivery rate. Astute build drumbeat was revised to match Successor revised In-Service Date which impacts on Astute Operational Handover dates.
Historic	+16	Budgetary Factors	A savings option was taken in the 2009 Planning Round which removed funding from Boats 2-7 build programme leading to delayed delivery dates, 16 months delay is attributed to Boat 4. This variation was not shown in MPR10 as the project was not measuring against the 50% date at that time.
Net Variation (+/- months)	+29		

C.3.3.3 Astute Boat 5

C.3.3.4 Astute Boat 6

C.3.4 Other costs / savings resulting from Timescale variation

Project/Increment Title	Date	£m (+ Cost / - Saving)	Category	Reason for expenditure or saving
Support costs and current equipment	-	-	-	Costs from this delay have been factored and subsumed into the Department's revised assessment of Force Level Requirements.
Other	-	-	-	Costs from this delay have been factored and subsumed into the Department's revised assessment of Force Level Requirements.
Total		**0**		

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

Project/Increment Title	Operational Impact
Astute Boats 1-3	The Astute delay resulted in the delayed introduction of improved capability over current classes; such as improved detection, greater weapon load and increased availability. Since these delays the Department has fully considered the plans for submarine capability in the light of this and many other factors.
Astute Boat 4	Reduced ability to fulfil Fleet tasking.
Astute Boat 5	-
Astute Boat 6	-

C.4. Full Operating Capability

C.4.1 Definition

Project/Increment Title	Full Operating Capability	Progress to date
Astute Boats 1-3	FOC will be declared following Operational Workup and agreement on any outstanding requirements / Defect and Deficiency Database issues post Contract Acceptance Schedule Stage 2.	-
Astute Boat 4	FOC will be declared following Operational Workup and agreement on any outstanding requirements / Defect and Deficiency Database issues post Contract Acceptance Schedule Stage 2.	-
Astute Boat 5	FOC will be declared following Operational Workup and agreement on any outstanding requirements / Defect and Deficiency Database issues post Contract Acceptance Schedule Stage 2.	-
Astute Boat 6	FOC will be declared following Operational Workup and agreement on any outstanding requirements / Defect and Deficiency Database issues post Contract Acceptance Schedule Stage 2.	-

C.5. Support / Service / PFI Contract

C.5.1 Scope of Support / Service / PFI Contract

Project/Increment Title	Operational Impact
Initial Astute Support Solution	The BAE Systems contracted element of the Initial Astute Support Solution provides Design Management of the Astute Platform; maintenance of the Safety Case, configuration management of the design including design change and maintenance of the Certificate of Design.
Astute Class Training Service	The Astute Class Training Service is a Private Finance Initiative contract to provide Astute specific team and individual training to the Royal Navy for Boats 1-3. Approval was given in 2007, to extend to a 38 year contract, to cover the life of Boat 4.

C.5.2 Progress against approved Support / Service / PFI Contract Go-Live Date

Project/Increment Title	Approved Date	Actual Date	Variation (+/- months)	In-year Variation (+/- months)
Initial Astute Support Solution	May 2007	May 2007	0	0
Astute Class Training Service Boats 1-3	January 2004	March 2008	+50	0
Astute Class Training Service Boats 4	December 2013	May 2015	+17	+35

C.5.2.1 Go-Live Date Variation

Initial Astute Support Solution

C.5.2.2 Astute Class Training Service Boats 1-3

Date	Variation (+/- months)	Category	Reason for Variation
Historic	+50	Technical Factors	Re-alignment of Astute Class Training Service to the revised Astute Boat Programme.
Net Variation (+/- months)	**+50**		

C.5.2.3 Astute Class Training Service Boats 4

Date	Variation (+/- months)	Category	Reason for Variation
March 2011	+13	Budgetary Factors	Aligning Boat 4 crew joining and training dates with Boat 4 delivery post Planning Round 2011 Option delay (+13 months)
March 2011	+22	Technical Factors	2nd Manoeuvring Room Trainer procurement no longer required in advance of Boat 4 due to greater understanding of the impact of Reactor Control & Indication update on Boats 1-3 training and decision to direct fund Astute Class Training Service capital expenditure through the PFI, months to align delivery of 2nd MRT with crew joining date and training need for Boat 4 (+ 22 months)
Historic	-18	Changed Capability Requirements	To offset the risk of design changes, increased training throughput and to ensure retention of key supplier resources.
Net Variation (+/- months)	**+17**		

C.5.3 Progress against approved Support / Service / PFI Contract End Date

Project/Increment Title	Approved Date	Actual Date	Variation (+/- months)	In-year Variation (+/- months)
Initial Astute Support Solution	December 2012	December 2012	0	0
Astute Class Training Service Boats 1-3	September 2026	September 2037	+132	0
Astute Class Training Service Boats 4	September 2039	September 2039	0	0

C.5.3.1 End of Contract Date Variation

Astute Class Training Service Boats 1-3

Date	Variation (+/- months)	Category	Reason for Variation
Historic	+72	Technical Factors	Re-alignment of Astute Class Training Service to the revised Astute Boat Programme.
Historic	+60	Procurement Processes	Decision to extend contract by 5 years to obtain better value for money.
Net Variation (+/- months)	**+132**		

C.5.4 Other costs / savings resulting from Support Cost variation

Project/Increment Title	Date	£m (+ Cost / - Saving)	Category	Reason for expenditure or saving
Initial Astute Support Solution	-	-	-	-
Astute Class Training Service Boats 1-3	-	-	-	-
Astute Class Training Service Boats 4	-	-	-	-
Total (£m)		**0**		

C.5.5 Operational Impact of Support / Service / PFI Support Contract variation

Project/Increment Title	Operational Impact
Initial Astute Support Solution	-
Astute Class Training Service Boats 1-3	-
Astute Class Training Service Boats 4	-

D Section D: Performance

D.1. Maturity Measures

Sentinel Score	61 AMBER

D.2.1 Performance against Defence Lines of Development

Line of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1. Equipment	The provision of the platform and equipment/systems to meet the user requirement.	Yes (with risks)	
2. Training	Delivery of trained submarine crew and support personnel, by the enduring provision of sufficient and suitable facilities, training media and instructors.	Yes	
3. Logistics	Capability being sustained in order that Astute Class can meet allocated military tasks in peacetime, conduct a transition to war and operate effectively in time of conflict.	Yes	
4. Infrastructure	How Astute Class will operate and interface with naval real estate such as dockyards, ammunition facilities, pilots and ranges.	Yes	
5. Personnel	The provision of trained people. Acceptance of the manning solution will be a staged process.	Yes	
6. Doctrine	Expression of the principles by which military forces guide their actions and is a codification of how activity is conducted today.	Yes	
7. Organisation	The Forces Structures component of Military Capability for Astute is measured against the number of vessels in the class and their readiness state against the requirement of the Royal Naval Plan		Yes
8. Information	The provision of a coherent development of data, information and knowledge requirements for capabilities and all processes designed to gather and handle data.	Yes	
Current forecast (with risks)		7 (1)	1
Last year's forecast (with risks)		8 (1)	0

D.2.2 Defence Line of Development Variation

Date	Defence Line of Development	Category	Reason for Variation
March 2011	Training	Technical Factors	It is now assessed that the Training Capability for Boats 1-3 will be met. In the past 12 months a recovery plan has been instigated to address the shortfalls reported in March 2010. This action is now making significant progress such that it is now expected that the requirement will be met.
March 2011	Equipment	Technical Factors	Equipment is considered to be at risk. Technical challenges in testing and commissioning are yet to be resolved.
March 2011	Organisation	Budgetary Factors	The Department's Equipment Procurement Plan balancing measures in the 2009, 2010 and 2011 Planning Rounds have deferred the delivery of the 7 Astute class boats. As a direct result of the Departments decision to delay the Astute project, the Department does not expect to achieve the mandated number of SSNs at high readiness over the next 10 years.
Historic	Training	Technical Factors	Training is at risk due to the extent of Boat design changes and the potential impact of these changes to Astute Class Training Service. Mitigation is that Astute Class Training course delivery has been prioritised to meet the known requirement and essential safety training updates are being optimised with the training delivery.
Historic	Logistics	Technical Factors	Logistics no longer considered at risk. Boat programme slippage has allowed logistics to catch up.
Historic	Logistics	Technical Factors	Risk remains to the support solution during the Transition phase from manufacture into service and in providing the initial provision of spares to the first of class.

D.3. Performance against Key Performance Measures

D.3.1 Astute Boats 1-3

D.3.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1	1 to 7	Weapon system effectiveness	Yes	
2	1 to 7	Sonar performance	Yes	

3	1,3	Hull strength (survivability)	Yes	
4	1,2,3,5	Top speed		Yes
5	1,3	Endurance	Yes	
6	1,2,3,4,5,8	Acoustic signature	Yes	
7	3,5	Complement	Yes	
8	1 to 8	Land attack capability	Yes	
9	1 to 8	Special forces capability	Yes (with risks)	
Current forecast (with risks)			8 (1)	1
Last year's forecast (with risks)			9 (0)	0

D.3.1.2 Key Performance Measures Variation

Date	Key Performance Measure	Category	Reason for Variation
March 2011	Special Forces	Technical Factors	Prioritisation of suitably qualified and experienced personnel is affecting the testing and commissioning process.
March 2011	Top Speed	Technical Factors	Sea trials had not completed by the In-Service Date as originally planned. Further trails are planned before the submarine is ready for military operations; currently scheduled for December 2012.

D.3.1.3 Operational Impact of variation

Date	Key Performance Measure	Forecast	Operational impact of variation
March 2011	Special Forces	To be Met (with risks)	Risk is being managed. There is nil Operational Impact
March 2011	Top Speed	Not to be Met	The risk will be reviewed once full sea trials have been completed. There is unlikely to be any operational impact

D.3.2 Astute Boat 4

D.3.2.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1	1,2,4,5,6,7,8	Intelligence and Surveillance	Yes (with risks)	
2	1,2,3,4,5,8	Interoperability	Yes (with risks)	
3	1,2,3,4,5,6,8	Sustained Global Reach	Yes	
4	1 to 8	Theatre Mobility	Yes	
5	1 to 8	Mission Flexibility	Yes	
6	1 to 8	Force and Power Projection	Yes	
7	1 to 8	Battlespace Dominance	Yes (with risks)	

8	1,2,3,5,8	Survivability	Yes (with risks)	
9	1 to 5	Generation	Yes	
10	1,3,8	Through Life Adaptability	Yes	
Current forecast (with risks)			10 (4)	0
Last year's forecast (with risks)			10 (3)	0

D.3.2.2 Key Performance Measures Variation

Date	Key Performance Measure	Category	Reason for Variation
March 2011	Intelligence and Surveillance	Technical Factors	Communication and Radar Support Measures not yet installed.
March 2011	Interoperability Battlespace Dominance Survivability	Technical Factors	Since last years report, funding has been provided for the Spearfish Upgrade. Funding approval from HM Treasury for both the Naval Extremely/Super High Frequency Satcom Terminal and Astute Capability Sustainment Programme projects remain outstanding.
Historic	Interoperability	Technical Factors	Three complementary projects (Naval Extremely/Super High Frequency Satcom Terminal, Spearfish Upgrade and Astute Capability Sustainment Programme) are still awaiting HM Treasury approval to proceed placing 3 Astute Boat 4 Key Performance Measure at risk.
Historic	Battlespace Dominance	Technical Factors	Three complementary projects (Naval Extremely/Super High Frequency Satcom Terminal, Spearfish Upgrade and Astute Capability Sustainment Programme) are still awaiting HM Treasury approval to proceed placing 3 Astute Boat 4 Key Performance Measures at risk.
Historic	Survivability	Technical Factors	Three complementary projects (Naval Extremely/Super High Frequency Satcom Terminal, Spearfish Upgrade and Astute Capability Sustainment Programme) are still awaiting HM Treasury approval to proceed placing 3 Astute Boat 4 Key Performance Measures at risk.

D.3.2.3 Operational Impact of variation

Date	Key Performance Measure	Forecast	Operational impact of variation
March 2011	1	To be Met (with risks)	To be installed at first upkeep period.
March 2011	2, 7, 8	To be Met (with risks)	Boat 4 is forecast to enter service in 2018. Impact of this variation remains under review.

D.4 Support Contract

Project Title	
Beyond Visual Range Air-to-Air Missile	
Team Responsible	
Beyond Visual Range Air-to-Air Missile	
Senior Responsible Owner	
N/A	

Project/Increment Name	Current Status of Projects / Increments
Beyond Visual Range Air-to-Air Missile	Post-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

The Beyond Visual Range Air-to-Air Missile system (the selected equipment is the Meteor system) will provide Typhoon with the capability to combat projected air-to-air threats and sustain air superiority throughout the life of the aircraft. The integration of Meteor onto Typhoon forms part of the project, with a current Initial Operating Capability of 2015.

Until Meteor is integrated, Typhoon will be armed with the Advanced Medium Range Air-to-Air Missile, acquired from Raytheon Missile Systems.

Key features of the Beyond Visual Range Air-to-Air Missile requirement include stealthy launch, enhanced kinematics (giving increased stand-off and disengagement ranges, a better ability to engage and destroy highly agile manoeuvring targets), a large no-escape zone and robust performance against countermeasures.

This is a collaborative programme with: Germany, Spain and Italy (for Typhoon), Sweden (for Gripen) and France (for Rafale).

A.2 The Assessment Phase

On 2 October 1995, Minister (Defence Procurement) gave approval for the issue of an Invitation to Tender for Beyond Visual Range Air-to-Air Missile. The Invitation to Tender was issued on 5 December 1995. Two bids were received; one from a consortium led by Matra BAe Dynamics UK Ltd (now MBDA UK Ltd), and one from Raytheon Systems Ltd. After extensive analysis, it was decided that both bids contained areas of risk that needed to be addressed before a development and production contract could be placed. In May 1997, a Project Definition & Risk reduction phase was approved and contracts were placed on both bidders for a period of one year, with results to be technically and operationally assessed before a final decision was made. Both Project Definition & Risk reduction contracts were let in August 1997 and revised bids were received in May 1998. Due to the complexity of the Beyond Visual Range Air-to-Air Missile assessment, the need to accommodate the requirements of the Prospective Partner Nations and the need to go for 'Best and Final' Offers (primarily as a result of a French request to join the programme), Main Gate Approval was not achieved until May 2000. In his statement to the House of Commons on 16 May 2000, the Secretary of State announced that the Matra BAe Dynamics Meteor missile had been selected.

A.3 Progress

The contract for the demonstration, manufacture and support of Meteor was placed with MBDA UK Ltd on 23 December 2002. To date, the UK, Spain, France, Sweden and Italy have committed to production.

The Meteor programme continues to move ahead, with increasing confidence gained through the ongoing programme of guided firings and other activities towards the validation of the performance outturn of the missile.

There has been a three-month in-year slippage in Development outturn date owing to technical issues identified during pre-qualification activities, including the impact of a unilateral decision by one sub-contractor to change a component design for ease of production. This has delayed the start of the full qualification programme.

The programme of early integration work on Typhoon (CP270), which began in July 2009, is proceeding on schedule, and has been expanded to mitigate delays in getting the main integration activity on contract. These latter delays represent a threat to the achievement of In-Service Date 2. Further mitigation actions are under review.

The industrial proposal for full integration (SRP14) first submitted by EF GmbH in 2009 was revised by Industry in December 2010.

A.4 Capability Risks

The Meteor capability is required to replace the current AIM-120 Advanced Medium Range Air-to-Air Missile whose capability falls significantly below that of Meteor. The procurement of the Advanced Medium Range Air-to-Air Missile was a temporary solution to provide Typhoon's anti-air capability for the period between Typhoon Operational Employment Date (June 2007) and Meteor In-Service Date. Whilst the continued use of the Advanced Medium Range Air-to-Air Missile is not expected to affect peacetime air policing, the survivability and capability of Typhoon in almost all operational roles will be compromised by non-delivery of Meteor. It will also necessitate an extension to the life of existing Advanced Medium Range Air-to-Air Missile missiles beyond the currently supported date, and will introduce a risk that stock levels will be insufficient to meet the operational needs. Should Meteor integration slip, there will be a need to address any gap in the Advanced Medium Range Air-to-Air Missile capability.

A.5 Associated Projects

Title of Associated Project	Forecast In Service Date/ Initial Operating Capability	Approval Status
Typhoon Future Capability Programme 2	June 2015	Concept Phase

A.6 Procurement Strategy

Post-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Beyond Visual Range Air-to-Air Missile	MBDA UK (Meteor)	Demonstration (all six nations) and Manufacture (United Kingdom, France, Spain and Sweden at present)	Firm price up to June 2007 (Demonstration), Firm Price up to June 2006 (Manufacture), Fixed Price thereafter subject to Variation of Price.	Competitive - International
Advanced Medium Range Air-to-Air Missile	Raytheon Missile Systems ((Advanced Medium Range Air-to-Air Missile)	Manufacture to In Service	Firm Price	Non-Competitive - International

A.7 Support Strategy

Description
It is currently envisaged that Meteor will be supported through Contractor Logistic Support arrangements, covering Post Design Services, Repairs and Surveillance and Life Extension. The final agreed strategy is dependent upon the outcome of the reliability trials within the development programme and information and decisions from the Meteor Partner Nations. The current forecast is that these inputs will be available in time to inform a support strategy submission to the approval authorities in during 2011.

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
-	-	-	-	-

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Beyond Visual Range Air-to-Air Missile	14	20	6	1%	2%
Total (£m)	**14**	**20**	**6**	**1%**	**2%**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Beyond Visual Range Air-to-Air Missile	1098	1136	1249

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
Beyond Visual Range Air-to-Air Missile	1136	1115	-21	+1
Total (£m)	**1136**	**1115**	**-21**	**+1**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.1.1 Beyond Visual Range Air-to-Air Missile

Date	Variation (£m)	Category	Reason for Variation
March 2011	+1	Exchange Rate	Change in Euro and Krona exchange rate on Meteor Prime Contract (+£1m).
March 2011	+14	Technical Factors	UK share to support extended Development Guided Firing Programme (+£8m), UK specific requirements (+£4m), Additional common Memorandum of Understanding requirement to support the Development programme (+£2m)
February 2011	-2	Procurement Processes - International Collaboration	Benefit of Meteor Partner Nation committing to a Production order and related Production Pre Investment (-£2m).

January 2011	+1	Accounting Adjustments and Re-definitions	Effect of VAT increase from 17.5% to 20% on Meteor Prime Contract (+£1m).
December 2010	-3	Procurement Processes - International Collaboration	Benefit of Meteor Partner Nation committing to a Production order and related Production Pre Investment (-£3m).
September 2010	-2	Procurement Processes - International Collaboration	Benefit of Meteor Partner Nation committing to a Production order and related Production Pre Investment (-£2m).
July 2010	-2	Procurement Processes - International Collaboration	Benefit of Meteor Partner Nation committing to a Production order and related Production Pre Investment (-£2m).
April 2010	-6	Changed Capability Requirements	Adjustment to Meteor Production requirements (-£6m).
Historic	-40	Accounting Adjustments and Re-definitions	Removal of Cost of Capital due to Clear Line of Sight policy implemented by HM Treasury (-£40m).
Historic	-13	Technical Factors	Re-assessment of Meteor Integration (-£4m). Re-assessment in UK Technical Support / GFE (-£8m).
Historic	-2	Accounting Adjustments and Re-definitions	Benefit of achieving Prime Contract Milestones at reduced VAT rate (-£2m).
Historic	+23	Exchange Rate	Change in Euro and Krona exchange rate on Meteor Prime Contract (+22m). Revaluation of foreign currency assumptions on provision of Target service in support of Meteor Firing trials (+1m).
Historic	+3	Exchange Rate	Change in Euro exchange rate on Meteor Prime Contract (+3m)
Historic	+8	Accounting Adjustments and Re-definitions	Change in assumption in regard to recovery of VAT (+£9m), Derivation of approved cost on resource basis (-£4m), Correction of treatment in Contracted Out Services VAT from previous years to align with Main Gate Approval (+£3m)

Historic	+59	Budgetary Factors	Container Development (+£1m). Container Production (+£1m). Support to Typhoon Integration (+£2m). Revised deliveries of Meteor Missiles (+£12m). Container Logistics Support for Meteor (+£7m). Production Investment (+£1m). Trial Ranger (+£11m). Increase in Unit Production Cost for Advanced Medium Range Air-to-Air Missile missiles (MPR03 +£25m; MPR04 +£15m). Surveillance Spares for Advanced Medium Range Air-to-Air Missile (+£1m). UK share of Government Furnished Equipment (+£6m). Decrease for Service Evaluation Trials for Meteor (-£7m). Integration of Meteor onto Typhoon (-£9m), Production of Meteor Telemetred Operational Missiles (-£1m), In Service Reliability Demonstration support (£-3m). Meteor Technical Support (-£2m). Miscellaneous Meteor Items (-£1m).
Historic	-131	Budgetary Factors	In consultation with the customer the decision has been taken to examine capability trade-offs while Realignment and Integration proposals are being matured and assessed against the requirement (-£36m). Effect of Equipment Planning 05 Options: reduce Meteor numbers (-£55m), decision taken not to upgrade AIM-120B Advanced Medium Range Air-to-Air Missiles to C-standard (-£65m). Re-costing of UK Technical Support requirements in addition to Memorandum Of Understanding commitments (+£3m). Re-costing of Meteor Integration (-£1m). Increases for Insensitive Munitions (+£9m). Missiles & Ancillary Equipment in Support of Typhoon Integration (+£6m). Surveillance & Life Extension (+£5m). Initial Spares (+£3m).

Historic	-120	Changed Capability Requirements	UK share of additional common requirement (+£2m), additional requirement for Dual Date Link (+£6m), additional containers required for Meteor (+£2m), refurbishment of existing Advanced Medium Range Air-to-Air Missiles (-£16m). Re-costing of Meteor Missile Additional Acquisition (-£2m). Reduction in missile numbers to minimum contractual commitments (-£53m). Reassessment of In Service Evaluation Trials for Meteor (-£19m). Re-assessment of Meteor Integration (-£40m).
Historic	+55	Change in Associated Project	UK support to Development Guided Firing campaign on Gripen (+£6m). UK support to Tornado F3 Alternative trials platform (+£3m). UK share of “Realignment” programme due to the non-availability of Typhoon aircraft for Meteor Development Trials programme (+£46m).
Historic	-8	Procurement Processes	UK’s share of MBDA revalidation of prices caused by delay in contract placement (+£6m). Revalidation to reflect prices within Advanced Medium Range Air-to-Air Missile contract (-£14m)
Historic	+30	Exchange Rate	Change in Euro exchange rate on Meteor prime (+£29m). Change in Dollar exchange rate on Advanced Medium Range Air-to-Air Missile (-£11m). Revaluation of foreign currency assumptions on current and future Advanced Medium Range Air-to-Air Missile contracts (+£9m). Revaluation of foreign currency assumptions on Meteor Prime Contract (+£3m).

Historic	-31	Procurement Processes	Revaluation of UK's share of Government Furnished Equipment/ Government Furnished Facilities requirements (-£20m). Additional funding required for integration of AIM-120C Advanced Medium Range Air-to-Air Missiles onto Typhoon (+£82m). Gripen Trial (+£2m). Realism measure on funding for integration of AIM-120C Advanced Medium Range Air-to-Air Missiles onto Typhoon (-£65m). Decrease in UK's share of Development (-£30m).
Historic	+145	Procurement Processes	Increase of UK's share of development through transfer of work share from Germany (+£31m) and UK share of Government Furnished Equipment (+£1m). UK share of Memorandum Of Understanding Technical Support requirements (+£2m). UK share of Memorandum Of Understanding Government Furnished Equipment requirements (+£7m). Revised Variation of Price associated with deliveries of Meteor Missiles (+£27m). Reduction in technical support to Advanced Medium Range Air-to-Air Missile (-£5m). Prime Contractor supporting Typhoon Integration Programme (+£20m). UK contractual commitment to pre-production activities (+£5m). Cost associated with UK's contractual commitment to minimum Production quantities (+£57m).
Net Variation (£m)	**-21**		

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	20	0	20
Demonstration & Manufacture Phase	613	82	695
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**633**	**82**	**715**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Beyond Visual Range Air-to-Air Missile	October 1995	May 2000	55

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Beyond Visual Range Air-to-Air Missile (Original In-Service Date)	June 2010	September 2011	August 2012
Beyond Visual Range Air-to-Air Missile (In-Service Date 1)		August 2012	
Beyond Visual Range Air-to-Air Missile (In-Service Date 2)	February 2015	July 2015	July 2015

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
Beyond Visual Range Air-to-Air Missile	**Original In-Service Date Definition:** Achievement of an operational capability with (CONF)*** missiles and supporting infrastructure. At MPR 2007 forecast In-Service Date was August 2013, against the approved In-Service Date at Main Gate of August 2012. The In-Service Date definition was redefined in 2008, following a review of the programme to reflect a two-stage approach to delivering the capability, as follows:
Beyond Visual Range Air-to-Air Missile	**In-Service Date 1:** (Platform Ready): A fully developed missile standard ready for delivery and platform integration, having demonstrated achievement of In-Service Date 1 Key Performance Measures
Beyond Visual Range Air-to-Air Missile	**In-Service Date 2: Initial Operating Capability** (Typhoon Meteor Capability): The first Front Line Unit is declared Operational with at least *** missiles and having demonstrated achievement of In-Service Date 2 Key Performance Measures.

C.3.2 Progress against approved Dates

Project/Increment Title	Budgeted For Date	Actual / Forecast Date	Variation (+/- months)	In-Year Variation (+/- months)
Beyond Visual Range Air-to-Air Missile (Original In-Service Date)	September 2011	August 2013	+23	0
Beyond Visual Range Air-to-Air Missile (In-Service Date 1)	August 2012	November 2012	+3	+3
Beyond Visual Range Air-to-Air Missile (In-Service Date 2)	July 2015	July 2015	0	0

C.3.3 Timescale variation

C.3.3.1 Beyond Visual Range Air-to-Air Missile - Original In Service Date

Date	Variation (+/- months)	Category	Reason for Variation
Historic	+15	Change in Associated Project	Typhoon integration delays cannot be absorbed and uncertainty over Typhoon Future Capability Programme (+15 months).
Historic	+8	Procurement Processes	Slippage caused by delays in placing contract (+11 months). Reassessment of opportunities arising from Meteor Realignment activities, to reduce the duration of firing trial campaigns and to de-risk transition from Demonstration to Production phases (-3 months).
Net Variation (+/- months)	**+23**		

C.3.3.2 Beyond Visual Range Air-to-Air Missile - In Service Date 1

Date	Variation (+/- months)	Category	Reason for Variation
February 2011	+3	Technical Factors	A supplier design change delayed the start of qualification (+3 months).
Net Variation (+/- months)	**+3**		

C.3.3.3 Beyond Visual Range Air-to-Air Missile - In Service Date 2

C.3.4 Other costs / savings resulting from Timescale variation

Project/Increment Title	Date	£m (+ Cost / - Saving)	Category	Reason for expenditure or saving
Beyond Visual Range Air-to-Air Missile	Historic	+5	Change in Associated Project	Extension to the life of the current Advanced Medium Range Air-to-Air Missile variant until integration of Meteor onto Typhoon is achieved (+£5m).
Total		+5		

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

Project/Increment Title	Operational Impact
Beyond Visual Range Air-to-Air Missile	Extended reliance on the current AIM-120 Advanced Medium Range Air-to-Air Missile. The capability of the latter falls significantly below that of Meteor: its procurement was a temporary solution to provide Typhoon with an anti-air capability for the period between Typhoon Operational Employment Date and Meteor In-Service Date. Whilst the In-Service Date delay is not expected to affect peacetime air policing, the survivability and capability of Typhoon in almost all operational roles would be compromised by an extended delay. A staged transfer from Advanced Medium Range Air-to-Air Missile to Meteor is necessary owing to the latter's delivery profile, and hence use of Advanced Medium Air-to-Air Missile by Typhoon extends beyond Meteor In-Service Date. There is some risk that part of the Advanced Medium Range Air-to-Air Missile stocks will not endure until the revised In-Service Date and hence we may fall below the minimum required stockpile liability, although this cannot be confirmed at present.

C.4. Full Operating Capability

C.4.1 Definition

Project/Increment Title	Full Operating Capability	Progress to date
Beyond Visual Range Air-to-Air Missile	The Full exploitation of the Meteor capabilities by the Typhoon platform. This includes a two way datalink, a full six-missile fit and the full use of Meteor symbology and cockpit functionality	The option of proceeding to Full Operating Capability will be considered in due course in the light of further threat analysis.

C.5. Support / Service / PFI Contract

D Section D: Performance

D.1. Maturity Measures

Sentinel Score	69 AMBER

D.2.1 Performance against Defence Lines of Development

Line of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1. Equipment	Integrated Meteor missile, support equipment	Yes (with risks)	
2. Training	Industry led training for in-service users	Yes	
3. Logistics	Industrial support for in-service use	Yes	
4. Infrastructure	Defence Estate prepared to support	Yes	
5. Personnel	Supply of sufficient qualified personnel	Yes	
6. Doctrine	Principles for capability employment	Yes	
7. Organisation	Establishing organisational relationship	Yes	
8. Information	Identifying data, information, knowledge	Yes	
Current forecast (with risks)		8 (1)	0
Last year's forecast (with risks)		8 (0)	0

D.2.2 Defence Line of Development Variation

Date	Defence Line of Development	Category	Reason for Variation
November 2010	Equipment	Technical Factors	Combination of the declared in-year slip (see Section C.3.3.2.) and the risk of further delays in the final stages of the development programme which will prevent timely signature of the Certificate of Design and thus ability to accept deliveries.

D.3. Performance against Key Performance Measures

D.3.1 Beyond Visual Range Air-to-Air Missile

D.3.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1	Information	Multiple Target Capability	Yes	
2	Doctrine	Kill Probability	Yes	
3	Doctrine	Enhanced Typhoon Survivability	Yes	
4	Equipment	Typhoon Compatibility	Yes	
5	Logistics	Minimum Air Carriage Life	Yes	

6	Logistics	Reliability	Yes	
7	Logistics	Support	Yes	
Current forecast (with risks)			7 (0)	0
Last year's forecast (with risks)			7 (0)	0

D.3.1.2 Key Performance Measures Variation

D.3.1.3 Operational Impact of variation

D.4 Support Contract

Project Title	
Future Strategic Tanker Aircraft	
Team Responsible	
Strategic Transport and Air to Air Refuelling Project Team (STAAR PT)	
Senior Responsible Owner	
Head of Capability Expeditionary Logistic Support (ELS)	

Project/Increment Name	Current Status of Projects / Increments
Future Strategic Tanker Aircraft	Post-Main Investment Decision

FUTURE STRATEGIC TANKER AIRCRAFT

A. Section A: The Project

A.1 The Requirement

The Future Strategic Tanker Aircraft Service will provide the Air-to-Air Refuelling and the passenger Air Transport capabilities which currently are provided by the Royal Air Force's fleet of VC10 and TriStar aircraft. Air-to-Air Refuelling is a key military capability that significantly increases the operational range and endurance of front line aircraft across a range of Defence roles and military tasks.

A.2 The Assessment Phase

Future Strategic Tanker Aircraft was nominated as a potential Private Finance Initiative project in 1997. An Assessment Phase, designed to confirm whether PFI would offer best value for money, was launched following Initial Gate approval in December 2000.

The Assessment Phase confirmed industry's ability to meet the service requirement, programme timescales and costs and determined that the inclusion of passenger Air Transport capability in the contract would represent value for money. It also clarified the manning and personnel implications.

A.3 Progress

The Main Gate Business Case was submitted to the Investment Approvals Board in January 2007 and was approved in May 2007. In March 2008 a 27 year PFI contract was signed.

The final Approval envelope for Future Strategic Tanker Aircraft was set by the Investment Approval Board in June 2008.

The Investment Approvals Board approved Contract Not To Exceed cost remains at £10.5Bn. In addition there will be Front Line Command manpower and support costs leading to a total cost of £12.3Bn.

The first set of wings was rolled out on time in February 2009 at Broughton. These were transferred to the Airbus site in Toulouse. The successful maiden flight of the first Future Strategic Tanker Aircraft A330-200 aircraft took place on the 4th June 2009; the aircraft was subsequently delivered to the Airbus Military purpose-built hangar facility Getafé in Spain on the 10th July 2009. It was joined by the second Future Strategic Tanker Aircraft on the 7th September 2009; both aircraft have now been converted for their Future Strategic Tanker Aircraft role, which includes fitting of military avionics as well as the specialist refuelling equipment.

Following this work both aircraft have moved into the Certification and Qualification programme.

A significant amount of the aircraft development risk has now diminished with the issue of the Final Technical Certification (i.e. a military certification) for the Royal Australian Air Force A330 Multi Role Tanker Aircraft (MRTT).

The Future Strategic Tanker Aircraft is not simply about the procurement of aircraft, but covers all aspects of an integrated worldwide aircraft service, ranging from the provision of the infrastructure - including a hangar complex (which allows for the maintenance of two aircraft simultaneously; houses the two Future Strategic Tanker Aircraft Squadrons; the maintenance crew; operations centre and associated office accommodation) - a full flight crew and engineer training service, despatch and ground support. This new facility will be the main AirTanker hub for the provision of the Future Strategic Tanker Aircraft service at RAF Brize Norton in readiness for the delivery of the first aircraft in 2011. AirTanker held an official opening on 31 March 2011.

The construction of the training facility building has been completed ahead of schedule and the fit-out is progressing well with the primary activity being the installation of the wiring and equipment, furnishings, and decoration.

The AirTanker Services elements of the Future Strategic Tanker Aircraft programme continue to be delivered to schedule and remain on course to satisfy their obligations for planned Introduction To Service including the achievement of their operating licences.

In 2011 funding was made available to provide enhanced protection of Future Strategic Tanker Aircraft; AirTanker are currently progressing with a technical feasibility study for this enhancement.

A.4 Capability Risks

The first VC10 aircraft entered service in the 1960s and these were converted to Air-to-Air refuelling tankers at various dates between 1980 and 1996. The aircraft has ageing and outdated technology, and the risks to maintaining reliability and value for money have grown and ultimately it will not be possible to sustain capability. The TriStars first entered airline service in the early 1970s and converted to their current tanker and tanker/freight roles between 1983 and 1987. These aircraft are planned to go out of service in 2013.

The Future Strategic Tanker Aircraft is planned to replace the Air-to-Air Refuelling capability and passenger Air Transport capability provided by the RAFs VC10 and TriStar fleets. The aircraft will be on the military register from the first day in the role.

Without Future Strategic Tanker Aircraft, a significant gap would appear in the UK's strategic deployment and tactical strike capabilities. The primary role for the Future Strategic Tanker Aircraft will be Air-to-Air Refuelling and the objective of these operations is to enhance the combat effectiveness by extending the range, payload or endurance of receiver aircraft where and when it is most needed. Strategic air refuelling supports the deployment of forces to theatre whilst tactical or theatre air refuelling provides mission support to units active in an operational theatre.

A.5 Associated Projects

A.6 Procurement Strategy

Post-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Future Strategic Tanker Aircraft	AirTanker Ltd.	PFI Service Delivery	PFI	Competitive - International

A.7 Support Strategy

Description
Future Strategic Tanker Aircraft is an innovative PFI programme that will provide an Air-to-Air Refuelling and passenger Air Transport service for 24 years. The contract will provide a comprehensive and integrated service solution, based on new Airbus A330 aircraft modified to provide Air-to-Air Refuelling capability. The service will include the provision of purpose designed training and maintenance facilities at RAF Brize Norton, together with through-life training, maintenance and support.

Support Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Future Strategic Tanker Aircraft	AirTanker Ltd	PFI Service Delivery	PFI	Competitive - International

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Future Strategic Tanker Aircraft	13	38	+25	0.11%	0.32%
Total (£m)	**13**	**38**	**+25**	0.11%	0.32%

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Future Strategic Tanker Aircraft	12107	12307	12517

B.3 Cost of the Demonstration and Manufacture Phase - not applicable

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

Project/Increment Title	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Future Strategic Tanker Aircraft	12307	12009	-298	+111
Total (£m)	**12307**	**12009**	**-298**	**+111**

B.5.1 Cost Variation against approved Support / Service / PFI Cost

B.5.1.1 Future Strategic Tanker Aircraft

Date	Variation (£m)	Category	Reason for Variation
April 2011	+124	Changed Capability Requirements	Costs associated with Planning Round 2011 Options which address platform protection and greater utilisation of the aircraft.
March 2011	-16	Budgetary Factors	Reduced costing due to reprofiling of project manpower required to support the programme and reduced in-year trials support costs (-£16m).
January 2011	+3	Accounting Adjustments and Re-definitions	Change in VAT rate from 17.5% to 20% resulting in an increase in costs (+£3m)
Historic	-38	Accounting Adjustments and Re-definitions	Correction of IRDEL double accounting

Historic	-8	Accounting Adjustments and Re-definitions	Reduction in costs associated with instrumentation of aircraft in support of Future Strategic Tanker Aircraft clearance trials.
Historic	-63	Accounting Adjustments and Re-definitions	Forecast based on expected levels of usage and fuel costs modelled in accordance with Front Line Command estimates
Historic	-300	Accounting Adjustments and Re-definitions	Method for costing Military equipment obsolescence and change in law costs amended from using actual figures to a risk based assessment.
Historic	-50	Accounting Adjustments and Re-definitions	Correction of Defensive Aids Suite balance sheet treatment to include RDEL reduction across the contract period.
Historic	-20	HM Treasury Reserve	Deployed operating costs subject to reimbursement from HM Treasury Reserve
Historic	-20	Technical Factors	Improved definition of the technical requirements relating to integration and support of Communication and Information systems.
Historic	+90	Accounting Adjustments and Re-definitions	Revised assessment of potential risk opportunities such as refinancing
Net Variation (£m)	**-298**		

B.5.2 Operational Impact on Support / Service / PFI Cost

Project / Increment Title	Category	Explanation
Future Strategic Tanker Aircraft	Changed Capability Requirements	The enhanced platform protection measure will expand operational capability

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	38	0	38
Demonstration & Manufacture Phase	0	0	0
Support Phase / Service / PFI Cost	10	5	15
Total Expenditure	**48**	**5**	**53**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Future Strategic Tanker Aircraft	December 2000	May 2007	77

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Future Strategic Tanker Aircraft	January 2014	May 2014	November 2014

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
Future Strategic Tanker Aircraft	Initial Operating Capability Introduction to Service (ITS) + 18 months is the definition of Initial Operating Capability in the Future Strategic Tanker Aircraft programme. This is the point when one operational Air-to-Air Refuelling aircraft will be available with Wing Pod and Centreline Fuselage Refuelling Unit. In-Service Date At the point of Air-to-Air Refuelling In-Service Date there will be the capability to provide at least nine Future Strategic Tanker Aircraft capable of refuelling operations simultaneously with any two of Air-to-Air Refuelling-probe-equipped Fast Jets. Five of the nine Future Strategic Tanker Aircraft will be able to transfer fuel to large aircraft during day/night.

C.3.2 Progress against approved Dates

Project/Increment Title	Budgeted For Date	Actual / Forecast Date	Variation	In-Year Variation (+/- months)
Future Strategic Tanker Aircraft	May 2014	May 2014	0	0

C.3.3 Timescale variation

C.3.3.1 Future Strategic Tanker Aircraft

C.3.4 Other costs / savings resulting from Timescale variation

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

C.4. Full Operating Capability

C.4.1 Definition

Project/Increment Title	Full Operating Capability	Progress to date
Future Strategic Tanker Aircraft	The Full Operating Capability is when all the Future Strategic Tanker Aircraft are accepted into service, the complete service available for use and the Key Performance Measures are met.	On track

C.5. Support / Service / PFI Contract

C.5.1 Scope of Support / Service / PFI Contract

Project/Increment Title	Scope
Future Strategic Tanker Aircraft	PFI Contract covers full service

C.5.2 Progress against approved Support / Service / PFI Contract Go-Live Date

Project/Increment Title	Approved Date	Actual Date	Variation (+/- months)	In-year Variation (+/- months)
Future Strategic Tanker Aircraft	March 2008	March 2008	0	0

C.5.2.1 Go-Live Date Variation

C.5.3 Progress against approved Support / Service / PFI Contract End Date

Project/Increment Title	Approved Date	Actual Date	Variation (+/- months)	In-year Variation (+/- months)
Future Strategic Tanker Aircraft	March 2035	March 2035	0	0

C.5.3.1 End of Contract Date Variation

C.5.4 Other costs / savings resulting from Support Cost variation

C.5.5 Operational Impact of Support / Service / PFI Support Contract variation

D Section D: Performance

D.1. Maturity Measures

Sentinel Score	88 Green

D.2.1 Performance against Defence Lines of Development

Line of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1. Equipment	All aircraft will be modified to conduct the required roles, but specific equipment will only be added as required to meet the tasking. All aircraft will be two-point tankers: of these seven will also be three-point capable, with five centre-line systems being available for use. Aircraft will be fitted for a Defensive Aids Suite.	Yes (with risks)	
2. Training	A comprehensive training service will be delivered by AirTanker as a key part of the contract. Aircrew will undergo type-related training on the A330 with additional Air-to-Air Refuelling role training conducted by military instructors. Ground crew will be trained to European Aviation Safety Agency standards and hold type-related licenses.	Yes (with risks)	
3. Logistics	Logistics support for the fleet will be controlled by AirTanker as part of the service-delivery contract.	Yes	
4. Infrastructure	A new hangar with bays for two A330 aircraft is being built at RAF Brize Norton, including maintenance bays and workshops. A training facility including a flight simulator will be housed in another complex nearby.	Yes	
5. Personnel	Flight deck crews comprising military and military Sponsored Reserves will be trained, together with Mission Systems Operators. There will be cabin crew, ground crew and operations support personnel.	Yes	
6. Doctrine	The solution meets the requirement identified within the Concept of Use.	Yes	
7. Organisation	The aircraft service will build up gradually from Introduction to Service to Air-to-Air Refuelling In-Service Date.	Yes	

8. Information	AirTanker Services will provide a bespoke Information Technology system to interface with current MOD Information Technology systems.	Yes	
Current forecast (with risks)		8 (2)	0
Last year's forecast (with risks)		8 (1)	0

D.2.2 Defence Line of Development Variation

Date	Defence Line of Development	Category	Reason for Variation
March 2011	Training	Technical Factors	Uncertainty of the acceptance by 22 Group of the Commercial Off The Shelf and training validation.
Historic	Equipment	Technical Factors	Development of avionics packages has fallen behind schedule. Increased resources have been identified as a mitigation strategy to ensure DLOD will be achieved. As at March 2011 the Military Avionics Integration issues remain. Key activities continue for the Certification of the aircraft.
Historic	Personnel	Technical Factors	Engineer training manpower to be made available. Line of Development no longer at risk.
Historic	Logistics	Technical Factors	A series of workshops has identified processes to ensure support solution will be in place and no major risks have been identified. Line of development no longer at risk.
Historic	Information	Technical Factors	Progress on interfaces has been made and no major risks have been identified. Line of Development no longer at risk .
Historic	Logistics	Technical Factors	Development of the detailed, practical aspects of the logistic support solution has identified areas of risk between contractor and MOD. These risk areas are being mitigated through logistic workshops and engagement with AirTanker to identify processes and solutions where required.
Historic	Personnel	Technical Factors	First ground crew go into training in December 2010. The manpower Establishment is to be in place by no later than July 2009 to allow for Candidates to be selected. Meetings are timetabled to progress this work.

Historic	Information	Technical Factors	A short term, manual, interface has been agreed between the Authority and AirTanker tasking and operations Information Technology systems. In the longer term an Application Programming Interface needs to be set up to allow direct communication between the 2 systems and the road-map to this solution is to be developed.

D.3. Performance against Key Performance Measures

D.4.1 Future Strategic Tanker Aircraft

D.4.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
KUR 01	Equipment	The User shall be able to utilise Future Strategic Tanker Aircraft to refuel all receiver aircraft cleared to operate with Future Strategic Tanker Aircraft.	Yes	
KUR 02	Equipment	The system shall be capable of transporting personnel and their associated personal equipment and freight	Yes	
KUR 03	Equipment	The User shall be able to utilise an air system that is airworthy and meets all appropriate regulations, both military and civilian, at all times.	Yes	
KUR 04	Logistics	The User shall be able to operate the air system world-wide, in both Air-to-Air Refuelling and passenger Air Transport Roles.	Yes	

KUR 05	Equipment / Information	The User shall have the capability to interoperate with appropriately configured aircraft in a manner necessary to carry out the required function.	Yes	
KUR 06	Doctrine	The system shall meet the readiness requirements to provide sufficient capability to support the Military Tasks laid down in the RAF Management Plan.	Yes	
KUR 07	Logistics	The User shall be able to utilise an air system that is fully supportable (including maintenance, spares, manpower, facilities and support equipment) at the rates of effort specified, both at the Main Operating Base and when deployed world-wide at all times.	Yes	
KUR 08	Logistics	The system shall be capable of providing the required level of operational capability at all times.	Yes	
KUR 09	Training	The User shall be able to acquire and maintain the necessary skills to utilise the system across the spectrum of operation.	Yes	
Current forecast (with risks)			9 (0)	0
Last year's forecast (with risks)			9 (0)	0

D.4.1.2 Key Performance Measures Variation

D.4.1.3 Operational Impact of variation

Project Title	
Joint Combat Aircraft	
Team Responsible	
Joint Combat Aircraft Team	
Senior Responsible Owner	
Head of Capability (Deep Target Attack)	

Project/Increment Name	Current Status of Projects / Increments
System Development & Demonstration	Post-Main Investment Decision
Production, Sustainment & Follow-on-Development	Post-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

Following the 1998 Strategic Defence Review, UK participation in the Concept Demonstration Phase of the programme and significant analysis, the US Joint Strike Fighter was selected to meet the Joint Combat Aircraft requirement for Carrier Strike. A tailored Main Gate demonstration approval was obtained in January 2001 for participation in the System Development and Demonstration phase to the value of £1,300m, along with £600m for related non-System Development and Demonstration work, leading to signature that month by UK and United State's governments of the System Development and Demonstration Memorandum of Understanding. The selection of Lockheed Martin as the Joint Strike Fighter air system prime contractor included a teaming agreement with Northrop Grumman and BAE Systems to collectively form Team Joint Strike Fighter. Two separate and competitive propulsion contracts were awarded to Pratt and Whitney for the F135 engine and General Electric/Rolls Royce Fighter Engine Team for the F136 engine. Whilst other partners joined the programme at Level 2 and 3 entry arrangements, only United State's and UK requirements have driven the System Development and Demonstration baseline solution.

In September 2002 the UK selected the Short Take Off and Vertical Landing Joint Strike Fighter variant to meet the requirement. A review of the Joint Strike Fighter program and the viability of the Short Take Off and Vertical Landing design was completed in January 2005. It concluded that a successful programme of weight reduction initiatives and other performance enhancements had restored confidence that the Short Take Off and Vertical Landing design should remain the UK's planning assumption. A further review by the Investment Approvals Board in July 2006 confirmed this decision.

On 12 December 2006 Minister of State for Defence Equipment and Support signed the Production Sustainment and Follow-on Development Memorandum of Understanding , which was the first of four Main Gates planned for the introduction to Service of Joint Combat Aircraft. In March 2009, approval was given for Phase 2 of the Joint Combat Aircraft incremental strategy, for participation in joint Initial Operational Test & Evaluation with the United States Services. This will allow the UK to fully understand and influence the Joint Strike Fighter programme as it moves into a new phase.

A formal In-Service Date for Joint Combat Aircraft requirement will not be set until the Main Gate 4 decision point. However, the Department is planning to deliver a capability from both land and sea that is consistent with Her Majesty's Government policy to introduce a Carrier Strike capability around 2020.

A.2 The Assessment Phase

Approval was obtained in November 1996 to enter the Concept Demonstration Phase on the Joint Strike Fighter programme under a Memorandum of Understanding signed in December 1995. The phase began in November 1996 with two competing United States Prime Contractors (Boeing and Lockheed Martin) designing and flying demonstration aircraft on which the selection of the preferred bidder was based. A tailored Main Gate demonstration approval was obtained in January 2001 for participation in the System Development and Demonstration phase. The phase completed in October 2001 with the announcement of Lockheed Martin as the successful bidder. Studies into alternative options to Joint Strike Fighter to meet the requirement were also conducted but were rejected on cost effective grounds. The options were US F/A18E aircraft, French Rafale M, a "navalised" Eurofighter Typhoon and an advanced Harrier.

A.3 Progress

The 2010 Strategic Defence and Security Review confirmed the requirement for the Joint Strike Fighter as part of the future fast jet fleet. The MOD now plan to buy the Carrier Variant of Joint Strike Fighter, which offers advantages in terms of range, payload and through-life costs over the Short Take Off and Vertical Landing variant. It also offers greater interoperability with the UK's allies. Although the MOD has decided to acquire the Carrier Variant it remains supportive of the Short Take Off and Vertical Landing programme and is still committed to the purchase of this variant of aircraft as part of the UK's contribution to a joint Initial Operational Test and Evaluation programme that is being conducted in conjunction with the US military.

On the 6th January 2011 US Defense Secretary Gates announced the conclusion of the Technical Baseline Review of the Joint Strike Fighter programme. The announcement stated that:

a. The Joint Strike Fighter System Development and Demonstration phase will be extended to complete in early 2016 (vice mid 2015).

b. System Development & Demonstration costs will be increased by $4.6bn to cover the time delay, cost escalation and the additional test effort required by the Technical Baseline Review.

c. A reduction in US production requirements of 124 aircraft over the remaining five Low Rate Production Contracts, initially with zero growth to allow the final assembly process at Lockheed Martin to mature and also to reduce the concurrency risk whilst the development programme matures.

d. The Short Take Off and Vertical Landing variant is being put "on probation" for two years. This involves decoupling of development testing, which has been problematic, from the main Joint Strike Fighter programme where Carrier Variant and Conventional Take Off and Landing variants are progressing at a faster rate. Whilst "on probation" Short Take Off and Vertical Landing production rates will be capped at six per year.

It should be noted that whilst the overall cost of the System Development Demonstration phase of the Joint Strike Fighter programme has been increased, the UK's contribution will not change and is fixed by the Memorandum of Understanding the MOD jointly signed with the US in 2001. Increases in the forecast against current approvals reflect additional studies that now need to be conducted to fully understand the wider capabilities of the Carrier Variant and to ensure coherence with the UK's specific operational sovereignty, safety and airworthiness requirements.

As a result of the switch to the procurement of the Carrier Variant the Key Performance Measures reported against Short Take Off and Vertical Landing as "at risk" in MPR2010 (Key Performance Measures 03 Range and Key Performance Measures 04 Mission Performance) are now reported as "forecast to be met".

A.4 Capability Risks

This capability provides the UK with a fifth generation expeditionary air to ground, air to air and Intelligence, Surveillance, Target Acquisition And Reconnaissance capability to satisfy the 1998 Strategic Defence Review requirement for a carrier-capable Joint Combat Aircraft. Without this capability the UK will be unable to meet its Combat Air and Carrier Strike requirements and be unable to support ground forces in multi-threat environments at a time and place of the Government's choosing.

A.5 Associated Projects

Title of Associated Project	Forecast In Service Date/ Initial Operating Capability	Approval Status
Queen Elizabeth Class (Future Aircraft Carrier)	2018 and 2020[1]	Post Main Gate

A.6 Procurement Strategy

Post-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
System Development & Demonstration	Lockheed Martin	System Development and Demonstration	Cost plus award fee, subject to a maximum price	Competitive International collaboration procurement. UK participation through Memorandum of Understanding agreement. (Note: the contract is placed by the US Department of Defense with Lockheed Martin.)
Production, Sustainment & Follow-on-Development	Lockheed Martin	Initial Operational Test & Evaluation Aircraft	Cost plus award fee, subject to a maximum price.	Competitive International collaboration procurement. UK participation through Memorandum of Understanding agreement. (Note: the contract is placed by the US Department of Defense with Lockheed Martin.)

A.7 Support Strategy

[1] The Forecast Initial Operating Capability Dates are those following the Carrier's conversion to the Carrier Variant configuration.

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Joint Combat Aircraft	150	144	-6	7.1%	6.8%
Total (£m)	**150**	**144**	**-6**	**7%**	**7%**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
System Development & Demonstration		1874	2060
Production, Sustainment & Follow-on-Development		608	608

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
System Development & Demonstration	1874	1585	-289	+42
Production, Sustainment & Follow-on-Development	608	527	-81	-79
Total (£m)	**2482**	**2112**	**-370**	**-37**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.1.1 System Development & Demonstration

Date	Variation (£m)	Category	Reason for Variation
March 2011	+13	Technical Factors	Reassessment of risk mitigation activities in relation to Reprogramming (+£5m) and Ship/Air Integration (£8m).
March 2011	+8	Accounting Adjustments and Re-definitions	Removal of IRDEL (Foreign Exchange) as per revised Departmental policy.
March 2011	-7	Exchange Rate	MPR2011 In year 2010/11 Exchange Rate variance (-£3m). Exchange rate variance 2011/12 to 2013/14 (-£4m).

January 2011	+59	Technical Factors	Creation and ongoing funding of an Engineering Authority (£9m). £50m due to the Joint Strike Fighter's Technical Baseline Review impact on: a) the System Development and Demonstration now completing in 2015/16 (+£58m), b) In-year delays and revised short-term plans (-£8m).
October 2010	-31	Changed Capability Requirements	Deletion of the Ship-Borne Rolling Vertical Landing Key User Requirement due to the Strategic Defence and Security Review decision to change aircraft variant.
Historic	-16	Accounting Adjustments and Re-definitions	Removal of Cost of Capital due to Clear Line of Sight policy implemented by HM Treasury.
Historic	+37	Exchange Rate	MPR2010 In year 2009/10 Exchange Rate variance (+£12m). Exchange rate variance 2010/11 to 2013/14 (+£25m).
Historic	-21	Budgetary Factors	Cost reductions and re-profiling of UK National requirements (-£15m), correction of effect of System Development & Demonstration Contribution non-financial contributions (+£1m), revision of Operational Test & Evaluation contribution (-£2m), reduced forecast for Ship-Borne Rolling Vertical Landing risk mitigation (-£5m).
Historic	-100	Exchange Rate	MPR2009 In year 2008/09 Exchange rate variance (+£4m). Exchange rate variance 2009/10 to 2013/14 (+£2m). MPR08: System Development and Demonstration contribution against MPR07 Versus MPR08 Exchange rate: 2007/08 (-£12m), 2008/09 to 13/14 (-£6m). MPR07: Exchange rate against profile until 2013 (-£11m). Change in dollar/pound exchange rate (MPR06 +£9m; MPR05 -£181m; MPR04 -£85m; MPR03 -£9m; MPR02 +£189m).

Historic	-25	Budgetary Factors	MPR09: In year out turn against forecast – Risk mitigation action leading to minimal level of unforeseen activities emerging (-£10m), Ship Borne Rolling Vertical Landing (-£8m) due to overestimate of the work required at this stage of the programme, slippage in the integration of JCA with the Future Aircraft Carriers (-£6m) due to slower than anticipated progress, correction of in year System Development & Demonstration Contribution (+£2m). Re-profiling of future years -comprising of Ship Borne Rolling and Vertical Landing – reassessment of the funding required to return the aircraft with a higher payload (-£1m), updated assessment of the expected implementation work supporting the Autonomic Logistics Information System – a global system for all maintenance and spares for Joint Strike Fighter (-£2m).
Historic	-5	Budgetary Factors	An increase due to Joint Safe Escape – the ability to deploy weapons safely (+£1m) which was not previously explicitly forecast, refinement of Risk mitigation funding for future years (-£4m), Reduction of Safety Case – a requirement to ensure the aircraft is fit to fly (-£2m) due to the cost to the UK being reduced by the contribution of partner nations.

Historic	-1	Budgetary Factors	MPR08: In year out turn against forecast – including minor changes for 2007/08 (-£14m). UK non System Development and Demonstration National work; Changes to reflect realism: UK Precision Guided Bomb (-£7m), Carrier Variant Future integration (+£1m) and Operational Test and Evaluation (-£7m). Maturation of risk identified since Equipment Plan 07: Autonomic Logistic Information System (+£5m), Conformity European markings (+£6m), Re-assessment of risk (+£6m). Re-assessment of Main programme expenditure: Mission Support (+£2m), Reprogramming (+£10m), Bowman (+£4m). Planning Round 08 Option not included in Equipment Plan07 (-£7m).
Historic	+279	Budgetary Factors	MPR07: Re-assessment of UK National Work - attributable cost which include: UK integration costs: (-£94m), Block 3 weapons adjusted to reflect the latest costing from Prime contractor (+£7m), Safety Case now defined to prepare for contract placement in 2007/08 (+£11m) and re-assessment of risk provision (-£87m). Break out from re-assessment from risk provision above which are: UK basing integration & testing (+£5m), Identification of Operational Test & Evaluation costs (+£26m). Outturn for 2006/07 versus Forecast (-£6m). Adjustment for realism in the cost of the UK non-System Development and Demonstration work resulting from a deeper review of the estimates originally provided by the US (+£43m).Costs benefits gained from use of existing Advance Short Range Air to Air Missile stocks for Joint Combat Aircraft trials (-£6m). Fewer weapon studies undertaken in year (-£1m). Improved project support strategy (-£3m). Better understanding of the integrated nature and requirements of the aircraft systems (+£384m).

Historic	-34	Budgetary Factors	MPR06: Re-profile of UK National Work to mitigate increase in Exchange Rate. Main Drivers are Interoperability (-£1m), Capital Studies (-£1m), UK Integrated Helmet Mounted Display System (-£1m) and Carrier Vessel Future Integration (-£3m). Re-profile of later years Follow on Development (-£3m).MPR05: Reassessment of Dstl & QinetiQ tasking (-£10m). Correction of contingency estimates due to weight risks in MPR04 (-£15m).
Historic	-13	Accounting Adjustments and Re-definitions	MPR07: The Integrated Project Team conducted a review of the project work schedule which has given the team sufficient certainty to include more accurate accruals for the duration of the project (-£10m). Accounting Adjustment made in MPR06 now reflected in re-profiling of programme (-£2m). New Defence Procurement Agency requirement to include Price Forecasting Group costs within the equipment plan (+£1m). Accounting reclassification of feasibility studies (-£2m).
Historic	+5	Accounting Adjustments and Re-definitions	MPR06: Change of accounting treatment for System Development and Demonstration contributions. (+£19m) re-profile of 2005/06 accrual into later years. (-£18m) removal of 2005/06 accrual. Reconciliation of accrual (+£1m). MPR05: Re profiling of UK specific tasks (+£3m).
Historic	-71	Changed Capability Requirements	MPR06: Reviews of the external missile systems for Joint Combat Aircraft resulted in the removal of the requirement for integrating internally mounted Brimstone (-£41m), Paveway II and III (-£1m) capabilities and some internal configurations of the Advanced Short Range Air-to-Air Missile (-£49m). Further UK participation in the Joint Integrated Test Force to reflect UK acceptance into service strategy (+£20m).

Historic	-472	Changed Capability Requirements	MPR05: Provision for Alternate Helmet Mounted Display System removed (-£40m). Reassessment of 2004/05 forecast expenditure (-£12m). Review of miscellaneous requirement including Exchange of Letters Risk Provision (-£40m), design of UK Specific Support (-£3m), Environmental Protection (-£3m) and Autonomic Logistic Information System interoperability (-£6m). Block IV weapons as a result of JSF programme re-alignment (-£368m).
Historic	+55	Technical Factors	MPR07: Re-alignment of programme now included in Development - Ship-Borne Rolling and Vertical Landing (+£55m).
Historic	-29	Technical Factors	MPR05: Reduction of Risk line as a result of programme delays (-£29m).
Historic	-7	Budgetary Factors	Fewer UK studies than originally planned (MPR02 -£1m; MPR03 (-£6m)
Historic	+87	Technical Factors	MPR 04: Re-examination of risk within the overall programme. (+£87m).
Net Variation (£m)	**-289**		

B.3.1.2 Production, Sustainment & Follow-on-Development

Date	Variation (£m)	Category	Reason for Variation
April 2011	-40	Changed Capability Requirements	No operational conversion unit is now required in the early years and as such support costs in the early years of flying aircraft have been reduced.
March 2011	-28	Exchange Rate	MPR2011: Exchange Rate variation (-£28m).
March 2011	-11	Budgetary Factors	Improved estimate of production expenditure (-£12m). Delays in Long Lead expenditure (+£1m).
Historic	+31	Exchange Rate	MPR2010: Exchange Rate variation (+£31m).
Historic	-3	Budgetary Factors	Correction of Composite Share Ratio (UK contribution to shared partner costs) from MPR09 (-£3m).

Historic	-30	Procurement Processes	Improved understanding of production cost data related specifically to Operational Test & Evaluation aircraft (-£30m).
Net Variation (£m)	**-81**		

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	144	0	144
Demonstration & Manufacture Phase	1343	240	1583
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**1487**	**240**	**1727**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Joint Combat Aircraft	-[2]	January 2001	-

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability[3]

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
Joint Combat Aircraft	Initial Operating Capability - 6 embarked aircraft at Readiness Level 2 (2-5 days notice to move) – to align with the US acquisition framework and definitions.

C.3.2 Progress against approved Dates

C.3.3 Timescale variation

C.3.4 Other costs / savings resulting from Timescale variation

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

C.4. Full Operating Capability

C.4.1 Definition

Project/Increment Title	Full Operating Capability	Progress to date
Joint Combat Aircraft	Yet to be defined.	-

C.5. Support / Service / PFI Contract

[2] Rather than passing an Initial Gate, Joint Combat Aircraft has used a tailored Main-Gate Strategy.

[3] The In-Service Date approval will be sought as part of the incremental Production Approval strategy.

D Section D: Performance

D.1. Maturity Measures

Sentinel Score	81 GREEN*

* Applies to the previous version of the aircraft (Short Take Off Vertical Landing) and has yet to updated for the revised aircraft (Carrier Variant)

D.2.1 Performance against Defence Lines of Development

Line of Development		Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1.	Equipment	Initial 10 Force Elements @ Readiness	Yes	
2.	Training	Sufficient trained and available personnel	Yes (with risks)	
3.	Logistics	Successful integration of Joint Strike Fighter support solution into UK and Joint Supply Chain	Yes (with risks)	
4.	Infrastructure	Completion of Main Operating Base	Yes (with risks)	
5.	Personnel	Sufficient suitable personnel available for training and support	Yes	
6.	Doctrine	Doctrine in place	Yes	
7.	Organisation	Suitable command structures in place to support US based Initial Operational Test and Evaluation and Operational Conversion Unit, as well as UK Main Operating Base, Queen Elizabeth Class Carriers and Forward Operating Base operations.	Yes	
8.	Information	Integration of Joint Combat Aircraft into UK Ground Information Infrastructure.	Yes (with risks)	
Current forecast (with risks)			8 (4)	0
Last year's forecast (with risks)			8 (2)	0

D.2.2 Defence Line of Development Variation

Date	Defence Line of Development	Category	Reason for Variation
March 2011	Training	Changed Capability Requirements	Reliance on US Navy training system for initial throughput and training of early instructor pilots and squadron pilots.
March 2011	Infrastructure	Changed Capability Requirements	Delays to formal announcement of Joint Combat Aircraft Main Operating Base places time pressure on infrastructure provision.
Historic	Logistics	Budgetary Factors	Insufficient Maritime Intra-Theatre Lift to support Joint Combat Aircraft aboard Queen Elizabeth Class Carriers .

Historic	Information	Technical Factors	UK Ground Information Infrastructure may be unable to support the requirements of Joint Combat Aircraft Information Systems

D.3. Performance against Key Performance Measures

D.3.1 Joint Combat Aircraft

D.3.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1		Survivability	Yes	
2		Interoperability	Yes	
3		Combat Radius	Yes	
4		CV Recovery	Yes	
5		Mission Reliability	Yes	
6		Logistic Footprint	Yes	
7		Sortie Generation	Yes	
Current forecast (with risks)			7 (0)	0
Last year's forecast (with risks)			7 (2)	0

D.3.1.2 Key Performance Measures Variation

Date	Key Performance Measure	Category	Reason for Variation
March 2011	3	Changed Capability Requirements	Previous report of "at risk" referred to concerns on the performance of the Short Take Off and Vertical Landing variant. Following the Strategic Defence and Security Review announcement to change procurement strategy and using US indices this is now assessed as "Forecast to be met".
March 2011	4	Changed Capability Requirements	Previous Key Performance Measure referred to Short Take Off and Vertical Landing Mission performance and was reported in MPR10 as "at risk". Following the Strategic Defence and Security Review announcement to change the procurement strategy to procure the Carrier Variant this Key Performance Measure has been removed and replaced the US Programme Key Performance Measure for Carrier Variant recovery measuring the landing speed onto the carrier.

Historic	3	Technical Factors	Based on modelling and simulation results, the range capability for Joint Strike Fighter Short Take Off and Vertical Landing is approaching the specified target set for UK requirements based on UK Operating scenarios. However, this potential shortfall is based primarily on modelling with very limited experience in actual flight test. Further flight testing is planned to gain an accurate assessment of this potential problem and mitigation actions will be developed accordingly.
Historic	6	Technical Factors	This KUR represents a measure of the amount of support equipment required to allow Joint Combat Aircraft to be deployed on operations. As the Joint Strike Fighter system design has matured, the amount and design of equipment required for deployment in support of Joint Combat Aircraft has reduced to below the contractually specified requirement.
Historic	4	Technical Factors	The Short Take Off element of KUR 04 (based on Invincible Class Carriers not Future Aircraft Carrier) will be changed in the ongoing KUR review, although current projections indicate robust Short Take Off performance from Future Aircraft Carrier. Weight challenges and propulsion system integration issues place the Vertical Landing Bring Back element of KUR 04 at increased risk; the Integrated Project Team has commenced programme action to amend the System Development and Demonstration contract to satisfy a requirement to undertake Ship-borne Rolling Vertical Landing.
Historic	6	Technical Factors	Subject to intensive programme action by Prime Contractor. Funded design options that significantly reduce risk have been identified and further changes will be considered in due course.

D.3.1.3 Operational Impact of variation

Date	Key Performance Measure	Forecast	Operational impact of variation
March 2011	3	To be Met	As a result of the 2010 Strategic Defence and Security Review decision to purchase the Carrier Variant, this measure is now assessed as 'To be met'.

March 2011	4	To be Met	As a result of the 2010 Strategic Defence and Security Review decision to purchase the Carrier Variant, this measure is now assessed as 'To be met'.
March 2011	6	To be Met	As a result of the 2010 Strategic Defence and Security Review decision to purchase the Carrier Variant, this measure is now assessed as 'To be met'.
Historic	3	To be Met (with risks)	Inability to strike some targets at the extreme range capability of aircraft and weapon system.
Historic	4	To be Met (with risks)	Severely limits the operational effectiveness of the platform and result in high waste of weapons
Historic	6	To be Met (with risks)	Limits the use of Joint Combat Aircraft within medium scale operations

D.4 Support Contract

Project Title	
Lynx Wildcat	
Team Responsible	
Lynx Project Team	
Senior Responsible Owner	
Head of Capability (Air and Littoral Manoeuvre) - Battlefield Reconaissance Helicopter Requirement Head of Capability (Above Water Effects) - Surface Combatant Maritime Rotorcraft Requirement	
Project/Increment Name	**Current Status of Projects / Increments**
Lynx Wildcat	Post-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

The Lynx Wildcat capability was developed to meet the requirements for a dedicated small helicopter for use in both the land (Battlefield Reconnaissance Helicopter Requirement) and maritime (Surface Combatant Maritime Rotorcraft Requirement) environments to replace the current Lynx fleet which is reaching its life end. Lynx Wildcat is a single-source, combined helicopter procurement programme with Westland Helicopters Ltd which follows More Effective Contracting principles. Project approval is for 80 aircraft, with funding for 62 held by the Integrated Project Team.

A.2 The Assessment Phase

Initial Gate approval was given in December 2001 for the Battlefield Light Utility Helicopter and in September 2002 for the Surface Combatant Maritime Rotorcraft. Following review under the Future Rotorcraft Programme the Battlefield Light Utility Helicopter requirement matured into the Battlefield Reconnaissance Helicopter requirement.

Battlefield Light Utility Helicopter:
The Assessment Phase benchmarked Westland Helicopter Ltd's Lynx Wildcat proposal against alternative off-the-shelf solutions from other potential suppliers, and required the company to demonstrate the necessary level of performance to successfully deliver the Demonstration & Manufacture phase.

Surface Combatant Maritime Rotorcraft:
A single tender contract was placed with Westland Helicopter Ltd to develop and de-risk their Lynx Wildcat proposal to meet the Surface Combatant Maritime Rotorcraft requirement in conjunction with the approved Battlefield Light Utility Helicopter programme.

Procurement Strategy:
Two procurement strategies were considered. The first was to run a competition and second, to pursue the Westland Helicopter Lynx Wildcat proposal on a single tender basis - with an option to switch from single tender to competition should the Assessment Phase indicate that the Lynx Wildcat solution was unlikely to be cost effective. The second strategy was the selected one.

The result of the Assessment Phase considered the Lynx Wildcat to be the most likely of the options to deliver the required capability by the In-Service Date. This gave the benefit of maintaining industrial capability in the UK. Hence a single tender approach was judged most likely to offer both the best technical solution and best value for money overall.

The Assessment Phase successfully de-risked a number of key requirements, including secure communications, mission systems and engine certification. Furthermore, Westland Helicopter Ltd's Super Lynx 300 export programme demonstrated their capability to insert new T-800 engines, glass cockpit and avionics into the Lynx aircraft.

A.3 Progress

Within the Department the aircraft are to be known as Wildcat Mk1 (Army Helicopter) and Wildcat Mk1 (Helicopter Maritime Attack).

The Demonstration & Manufacture contract was let in June 2006 to deliver 70 aircraft: 40 Battlefield Reconnaissance Helicopters for the Army and 30 Surface Combatant Maritime Rotorcraft for the Navy with costed options for five more platforms of each type. Preliminary, Interim, Air Vehicle and Air Vehicle & Mission Systems Critical Design Reviews were successfully achieved in January 2007, October 2007, April 2008 and August 2009 respectively. The first airframe was delivered to the Westland build line in November 2008 and a successful `First Flight` was achieved in November 2009 in accordance with the schedule contracted in June 2006. All three trials aircraft are now flying within the Flight Test programme and Production aircraft build commenced in July 2010. Significant future milestones are: Support & Training approval in 2nd quarter 2011, Delivery of first production aircraft to the Army in April 2012. The Equipment Examination (2008) concluded that reductions could be realised in procurement costs if the quantities were reduced to 34 Battlefield Reconnaissance Helicopters and 28 Surface Combatant Maritime Rotorcraft, with the impact on delivered capability minimised through introducing design changes to achieve greater versatility between the two aircraft variants. The protracted period of uncertainty surrounding the project ended in December 2008 with the Ministerial announcement confirming that the project would proceed to full scale production. A Planning Round 2010 Option was run to addresses the legislative and safety requirement to fit all combat aircraft including helicopters with fuel system survivability measures.

Through-life training & support solutions are to be developed as part of the project. An Information Note was approved in July 2007 to submit the Support Solution Review Note in September 2009. Approval was also given for the Training Service Initial Gate Business Case in August 2007 based on the 4-stage PFI Treasury Approval process. While investigating alternative ways to deliver the Lynx Wildcat capability during the Equipment Examination, the opportunity to deliver reduced through life costs was identified. A Review Note was submitted to the Investment Approvals Board in December 2008 and approved in January 2009, detailing a new strategy to explore a single source, integrated Support Solution and Training Delivery Service through the aircraft manufacturer, AgustaWestland, and reflects a revised recommendation submission date to the Investment Approvals Board in late 2010. The training capital equipment contract was let in February 2011. Due to challenges in achieving a value for money and affordable solution, the combined training and support service is now expected to proceed to the Investment Approvals Board in the 2nd quarter of 2011/2012 with a contract award to support the Logistic Support Date. Logistic Support and Ready for Training dates remain unchanged and are planned for December 2011 and January 2013, respectively.

Based on the current assumptions within the Rotary Wing Strategy the quantity of Wildcat aircraft to be procured comprises 34 Battlefield Reconnaissance Helicopters with a further 8 Light Assault Helicopter role variants of the Battlefield Reconnaissance Helicopter, together with 28 Surface Combatant Maritime Rotorcraft. The Light Assault Helicopter role requirement will be subject to appropriate requirement approvals. Planning Round 2011 Options introduce funding for the Light Assault Helicopter role equipment as well as descoping the Battlefield Reconnaissance Helicopter requirement by 4 aircraft, resulting in a total fleet of 66 aircraft. A further Planning Round 2011 Option was run to revise the profile of the resources available for the Wildcat project between financial year 2014/2015 and financial year 2015/2016.

A.4 Capability Risks

These projects provide ongoing light helicopter capability in the land, maritime & littoral environments, beyond the Out of Service Dates of the current Lynx Helicopter fleet and introduce an enhanced maritime & littoral attack capability. The reduction in aircraft quantities arising from the Equipment Examination is predicated upon a more versatile design solution allowing both aircraft variants to be utilised across a wider range of roles and environments, but with some minor trade-off against the achieved performance. This will place a greater necessity on the need to manage the two variants within a common in-service framework with commonality within the Defence Lines of Development.

The April 2011 reduction of Battlefield Reconnaissance Helicopters from 34 to 30 will reduce the capacity in which to meet the requirement for aviation Reconnaissance, Surveillance, Target Acquisition and Intelligence gathering in Land/Littoral Manoeuvre operations but remains sufficient to meet the defence requirement.

A.5 Associated Projects

Title of Associated Project	Forecast In Service Date/ Initial Operating Capability	Approval Status
Future Air to Surface Guided Weapons	The approval decision for the procurement of Future Air to Surface Guided Weapons (Heavy & Light) has not been made and hence their ISDs are not yet established.	Pre-Main Gate
Tactical Data Link	The approval decision for the procurement of the Tactical Data Link variant to be fitted to Wildcat has not yet been made and hence its In-Service Date is not yet established.	Pre-Main Gate

A.6 Procurement Strategy

Post-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Lynx Wildcat	Westland Helicopters Ltd, Yeovil	Demonstration to Manufacture	Target Cost Incentive Fee with a maximum price.	Non-Competitive - UK

A.7 Support Strategy

Description
The Wildcat support and training solution is considering an Industry-led combined training and support service that would be delivered under integrated operational support arrangements. The Industry proposal is being compared to a Value for Money Benchmark to determine value for money and is consistant with the Director Helicopters Common Support Framework for integrated operational support. On completion of analysis, a recommendation will be made to the Investment Approvals Board via a Review Note.

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
Lynx Wildcat	Westland Helicopters Ltd, Yeovil	In-Service Training and Support	To be confirmed	Non-Competitive - UK

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Lynx Wildcat	59	57	-2	4%	3%
Total (£m)	**59**	**57**	**-2**	**4%**	**3%**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Lynx Wildcat	1669	1803	1867

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
Lynx Wildcat	1803	1644	-159	+39
Total (£m)	**1803**	**1644**	**-159**	**+39**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.1.1 Lynx Wildcat

Date	Variation (£m)	Category	Reason for Variation
April 2011	+12	Budgetary Factors	Approved Overspend for Financial Year 2011/2012 to reflect delayed spend in respect of Training Capital Equipment Building
April 2011	-12	Budgetary Factors	Financial Year 2010/2011 In-year saving to reflect the delay to contract let for the construction of Training Capital Equipment Building
April 2011	-26	Budgetary Factors	Planning Round 11 Transfer to balance approved overspend in Financial Year 2010/2011
April 2011	+26	Budgetary Factors	Approved Overspend for Financial Year 2010/2011 to reflect corrected Training Capital Accruals position
April 2011	-10	Budgetary Factors	Planning Round Transfer to amend Option E11AL041S
April 2011	+10	Budgetary Factors	Planning Round 11 Option E11AL041S - Revised Resource profile

April 2011	-33	Budgetary Factors	Planning Round 11 Option (E11AL003S) to reduce Lynx Wildcat aircraft from 70 to 66
April 2011	+70	Changed Capability Requirements	Rotary Wing Strategy Funding to increase the number of aircraft to be procured from 62 to 70
January 2011	+2	Accounting Adjustments and Re-definitions	Change in rate of VAT from 17.5% to 20% - impact on Financial Year 2010/2011 outturn
Historic	-2	Budgetary Factors	Removal of Cost of Capital due to Clear Line of Sight policy implemented by HM Treasury.
Historic	+8	Changed Capability Requirements	Planning Round 2010 Option – Rotary Wing – Fuel System Survivability Measures.
Historic	-2	Accounting Adjustments and Re-definitions	The level of risk which has materialised has not been as great as anticipated within the Main Gate Business Case.
Historic	-8	Budgetary Factors	Lynx Wildcat programme cost reduction related to funding re-profiling within Helicopter Cluster.
Historic	-194	Budgetary Factors	Planning Round 2009 Option – Lynx Wildcat descope and reduce numbers from 80 to 62.
Net Variation (£m)	**-159**		

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

Project/ Increment Title	Category	Explanation
Lynx Wildcat	Budgetary Factors	The April 2011 reduction of Battlefield Reconnaissance Helicopters from 34 to 30 will reduce the capacity in which to meet the requirement for aviation Reconnaissance, Surveillance, Target Acquisition and Intelligence gathering in Land/Littoral Manoeuvre operations but remains sufficient to meet the defence requirement.
Lynx Wildcat	Budgetary Factors	The reduction in aircraft quantities arising from the 2008 Equipment Examination is predicated upon a more versatile design solution allowing both aircraft variants to be utilised across the range of Battlefield Reconnaissance Helicopter and Surface Combatant Maritime Rotorcraft roles and environments, but with some minor trade-off against the achieved performance. This will place a greater necessity on the need to manage the two variants within a common in-service framework with commonality within the Defence Lines of Development.

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	57	0	57
Demonstration & Manufacture Phase	432	304	736
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**489**	**304**	**793**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Lynx Wildcat – Battlefield Reconnaissance Helicopter	December 2001	June 2006	54
Lynx Wildcat – Surface Combatant Maritime Rotorcraft	September 2002	June 2006	45

C.2 Planned / Actual Boundaries for In-Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Lynx Wildcat – Battlefield Reconnaissance Helicopter	May 2013	January 2014	August 2014
Lynx Wildcat – Surface Combatant Maritime Rotorcraft	May 2014	January 2015	August 2015

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
Lynx Wildcat – Battlefield Reconnaissance Helicopter	In-Service Date is defined as 4 force elements at readiness to deploy on a small scale focussed intervention operation.
Lynx Wildcat – Surface Combatant Maritime Rotorcraft	In-Service Date is defined as one deployable aircraft with logistic support, trained aircrew and ground crew in place.

C.3.2 Progress against approved Dates

Project/Increment Title	Budgeted For Date	Actual / Forecast Date	Variation (+/- months)	In-Year Variation (+/- months)
Lynx Wildcat – Battlefield Reconnaissance Helicopter	January 2014	January 2014	0	0
Lynx Wildcat – Surface Combatant Maritime Rotorcraft	January 2015	January 2015	0	0

C.3.3 Timescale variation

C.3.3.1 Battlefield Reconnaissance Helicopter

Date	Variation (+/- months)	Category	Reason for Variation
Historic	+3	Procurement Processes	Since Main Gate, Project advised that the new Treasury 4 Gate Approval process for candidate PFI projects needed to be adopted. This process had the potential to add one year to the procurement timescale for the Synthetic Training Service. Sufficiently trained aircrew are required before In-Service Date can be declared and it was considered prudent to declare an In-Service Date slip of 3 months while mitigation work matured.
Historic	-3	Procurement Processes	Flight Simulation and Synthetic Trainers Integrated Project Team Lynx Wildcat Training Services Initial Gate Business Case was approved by the Investment Approvals Board in August 2007. The required mitigation activity has been completed and has brought the Training Service In-Service Date in line with the In-Service Date and the three months recovered.
Net Variation (+/- months)	**0**		

C.3.3.2 Surface Combatant Maritime Rotorcraft

Date	Variation (+/- months)	Category	Reason for Variation
Historic	+3	Procurement Processes	Since Main Gate, Project advised that the new Treasury 4 Gate Approval process for candidate PFI projects needed to be adopted. This process had the potential to add one year to the procurement timescale for the Synthetic Training Service. Sufficiently trained aircrew are required before In-Service Date can be declared and it was considered prudent to declare an In-Service Date slip of 3 months while mitigation work matured.
Historic	-3	Procurement Processes	Flight Simulation and Synthetic Trainers Integrated Project Team Future Lynx Training Services Initial Gate Business Case was approved by the Investment Approvals Board in August 2007. The required mitigation activity has been completed and has brought the Training Service In-Service Date in line with the In-Service Date and the three months recovered.

Net Variation (+/- months)	**0**

C.3.4 Other costs / savings resulting from Timescale variation

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

C.4. Full Operating Capability

C.4.1 Definition

Project/Increment Title	Full Operating Capability	Progress to date
Lynx Wildcat – Battlefield Reconnaissance Helicopter	Sufficient aircraft and trained crews to generate the required number of sustainable Force Elements at Readiness; the Battlefield Reconnaissance Helicopter is compliant with the endorsed threshold User Requirement Document and the legacy Lynx Marks 7 and 9 are no longer required to contribute any element of support to the delivery of Land or Littoral Manoeuvre Capability.	Full Operating Capability was undefined at Main Gate. Subsequently work has generated the current working definition. Work continues to define the scope of the Bowman Data interface requirement which is to be delivered at Full Operating Capability.
Lynx Wildcat – Surface Combatant Maritime Rotorcraft	Sufficient, sustainable trained crews and aircraft to generate the required number of Force Elements at Readiness; the Surface Combatant Maritime Rotorcraft is compliant with the endorsed threshold User Requirement Document and the legacy platform is no longer required to contribute any element of Maritime Capability.	Full Operating Capability was undefined at Main Gate. Subsequently work has generated the endorsed definition.

C.5. Support / Service / PFI Contract

D Section D: Performance

D.1. Maturity Measures

Sentinel Score Battlefield Reconnaissance Helicopter	78% GREEN

D.2.1 Performance against Defence Lines of Development

Line of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1. Equipment	The provision of the Wildcat helicopter platform, including systems and weapons, expendable and non-expendable, needed to outfit/equip respective Army and Royal Navy services to the required Performance specification.	Yes	
2. Training	The Wildcat Training Solution will deliver appropriately qualified personnel, to allow Front Line Commands to generate the Force Elements at Readiness required for contingent tasks in accordance with their respective Army and Royal Navy Plans.	Yes (with risks)	
3. Logistics	The Logistics DLoD covers the provision of the logistic support solution required to sustain the Wildcat Mk 1 fleet capability until the Out of Service Date, to levels specified in the Joint Business Agreement with both Joint Helicopter Command and Navy Command.	Yes (with risks)	
4. Infrastructure	The Infrastructure DLoD embraces the investment required in the UK MoD estate to deliver the infrastructure necessary to support Wildcat capability, associated equipments and personnel. An Embarked Infrastructure sub-DLoD to cover embarked Wildcat operations is also considered.	Yes (with risks)	
5. Personnel	The timely provision of sufficient, capable, trained, equipped and motivated personnel to deliver Defence outputs, both now and in the future for Wildcat operations.	Yes (with risks)	

6. Doctrine	The Concepts and Doctrine DLoD for both Army and Royal Navy variants of the Wildcat Mk1 aircraft to Full Operational Capability is bounded by: the need to provide a timely, coherent and dynamic Concept of Use (CONUSE) for each variant; and devise and deliver relevant and updated tactical doctrine, including Tactics, Techniques and Procedures, for Wildcat training and, ultimately, operational flying.	Yes	
7. Organisation	Establish an operational and non-operational organisational relationships of people for the Wildcat force. It typically includes military force structures, MoD civilian organisational structures and Defence contractors providing support.	Yes	
8. Information	The Information DLOD is concerned with the contribution that data, information and knowledge make to Wildcat operational capability.	Yes	
Current forecast (with risks)		8 (4)	0
Last year's forecast (with risks)		8 (3)	0

D.2.2 Defence Line of Development Variation

Date	Defence Line of Development	Category	Reason for Variation
March 2011	Personnel	Budgetary Factors	Post the Strategic Defence and Security Review, funding and manning constraints place risk on the ability of the Front Line Commands to support Wildcat, particularly for the Battlefield Reconnaissance Helicopter.
Historic	Training	Procurement Processes	Training proposal lacks pricing information & uncertainty from contractor as to when this will be available. Risk in meeting approvals timescales due to Election/summer recess. **MPR2011:** Training Capital Equipment contract placed 4 February 2011. Affordability challenges with Training Delivery proposal caused delay to contract award. A phased approach to introduction of Training is being followed.

Historic	Logistics	Procurement Processes	Support proposal lacks pricing information & uncertainty from contractor as to when this will be available. Risk in meeting approvals timescales due to Election/summer recess. **MPR2011:** Industry support solution proposal received early 2011. Affordability discussions ongoing. Logistic Support Date will be achieved through a phased introduction of Support.
Historic	Infrastructure	Budgetary Factors	Wildcat Infrastructure team now formed and managing implementation. Funding issues remain. Approvals timelines co-incident with Election and may lead to planning blight.
Historic	Personnel	Changed Capability Requirements	Force Structure guidance now provided and levels of manning identified.
Historic	Infrastructure	Budgetary Factors	Full infrastructure requirement not yet clear: Awaiting Detailed proposal for training and logistics (support solution). Awaiting clarity on funding availability. **MPR2011:** Funding profile issues remain, complicated by uncertainty while awaiting outcome of Strategic Defence and Security Review, Planning Round 11 and Rotary Wing Strategy implementation.
Historic	Personnel	Changed Capability Requirements	Manning process agreed. Awaiting personnel Requirement from Organisation and Training Line of Development.

D.3. Performance against Key Performance Measures

D.3.1 Battlefield Reconnaissance Helicopters

D.3.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
01		The user requires a manned rotorcraft capable of independent and co-operative, intelligent action, which provides commanders with a sustainable, timely, responsive and accurate, enduring Intelligence, Surveillance, Target Acquisition and Reconnaissance capability at long range across the full spectrum of conflict.	Yes	
02		The user requires the capability to acquire, designate targets and direct the full spectrum of joint fires via network enabled communications.	Yes (with risks)	
03		The user shall be provided with a capability that is available for the required sustained level of operational effect.	Yes	
04		The user shall be able to deliver operational capability with a high likelihood of survival.	Yes	

05		The user shall be provided with a capability that can interoperate with relevant military and civil authorities.	Yes	
06		The user shall have a capability that can operate within defined natural and man-made environmental conditions.	Yes	
07		The user shall be provided with a capability that can operate from both land and sea bases to target areas on land or sea.	Yes	
08		The user shall be provided with a capability that can be deployed worldwide.	Yes (with risks)	
Current forecast (with risks)			8 (2)	0
Last year's forecast (with risks)			8 (1)	0

D.3.1.2 Key Performance Measures Variation

Date	Key Performance Measure	Category	Reason for Variation
March 2011	02	Change in Associated Project	One of the elements (Targeting) of this Key Performance Measure is considered to be at risk as the release of Bowman software (Bowman Combat and Infrastructure Platform 6.0.) that would have enabled integration of Bowman data onto Wildcat is not funded. Alternatives have been identified & are being scoped. This functionality is not required until Full Operating Capability.
Historic	08	Budgetary Factors	One of the five elements of this Key Performance Measure (self-deploy) was traded-out by the 2008 Equipment Examination.

D.3.1.3 Operational Impact of variation

Date	Key Performance Measure	Forecast	Operational impact of variation
March 2011	02	To be met (with risks)	The ability to achieve some missions is degraded without Bowman data, but alternative solutions will minimise this impact.
Historic	08	To be met (with risks)	There is a minimal operational impact from this Key Performance Measure trade, in that only a small number of the mission scenarios are affected. Should funding be identified at a later date, this capability could be re-introduced to the design solution.

D.3.2 Surface Combatant Maritime Rotorcraft

D.3.2.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
01		The user requires a manned rotorcraft capable of independent and co-operative, intelligent action, which provides commanders with a sustainable, timely, responsive and accurate, enduring Intelligence, Surveillance, Target Acquisition and Reconnaissance capability at long range across the full spectrum of conflict.	Yes (with risks)	
02		The user requires the capability to acquire, designate targets and direct the full spectrum of joint fires via network enabled communications.	Yes	

03		The user shall be able to autonomously and co-operatively attack using appropriate rapid and flexible fires with the joint battlespace.	Yes (with risks)	
04		The user requires a vertical lift capability to deploy and support joint forces, as operationally effective units, from land or sea bases.	Yes	
05		The user shall be provided with a capability that is available for the required sustained level of operational effect.	Yes	
06		The user shall be able to deliver operational capability with a high likelihood of survival.	Yes	
07		The user shall be provided with a capability that can interoperate with relevant military and civilian authorities.	Yes (with risks)	
08		The user shall have a capability that can operate within defined natural and man-made environmental conditions.	Yes	
09		The user shall be provided with a capability that can operate from both land and sea bases to target areas on land or sea.	Yes	

10		The user shall be provided with a capability that can be deployed worldwide.	Yes (with risks)	
Current forecast (with risks)			10 (4)	0
Last year's forecast (with risks)			10 (2)	0

D.3.2.2 Key Performance Measures Variation

Date	Key Performance Measure	Category	Reason for Variation
March 2011	03	Change in Associated Project	One of the elements of this Key Performance Measure is considered to be at risk, due to rescheduling of Team Complex Weapons approval milestones & a delay in achieving Future Air-to-Surface Guided Weapons (Heavy) co-operative funding from France resulting in the aircraft & weapons programmes potentially being misaligned. Work is currently underway to examine the extent of the issue & establish mitigation.
March 2011	07	Change in Associated Project	One of the elements (transfer of secure data line-of-sight information to a third party) of this Key Performance Measure is considered to be at risk due to lack of Tactical Data Link funding. The Option to fund the Link22 for Wildcat was not taken forward in Planning Round 2011.
Historic	01	Budgetary Factors	The 2008 Equipment Examination put `at risk` the surveillance/reach element of this Key Performance Measure.
Historic	10	Budgetary Factors	One of the five elements of this Key Performance Measure (self-deploy) has been traded-out by the Equipment Examination.
Historic	01	Technical Factors	One of the ten elements of this Key Performance Measure is considered to be at risk. The contracted position, with respect to the installed radar detection performance, does not meet the Key Performance Measure. Work is ongoing between the Integrated Project Team and Agusta Westland to evaluate the extent of the shortfall.

D.3.2.3 Operational Impact of variation

Date	Key Performance Measure	Forecast	Operational impact of variation
March 2011	03	To be met (with risks)	Failure to provide a Future Air-to-Surface Guided Weapons capability synchronous with Initial Operating Capability will mean significant elements of Attack capability will not be available in several mission scenarios. These core attack missions are dependent upon the ability to deliver a proportional & autonomous attack capability for which Future Air-to-Surface Guided Weapons (Light) & (Heavy) variants are fundamental.
March 2011	07	To be met (with risks)	Failure to provide a Tactical Data Link capability at Initial Operating Capability, and thus a significant reduction in the ability to exchange secure data with third parties, will place elements of Targeting & Interoperability Key Performance Measures at risk.
Historic	01	To be met (with risks)	There is a minimal operational impact from this Key Performance Measure trade, in that only a small number of the mission scenarios are affected. Should funding be identified at a later date, this capability could be re-introduced to the design solution.
Historic	10	To be met (with risks)	There is a minimal operational impact from this Key Performance Measure trade, in that only a small number of the mission scenarios are affected. Should funding be identified at a later date, this capability could be re-introduced to the design solution.
Historic	01	To be met (with risks)	There is a minimal operational impact from this variation, in that only a small number of the mission scenarios are affected. The shortfall is balanced by Improvements in other aspects of performance.

D.4 Support Contract

Project Title	
Merlin Capability Sustainment Programme	
Team Responsible	
Merlin Project Team	
Senior Responsible Owner	
Capability Deterrent and Under Water	

Project/Increment Name	Current Status of Projects / Increments
Merlin Capability Sustainment Programme	Post-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

The Merlin Capability Sustainment Programme will update 30 Merlin Mk1 aircraft to overcome existing and forecast obsolescence within the Weapon System Avionics to ensure sustainment of the required capability until the planned Out of Service Date (2029). The converted aircraft will be known as the Merlin Mk2.

A.2 The Assessment Phase

Following approval of the Merlin Capability Sustainment Programme Initial Gate Business Case, the Assessment Phase contract was placed in June 2003. The main Assessment Phase activities comprised:

- Analysis of the User Requirements and development of a consolidated set of system requirements in the form of a Systems Requirement Document.
- Production of System and Sub-System design requirements, and seeking initial costed proposals from potential suppliers.
- Conducting trade-off studies to identify the best value solution where options exist.
- Developing a coherent plan for Merlin Capability Sustainment Programme, aligned to other existing and planned Merlin programmes.
- Undertaking Integrated Test, Evaluation and Acceptance planning.
- Identification of the risks to the Merlin Capability Sustainment Programme, and the identification and implementation of mitigation action to reduce the impact to an acceptable level.
- Produce documentation and costed proposals for the Demonstration and Manufacture Phase.
- Undertaking initial Integrated Logistic Support activities to define a solution compliant with the evolving Support Solution Envelope.

Future Rotorcraft Capability Review

During the Assessment Phase, MOD embarked on a review of all future rotorcraft requirements under the title of the Future Rotorcraft Capability review. The Demonstration & Manufacture Proposal that had been provided by Industry and the associated business case were produced before the impact of the Future Rotorcraft Capability review was known. The Merlin Capability Sustainment Programme was reviewed as part of the wider Future Rotorcraft Capability programme. The Future Rotorcraft Capability programme determined that the balance of financial investment over the first four years of the Equipment Programme between Merlin Capability Sustainment Programme and Lynx Wildcat should be on a 50/50, 30/70, 30/70, 30/70 basis respectively.

To allow Industry to continue critical path activity and to support the reprogramming activities resulting from Future Rotorcraft Capability, the Future Rotorcraft Capability programme provided Transition Phase funding (six months) to the Merlin Integrated Project Team for an extension to the Assessment Phase contract.

A further transition phase (six months) was required to again sustain programme momentum, align it with wider Future Rotorcraft Capability requirements and maintain programme viability during the approvals process.

A.3 Progress

Successful achievement of first flight ahead of schedule in November 2010. The first two production aircraft are in the factory at Yeovil (aircraft 5 & 6) and conversion is underway. Initial Provisioning (IP) spares have now been contracted. Programme remains on schedule.

A.4 Capability Risks

The Merlin Mk1 is responsible for delivering protection to the Royal Navy's fleet from sub-surface threats. It also provides a significant contribution to their overall situational awareness both above and below the water. The programme is designed to sustain the capability out to the current Out of Service Date. Without this programme the ability to detect sub-surface threats would be reduced; or if the obsolescence issues were addressed through an alternate strategy (piecemeal approach) lead to a large increase in Through-Life costs.

A.5 Associated Projects

A.6 Procurement Strategy

Post-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Merlin Capability Sustainment Programme	Lockheed Martin Aero Systems Integration Corporation (Significant (60% by value) sub-contract with AgustaWestland, Yeovil)	Demonstration and Manufacture	Firm Price until 2010, then fixed price subject to Variation of Price	Non-Competitive prime but ~60% at sub contract level (across both Prime and AgustaWestland contracts)

A.7 Support Strategy

Description
The support strategy of the Merlin Mk2 will be the same as that employed for the current UK Merlin (Mk1 & Mk3), namely Integrated Merlin Operational Support contract. Integrated Merlin Operational Support is a whole life aircraft availability contract that is priced by flying hours within a defined band with incentives to generate fit-for-purpose aircraft to the Front Line. There are five key elements of the Integrated Merlin Operational Support Service: Service Management Aircraft Provision Materiel Support Technical Support Training It is a 25 year contract (commenced in 2006) and priced in five year tranches. The five years to March 2011 has an approval of £***M (including Indirect RDEL). The second five year pricing period commencing April 2011 has an approval of £***M (including Indirect RDEL). The contract supports the current fleet of 38 Merlin MK1 (reducing to 30 MK2 by the end of this pricing period), 22 Merlin MK3 and 6 Merlin MK3a. It also supports the Merlin MK1 Training System. The Merlin Capability Sustainment Programme will deliver the necessary changes and updates to ensure that Integrated Merlin Operational Support can continue to support Merlin MK2. This includes new Initial Provisioning Spares, new Aircraft Specialist Support Equipment and associated updates to technical publications. At Main Gate for Merlin Capability Sustainment Programme it was identified that during the transition from MK1 to MK2 there would be a potential £45M cost for provision of spares. This was afforded through savings arising during the transition due to reductions in MK1 activity and procured through the support solution. However, savings were subsequently taken and the affordability of the spares procurement was in doubt: some £12M remained in the budget for aircraft and training sytems spares. In parallel savings were identified in the Merlin Capability Sustainment Programme programme of some £29M (due to the termination of the Helicopter Electro-mechanical Actuation Technology element of the programme and reallocation of funding for Aircraft Specialist Support Equipment). This allowed the required spares provision of a total of £41M, some £4M below the original estimate. Additionally following a risk review and based on lessons learned from other programmes, it was determined that procurement of the spares through the Merlin Capability Sustainment Programme contract was lower risk since it ensured that the spares and aircraft build standards were aligned.

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
Integrated Merlin Operational Support	AgustaWestland (Yeovil) primed, with a Lockheed Martin sub contract	Support	Firm Price	Single Source

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Merlin Capability Sustainment Programme	19	17	-2	3%	2%
Transition Phase for Future Rotorcraft Capability	10	10	0	1%	1%
Total (£m)	**29**	**27**	**-2**	**4%**	**3%**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Merlin Capability Sustainment Programme	798	805	812

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
Merlin Capability Sustainment Programme	805	768	-37	-33
Total (£m)	**805**	**768**	**-37**	**-33**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.1.1 Merlin Capability Sustainment Programme

Date	Variation (£m)	Category	Reason for Variation
March 2011	-29	Procurement Processes	Saving made through the reallocation of funds previously attributed to Helicopter Electro-mechanical Actuation Technology (-£27m) and Aircraft Specialist Support Equipment (-£2m) now used to fund the Initial Procurement Spares

March 2011	-4	Technical Factors	Reduction in outturn costs arising from reduced impact of inflation as a result of earlier than planned completion of work.
Historic	-1	Technical Factors	Reduction in outturn costs arising from reduced impact of inflation as a result of earlier than planned completion of work.
Historic	-3	Technical Factors	Reduction in outturn costs arising from reduced impact of inflation as a result of earlier than planned completion of work.
Net Variation (£m)	**-37**		

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	27	0	27
Demonstration & Manufacture Phase	294	120	414
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**321**	**120**	**441**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Merlin Capability Sustainment Programme	May 2003	March 2006	34

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Merlin Capability Sustainment Programme	August 2013	February 2014	September 2014

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
Merlin Capability Sustainment Programme	The Operational Capability of the delivered aircraft shall be such that Commander-in-Chief Fleet (advised by Combined Test Team) are able to declare that Merlin Capability Sustainment Programme is ready for operational deployment in the specified roles. A cumulative total of at least six Merlin Capability Sustainment Programme aircraft delivered to Royal Naval Air Station Culdrose. Logistic support available to enable the operation and maintenance of all the delivered aircraft. Sufficient trained personnel to achieve required capability.

C.3.2 Progress against approved Dates

Project/Increment Title	Budgeted For Date	Actual / Forecast Date	Variation (+/- months)	In-Year Variation (+/- months)
Merlin Capability Sustainment Programme	February 2014	February 2014	0	0

C.3.3 Timescale variation

C.3.4 Other costs / savings resulting from Timescale variation

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

C.4. Full Operating Capability

C.4.1 Definition

Project/Increment Title	Full Operating Capability	Progress to date
Merlin Capability Sustainment Programme	Delivery of 30th aircraft	On track

C.5. Support / Service / PFI Contract

D Section D: Performance

D.1. Maturity Measures

Sentinel Score	95% Green

D.2.1 Performance against Defence Lines of Development

Line of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1. Equipment	Delivery of required equipment (aircraft and ground equipment)	Yes	
2. Training	Delivery of trained people, including training systems	Yes	
3. Logistics	Delivery of necessary support products to enable Logistics Support Date to be met	Yes	
4. Infrastructure	Delivery of necessary changes to extant infrastructure to support the required capability	Yes	
5. Personnel	Delivery of sufficient people (aircrew and maintainers) to support capability	Yes	
6. Doctrine	Update Mk1 Concepts & Doctrine to reflect capability delivered through Mk2	Yes	
7. Organisation	Review/update organisation to reflect changes caused by introduction of Mk2	Yes	
8. Information	Manage information and interface to data providers/users, including interface to Defence Information Infrastructure.	Yes	
Current forecast (with risks)		8 (0)	0
Last year's forecast (with risks)		8 (0)	0

D.2.2 Defence Line of Development Variation

Date	Defence Line of Development	Category	Reason for Variation
Historic	Training & Personnel	Budgetary Factors	A number of mitigation measures have been implemented that have reduced the risk. This includes a phased closure approach and additional factory training to ensure sufficient trained people are available to support the required force elements at readiness.

Historic	Training & Personnel	Budgetary Factors	Affordability decision taken prior to contract award meant that the ability to train Mk1 personnel concurrently with conversion of the training facilities to the Mk2 standard was not possible. This gives rise to the risk that trained personnel will not be available to sustain Mk1 capability to its out of service and develop those required for Mk2. A number of mitigation activities are underway to minimise the impact of this risk.

D.3. Performance against Key Performance Measures

D.3.1 Merlin Capability Sustainment Programme

D.3.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
01	Equipment and Personnel	Attack. The user shall be able to neutralise confirmed Anti-submarine Warfare Threats.	Yes	
02	Equipment and Training	Deployable Search and Rescue (Maritime Only). The user shall be able to conduct naval Search and Rescue.	Yes	
03	Equipment and Logistics	Environment. The user shall be able to operate in environments world-wide.	Yes	
04	Equipment and Personnel	Find. The user shall be able to acquire situational awareness of the Under Water Effect and Above Water Effect.	Yes	
05	Equipment and Information	Interoperability. The user shall be able to exchange tactical information between authorities and units.	Yes	

06	Equipment and Personnel	Lift. The user shall be able to move personnel and material over land and sea.	Yes	
07	Training and Logistics	Logistical. The user shall be able to easily logistically support the Merlin Capability Sustainment Programme.	Yes	
08	Equipment and Personnel	Operational Availability. The user shall be able to have Available Force Elements at a time and place as required to complete the mission.	Yes	
09	Equipment and Infrastructure	Operational Locations. The solution shall be able to operate to and from host platforms when required.	Yes	
10	Equipment and Training	Survivability. The user shall have force elements capable of surviving in hostile and warfighting environments.	Yes	
Current forecast (with risks)			10 (0)	0
Last year's forecast (with risks)			10 (0)	0

D.3.1.2 Key Performance Measures Variation

D.3.1.3 Operational Impact of variation

Project Title	
Puma Life Extension Programme	
Team Responsible	
Puma HC2 Team	
Senior Responsible Owner	
ALM	

Project/Increment Name	Current Status of Projects / Increments
Puma Life Extension Programme	Post-Main Investment Decision

PUMA LIFE EXTENSION PROGRAMME

A. Section A: The Project

A.1 The Requirement

Puma currently provides one third of the Department's medium support helicopter fleet. The Out of Service Date for the Puma HC MK1 Helicopter fleet is December 2012, driven by the obsolescence of components, safety issues and changed legislative requirements. The life extension programme will address these issues by the installation of a glass cockpit, modern avionics, including a digital automatic flight control system and new engines addressing obsolescence and safety issues and delivering a step-change in performance, particularly in hot and high environments (such as those seen in Afghanistan) and high and dusty conditions. It is also the only helicopter in our current fleets which allows Special Forces insertion/extraction in urban environments such as operations in Baghdad and potential support to the 2012 Olympics. The life extended platform will be known as the Puma HC MK2 and sustain this capability up to 2025.

A.2 The Assessment Phase

The Assessment Phase ran from February 2007 to June 2009 with a total investment of £16.169M VAT Inclusive. This included a period from October 2008 to June 2009, known as Assessment Phase Plus with an approved cost of £9.969M VAT Inclusive, which focussed on risk reduction activity ahead of Main Gate to maintain alignment of the Puma HC MK2 programme with the Puma HC Mk1 Out of Service Date.

A Main Gate approval case for the Puma HC Mk 2 Support Solution will be submitted separately.

A.3 Progress

The programme remains on track and within budget. The delivery of the first Aircraft into the Programme to become the Trial Installation Aircraft took place on 1st October 2009. The Ground Testing 'Power On' of the Trial Installation Aircraft started on 24th September 2010. The first production aircraft , fourth into the programme, was delivered to Brasov, Romania, on the 14th January 2011.

Future Milestones:

The flight clearance of the Trial Installation Aircraft will be completed by 29th April 2011 to allow the first flight of the Puma HC Mk2 to take place. This will be followed by the issue of Letter of Qualification for the Puma HC Mk2 by th 30th November 2011 and delivery of the Trial Installation Aircraft to Boscombe Down is contracted for January 2012.

As part of the Department's 2011 Planning Round an Option was taken to reduce the number of aircraft within the Programme from 28 to 24.

A.4 Capability Risks

All elements of the UK Helicopter lift are planned to undergo significant modifications during the next decade to sustain their capability contribution. The first step is the update of the Puma capability. The Puma HC MK2 will then sustain operations and provide contingent capability to relieve where necessary: Sea King Mk4 and Merlin MK3/3a. The Puma HC MK2 provides constancy from 2012 and any slippage in its introduction will generate operational pressure during subsequent upgrades and transitions.

A.5 Associated Projects

Title of Associated Project	Forecast In Service Date/ Initial Operating Capability	Approval Status
Helmet Mounted Display	In service date October 2013	Demonstration and Manufacture
Embedded GPS Inertial system	In service date October 2013	Demonstration and Manufacture
Fuel System Survivability including Dry Bay Inerting & Ballistic Protection	Initial Operating Capability(-) December 2012 Initial Operating Capability November 2013	Assessment Phase

Helicopter Asset Tracking System	Initial Operating Capability November 2013	Assessment Phase
Cockpit Ballistic Protection	Initial Operating Capability November 2013	Assessment Phase
Cabin Ballistic Protection	Initial Operating Capability November 2013	Assessment Phase
Personal Weapon Stowage	Initial Operating Capability November 2013	Assessment Phase

A.6 Procurement Strategy

Post-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Puma Life Extension Programme	Eurocopter	Demonstration and Manufacture	Firm Price	Single Source
	Turbomeca	Production	Firm Price	Single Source

A.7 Support Strategy

Description
The Puma HC Mk2 Helicopter Future Support Arrangements: Intial Gate Business Case approved the support solution Assessment Phase, at a value of £4.8M, to evaluate and down select the support Options for the aircraft. The assessment phase contract has been placed, single source, with Eurocopter (UK). The Support Strategy options for Puma HC MK2 are: Traditional existing approach inclusive of an existing Eurocopter Through Life Support activity for specific equipments; Enhanced Through Life Support approach with scope of equipments being increased, and additional contractor support elements; and an Integrated Operational Support solution. The Main Gate Businiess Case submission is currently planned for quarter 1 in 2012 leading to a estimated contract placement of quarter 3 in 2012. Review notes are also required for Initial Provisioning of Long Lead Items and Interim Support arrangements.

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
-	-	-	-	-

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Puma Life Extension Programme	6	16	10	2%	5%
Total (£m)	**6**	**16**	**10**	**2%**	**5%**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Puma Life Extension Programme	322	339	359

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
Puma Life Extension Programme	339	326	-13	-13
Total (£m)	**339**	**326**	**-13**	**-13**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.1.1 Puma Life Extension Programme

Date	Variation (£m)	Category	Reason for Variation
April 2011	-14	Changed Capability Requirements	Planning Round 11 Option taken reducing the number of aircraft from 28 to 24
March 2011	+1	Exchange Rate	Exchange rate variation (€ to £) in 2009/2010 (+£0.5M), 2010/2011(-£1.3M) and from 2011/2012 (+£2.2M) compared to forecast used in approval.
Net Variation (£m)	**-13**		

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	16	0	16
Demonstration & Manufacture Phase	44	71	115
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**60**	**71**	**131**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Puma Life Extension Programme	February 2007	August 2009	30

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Puma Life Extension Programme	July 2013	November 2013	September 2014

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
Puma Life Extension Programme	6 Theatre entry standard Aircraft (4 effect lines) available to deploy and supported across all Defence Lines of Development for deployment on worldwide operations

C.3.2 Progress against approved Dates

Project/Increment Title	Budgeted For Date	Actual / Forecast Date	Variation (+/- months)	In-Year Variation (+/- months)
Puma Life Extension Programme	November 2013	November 2013	0	0

C.3.3 Timescale variation

C.3.4 Other costs / savings resulting from Timescale variation

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

C.4. Full Operating Capability

C.4.1 Definition

Project/Increment Title	Full Operating Capability	Progress to date
Puma Life Extension Programme	A sustainable Forward Fleet of 22 aircraft delivered to maintain operations and Force Elements at Readiness. All crews and engineers trained and converted to type by October 2014	On target all milestones met to date.

C.5. Support / Service / PFI Contract

C.5.1 Scope of Support / Service / PFI Contract

Project/Increment Title	Scope
Puma Life Extension Programme	Support not part of the Equipment Main Gate approval. A separate Project has recently passed Initial Gate into the Assessment Phase. See Support Strategy (A.7)

C.5.2 Progress against approved Support / Service / PFI Contract Go-Live Date

C.5.3 Progress against approved Support / Service / PFI Contract Date

C.5.4 Other costs / savings resulting from Support Cost variation

C.5.5 Operational Impact of Support / Service / PFI Support Contract variation

D Section D: Performance

D.1. Maturity Measures

Sentinel Score	88 GREEN

D.2.1 Performance against Defence Lines of Development

Line of Development		Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1.	Equipment	The delivery of 24 Puma Mk2 aircraft by October 2014	Yes	
2.	Training	The provision of an upgraded Puma Mk2 simulator delivering a Ready for Training (RFT) date of April 2012	Yes	
3.	Logistics	The sustainment of Puma Mk2 beyond In-Service Date (June 2012), profiled to deliver Early Fielding, Initial Operating Capability and Full Operating Capability out to Out of Service Date (March 2025).	Yes	
4.	Infrastructure	The provision of infra-structure that sustains a 24 Puma Mk2 Departmental Fleet, 22 crews and associated engineering capability profiled for Early Fielding, Initial Operating Capability and Full Operating Capability	Yes	
5.	Personnel	The provision and training of 22 crews and associated engineers to enable the delivery of Early Fielding, Initial Operating Capability and Full Operating Capability	Yes	
6.	Doctrine	The provision of a Concept of Use (CONUSE) documenting Defence's Requirement for Puma Mk2	Yes	
7.	Organisation	The provision of an organisational structure that delivers 22 crews and associated engineering capability profiled for Early Fielding, Initial Operating Capability and Full Operating Capability	Yes	
8.	Information	Manage information and interface to data providers/users, including interface to Defence Information Infrastructure	Yes	
Current forecast (with risks)			8 (0)	0
Last year's forecast (with risks)			-	-

D.2.2 Defence Line of Development Variation

D.3. Performance against Key Performance Measures

D.3.1 Puma Life Extension Programme

D.3.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
Lift	Equipment	The user requires the ability to conduct vertical lift operations to deploy and support joint forces, as operationally effective units, from land bases.	Yes	
Operational availability	Logistics	The user shall be provided with a capability that is available for the required sustained level of operational effect throughout its expected life.	Yes	
Survivability	Doctrine	The user will be able to deliver the required operational capability within a man-made hostile environment.	Yes	
Interoperability	Logistics	The user will be provided with a capability that can interoperate with relevant military and civil authorities.	Yes	
Environmental	Training	The user requires the capability to conduct operations in the core regions in defined weather conditions, by day and night (where necessary including in chemical, biological, radiological, and nuclear environments).	Yes	

Operational flexibility	Doctrine	To meet the tasks contained within the Defence Strategic Guidance.	Yes	
Deployability	Training	The user shall be provided with a capability that can be deployed to those areas of the world that UK forces can be expected to operate.	Yes	
Current forecast (with risks)			7 (0)	0
Last year's forecast (with risks)			-	-

D.3.1.2 Key Performance Measures Variation

D.3.1.3 Operational Impact of variation

D.4 Support Contract

Project Title	
Queen Elizabeth Class Aircraft Carriers	
Team Responsible	
Capital Ships	
Senior Responsible Owner	
Capability Manager Precision Attack	
Project/Increment Name	**Current Status of Projects / Increments**
Queen Elizabeth Class	Post-Main Investment Decision

QUEEN ELIZABETH CLASS AIRCRAFT CARRIERS

A. Section A: The Project

A.1 The Requirement

The requirement for the Queen Elizabeth Class was endorsed in the 1998 Strategic Defence Review which identified a continuing need for rapidly deployable forces with the reach and self-sufficiency to act independently of host-nation support. The Strategic Defence Review concluded that the ability to deploy offensive air power would be central to future force projection operations, with carriers able to operate the largest possible range of aircraft in the widest possible range of roles. This analysis was further endorsed by the New Chapter work of 2002 and the Defence White Paper in December 2003. The current Invincible Class of carriers was designed for Cold War Anti-Submarine Warfare operations. With helicopters and a limited air-defence capability provided by a relatively small number of embarked Sea Harriers, it was judged that this capability would no longer meet future United Kingdom requirements. It was therefore decided to replace the Invincible Class with two larger and more capable aircraft carriers. The class's offensive air power will be provided primarily by the Joint Combat Aircraft. The Joint Force Air Group is an air group comprising of a mix of aircraft, tailored to the mission need; it will typically consist of both fixed and rotary-winged aircraft including joint air assets e.g. Joint Combat Aircraft.

The Strategic Defence & Security Review confirmed the requirement for a Carrier Strike capability as part of MOD's Future Force 2020. In order to deliver overall savings to Defence, it concluded that the Carrier Strike component would be based around the Carrier Variant of the Joint Strike Fighter which would fly from an operational Queen Elizabeth Class carrier converted to a Carrier Variant configuration (fitted with catapults and arrestor gear). The Strategic Defence & Security Review confirmed that both carriers should be built, with one to be operational and the second kept in extended readiness or sold. The future of the non-converted carrier is likely to be a matter for the Strategic Defence & Security Review 2015.

A.2 The Assessment Phase

The Class received Initial Gate approval in December 1998 and Invitations to Tender were issued in January 1999. Following tender evaluation, competitive firm price contracts for the Assessment Phase, each potentially worth some £30m, were awarded to BAE Systems and Thales UK in November 1999. Initially, the Assessment Phase was broken down into two stages. The first involved the examination of several carrier designs, and helped inform the decision in January 2001 to select the United States Joint Strike Fighter as the option with best potential to meet the Joint Combat Aircraft requirement. Stage 1 completed in June 2001, following which proposals from the contractors for Stage 2 were considered, together with an assessment of their views on the level of work needed to adequately de-risk the programme. After careful consideration, the conclusion was reached that the original two-stage approach no longer offered value for money and the Assessment Phase strategy was changed.

The competitive second stage was revised and shortened (completing in November 2002) and enabled the competing contractors to concentrate on refining their designs and taking key trade-off decisions. An innovative Continuous Assessment process was used throughout to evaluate the contractors' performance which led to the conclusion that an alliance approach involving BAE Systems, Thales UK and the Department represented the best approach to Future Aircraft Carrier. The innovative Alliance procurement strategy enabled the full exploitation of the resources and strengths of the alliance participants with the shared objective of improving on agreed performance targets and was announced in January 2003. A third stage of assessment was therefore taken forward on this basis to further increase the maturity of the design and determine the alliancing strategy for Future Aircraft Carrier. Stage 3 completed in March 2004.

In July 2004, the Assessment Phase was extended into Stage 4 to further mature the design and carry out risk reduction work, to ensure that the best technical & procurement solution was achieved. Alliancing principles were agreed with BAE Systems and Thales UK and further developed with the selection in February 2005 of Kellogg, Brown & Root UK Ltd as an additional participant in the Alliance. The timescale for completing the design and risk reduction work was further extended in August 2005 (into Stage 5) although this did not result in any additional cost to the programme. The Assessment Phase completed at the end of January 2006 and was finalised in November 2010, on receipt of Final Cost Certificates, at a revised total cost of £288m.

A.3 Progress

Following direction from the Investment Approvals Board, the project has adopted an incremental approach to Main Gate approval with the Demonstration and Manufacturing Phases being divided into two sequential Main Gate approval points. The first phase (Demonstration), which included expanding the alliance to include Babcock Engineering Services and VT Shipbuilding, was approved by the Investment Approvals Board and Treasury in December 2005. The total cost of the Demonstration Phase (excluding Indirect Resource Departmental Expenditure Limit, but including non recoverable VAT) was approved at £297m (not to exceed). The Demonstration Phase activity completed in mid 2008 with total expenditure to 31st March 2011 of £266m. The second and final Main Gate approval, to proceed with the Manufacturing Phase of the project was announced by Secretary of State on 25th July 2007 at a not to exceed cost of £3900m including the capitalised Assessment Phase costs and Demonstration Phase costs.

In March 2006, the UK agreed a Memorandum of Understanding that provides for the supply to France of a common baseline design data pack to enable French industry to bid for the design, manufacture and support of one Future Aircraft Carrier (France). France has paid an initial entry fee and contributed to the costs of the UK Demonstration Phase.

At the time of the Main Gate in 2007, the build strategy called for one of the Lower Blocks to be constructed at the BAE Systems Submarines yard in Barrow-In-Furness. BAE Systems needed to build a new facility - the Central Assembly Shop - in order to accommodate the construction of the block. It was envisaged at the time that the facility would also be beneficial to the future submarine programme. MOD authorised BAE Systems to begin site work in June 2007. In July 2008 the Alliance Management Board agreed to the reallocation of Lower Block 3 to the A&P Tyne yard on a 'best for project' basis and in December 2008 the Aircraft Carrier Alliance formally instructed BAE Systems to terminate the contract and fully justify any incurred costs. It was hoped that the work carried out in Barrow would be of use to the future submarine programme, however this did not come to fruition which led to a write-off of £8m in Financial Year 2009-10.

Following Main Gate approval the project moved into the Engineering Transition Phase, an extension of the Demonstration Phase to encompass the period prior to contract signature. On 3rd July 2008 a contract was signed with BVT Surface Fleet for the manufacture of the two carriers together with signature of an Alliance Agreement with all members of the alliance.

On 11 December 2008, Ministers announced the outcome of MOD's Equipment Examination including the intention to re-profile the Queen Elizabeth Class project to meet near term priorities and improve the scope of alignment with the Joint Combat Aircraft programme. The re-profiling measure removed £450M from years 1 to 4 and delayed In-Service Dates by 1 and 2 years. The cost estimates of the impact of the Examination on the project were approved by the MOD in February 2010.

The first cut of steel took place in July 2009 at the Govan shipyard in Glasgow, and manufacture is underway in six UK shipyards: Babcock Rosyth and Appledore, BAE System Surface Ships, Govan, Portsmouth, Cammell Laird Birkenhead and A&P Tyne.

In 2009 a number of significant milestones were achieved: completion of No.1 dock at Rosyth; delivery of an upper deck section from Appledore to Rosyth; delivery of the Highly Mechanised Weapon Handling System and the delivery of Emergency Diesel Generators.

At the close of the Financial Year in March 2010 the bow of the Queen Elizabeth departed from Appledore for Rosyth.

The Aircraft Carrier Alliance acknowledged that there was a requirement to reduce costs at the time of contract award on the basis that concerted management action in the early years of the project would allow this to reduce. In the event, the disruption caused by initial recosting activity and then the Equipment Examination prevented successful delivery of the originally planned cost reduction - as this would not be achieved, MoD considered it prudent to formally recognise this in its revised estimate.

During 2010 Diesel Generators were installed in Lower Block 02 (Portsmouth) and in March 2011 in Lower Block 04 (Govan) on HMS Queen Elizabeth. In early 2011, the Goliath Crane, which will be used to assemble the carriers, arrived at Rosyth and is now undergoing preparations for erection and commissioning in the summer.

The Investment Approvals Board approved the Queen Elizabeth Class Final Target Cost for the pre-Strategic Defence & Security Review programme on 31 January 2011 to £5242m, which has provided a stable cost and schedule baseline for the programme going forward. Long-lead equipments for HMS Prince of Wales have been ordered over the last four years, with many of the major components already in-build or delivered (e.g. Diesel Generators).

A.4 Capability Risks

The Class is, together with Joint Combat Aircraft, Maritime Airborne Surveillance & Control and Military Afloat Reach Sustainability, an essential element of the Carrier Enabled Power Projection programme: the ability to project air power from the sea and capable of projecting the full level of Medium Scale offensive air effort and precision strike from the sea. Medium Scale is defined as a deployment of brigade-size or equivalent for warfighting or other operations. An example would be our contribution to the NATO-led Intervention Force in Bosnia.

Joint Combat Aircraft Maritime capability depends on the Queen Elizabeth Class to achieve Carrier Strike.

The Strategic Defence and Security Review stated that "The current, limited carrier-strike capability will be retired" because" short-range Harriers ... would provide only a very limited coercive capability. We judge it unlikely that this would be sufficiently useful in the latter half of the decade to be a cost-effective use of defence resources". This will create a capability gap until a Queen Elizabeth Class aircraft carrier has completed integration with the first operational squadron of Joint Combat Aircraft.

The Strategic Defence & Security Review 2010 accepted a Capability Gap in the operation of Fixed Wing aircraft from 2011 to 2020. This has resulted in a risk to the re-generation of this element of Carrier Enabled Power Projection, which is being addressed by work across multiple Defence Lines of Development, including the analysis of the experience gained from the US and French Navies.

The reduced availability of the Queen Elizabeth Class platform as a result of the Strategic Defence & Security Review decision to operate a single carrier may (depending on future decisions) reduce the availability of this element of Carrier Enabled Power Projection, although this could be offset by conversion of the second hull or close cooperation with the French Navy.

A.5 Associated Projects

Title of Associated Project	Forecast In Service Date/ Initial Operating Capability	Approval Status
Queen Elizabeth Class Infrastructure Project	2016	Pre-Main Gate
Defence Information Infrastructure	2010/2011	Post Main Gate
Medium Range Radar	2012	Post Main Gate
Queen Elizabeth Class In Service Support Solution	2016	Pre-Main Gate

A.6 Procurement Strategy

Post-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Queen Elizabeth Class	BAE Systems Insyte / Thales / Kellogg Brown & Root / VT Shipbuilding / Babcock Support Services / BAE System Marine	Demonstration to Manufacture	Target Cost Incentive Fee (subsequently, from July 2007 the Engineering Transition Stage as cost reimbursement)	Non-Competitive - UK
	BVT Surface Fleet / Thales / BAE Systems Marine / BAE Systems Insyte / Babcock Marine	Manufacture to In-Service	Target Cost Incentive Fee	Non-Competitive - UK

A.7 Support Strategy

Description
Support deliverables are those elements which are required for the MOD and the Carrier In-Service Support Solution provider to be able to operate and support the Queen Elizabeth Class safely and efficiently beyond Contract Acceptance Date. These will be procured in the main via the Queen Elizabeth Class manufacturing contract on an incremental basis as the support requirements are progressively matured. A programme of work known as the Carrier In-Service Support Solution project to develop and implement a value for money and affordable contracting for performance arrangement to deliver support from the point at which each of the two ships are delivered off contract by the Aircraft Carrier Alliance. The In-Service Support project is split into 4 key phases: assessment, demonstration, mobilisation and support delivery. The first of these is the Support Assessment Phase which is to be completed by the end of 2011. The work is being undertaken jointly between the MOD and Aircraft Carrier Alliance.

Support Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Support Assessment Phase	Aircraft Carrier Alliance - Industrial Participants	Assessment Phase in increments	Cost reimbursment moving to Target Cost	Non-Competitive - UK

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Queen Elizabeth Class	120	288	+168	2%	6%
Total (£m)	**120**	**288**	**+168**	**2%**	**6%**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Queen Elizabeth Class	3191	3541	3791

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
Queen Elizabeth Class	3541	5131	+1590	-13
Total (£m)	**3541**	**5131**	**+1590**	**-13**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.1.1 Queen Elizabeth Class

Date	Variation (£m)	Category	Reason for Variation
July 2010	-13	Budgetary Factors	Completion of Final Target Cost negotiations with the Aircraft Carrier Alliance.
Historic	+190	Budgetary Factors	Refinement of cost estimate connected to the Equipment Examination.
Historic	+35	Budgetary Factors	An £8M reduction on inflation following refinement of estimates against additional costs of £43M for Government Furnished Equipment.
Historic	+337	Budgetary Factors	At the time of contract award in 2008, there was a cost challenge of £337m which was expected to be fully reduced through cost reduction measures. The impact of slowing down the programme prevented these from being delivered

Historic	+117	Technical Factors	Various factors including growth of Bill of Materials and the impact of build strategy changes.
Historic	+674	Budgetary Factors	Financial Planning Round 2009 resulted in an option that constrained the Queen Elizabeth Class in the first 4 years, this will cause cost growth of £674m over the life of the project.
Historic	+250	Inflation	The Queen Elizabeth Class contracted Initial Target Cost is set at April 2006 economic conditions exposing the MOD to inflation fluctuations. The current procurement contracts were placed during a period of high inflation and, despite the current economic ownturn, forecasts covering the whole of the projects life indicated it was prudent to allow for an additional £250m CDEL.
Net Variation (£m)	**+1590**		

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	288	0	288
Demonstration & Manufacture Phase	1021	630	1651
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**1309**	**630**	**1939**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Queen Elizabeth Class	December 1998	December 2005	84

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Queen Elizabeth Class	April 2015	July 2015	October 2015

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
Queen Elizabeth Class	In Service Date Queen Elizabeth Class In-Service Date will be declared by the customer when the ship is ready to proceed to a full test of the operational capability of the vessel at sea. Initial Operating Capability Initial Operating Capability is expected to be declared once the vessel has successfully completed Tier 1 Operational Sea Training and the Operational Readiness Inspection. Operational Sea Training consists of two phases: Tier 1 - Basic sea safety and survival at the platform level. Training as an individual and collectively to be safe to operate the platform in any condition. Tier 2 - More comprehensive training as a unit to include the basic warfighting capabilities and more complex emergencies.

C.3.2 Progress against approved Dates

Project/Increment Title	Budgeted For Date	Actual / Forecast Date	Variation (+/- months)	In-Year Variation (+/- months)
Queen Elizabeth Class	July 2015	October 2016	+15	+5

C.3.3 Timescale variation

C.3.3.1 Queen Elizabeth Class

Date	Variation (+/- months)	Category	Reason for Variation
July 2010	+5	Budgetary Factors	The Aircraft Carrier Alliance continues to work to Build Strategy 5, which was first announced in March 2009 following the Equipment Examination. As part of the Final Target Cost analysis, the Aircraft Carrier Alliance have revisited their Monte-Carlo analysis not only in terms of cost but also schedule. Risk and uncertainty assumptions around integration, commissioning and trials have been updated and fully aligned to those used for costing of Final Target Cost. Analysis that both the Project Team and Cost Assurance & Analysis Services support suggests that Contract Acceptance Dates for the two Queen Elizabeth Class vessels should now be June 2016 for Queen Elizabeth and September 2018 for Prince of Wales. Allowing for transition from Contract Acceptance Date to In Service Date gives a revised In Service Dates as October 2016 and December 2018.
Historic	+12	Budgetary Factors	Ministerial announcement that Queen Elizabeth and Prince Of Wales In Service Dates will be delayed as a result of the Financial Planning Round 2009 option
Historic	-2	Budgetary Factors	Industry and Capital Ship current estimates are that the current schedule contains sufficient flexibility to allow for mitigating actions to be taken.
Net Variation (+/- months)	**+15**		

C.3.4 Other costs / savings resulting from Timescale variation

Project/Increment Title	Date	£m (+ Cost / - Saving)	Category	Reason for expenditure or saving
Marine Equipment Systems	Historic	+6	Budgetary Factors	Ministerial announcement that Queen Elizabeth Class In Service Dates will be delayed as a result of the Financial Planning Round 2009 option
Communication Situation Awareness	Historic	+3	Budgetary Factors	
Naval Electronic Warfare	Historic	+2	Budgetary Factors	
T45 Overhead	Historic	+63	Budgetary Factors	
CVS Run-on Costs	Historic	+49	Budgetary Factors	
Total		**+123**		

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

Project/Increment Title	Operational Impact
Queen Elizabeth Class	The Equipment Examination introduced a slip in the In Service Date which would have required the extension in service of HMS Illustrious in order to maintain the carrier-strike capability. The Strategic Defence and Security Review stated that "The current, limited carrier-strike capability will be retired" because "short-range Harriers ... would provide only a very limited coercive capability. We judge it unlikely that this would be sufficiently useful in the latter half of the decade to be a cost-effective use of defence resources". This will create a capability gap until a Queen Elizabeth Class aircraft carrier has completed integration with the first operational squadron of Joint Combat Aircraft.

C.4. Full Operating Capability

C.4.1 Definition

Project/Increment Title	Full Operating Capability	Progress to date
Queen Elizabeth Class	The Full Operational Capability will be largely determined by the combination of Joint Force Air Group elements and the Queen Elizabeth Class Incremental Acquisition Plan. Full Operating Capability will therefore be defined once the Joint Combat Aircraft and Maritime Airborne Surveillance & Control delivery programmes and the Initial Approved Plan are agreed. Full Operating Capability will allow Queen Elizabeth Class to have an embarked Joint Force Air Group and a level of capability equivalent to that declared at Main Gate.	-

C.5. Support / Service / PFI Contract

D Section D: Performance

D.1. Maturity Measures

Sentinel Score	80% GREEN

D.2.1 Performance against Defence Lines of Development

Line of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1. Equipment	Delivery of 2 Queen Elizabeth Class Carriers to the required Performance Specification.	Yes (with risks)	
2. Training	Provision of individual and collective training both ashore and afloat for Queen Elizabeth Class Carriers that delivers the appropriate level of Operational Capability to meet the Readiness Profiles in the Naval Data Book.	Yes (with risks)	
3. Logistics	Provision of Support Solution that enables the operational movement and maintenance of Queen Elizabeth Class Carriers.	Yes	
4. Infrastructure	Provision of support infrastructure and facilities in the MOD estate to support Queen Elizabeth Class Carriers and their associated equipments and personnel.	Yes (with risks)	
5. Personnel	Provision of sufficient, correctly trained and suitably equipped personnel available to participate in commissioning, trials and handover of the ship, then subsequent operation of the ships in service.	Yes (with risks)	
6. Doctrine	Provision of framework of practices and procedures to derive the greatest benefit from using the Queen Elizabeth Class Carriers in a range of operations and scenarios.	Yes	
7. Organisation	Establish a robust and deliverable command structure for Queen Elizabeth Class Carriers with correctly qualified personnel in place in time to support the programme	Yes	
8. Information	Coherent development of data, information and knowledge requirements for Queen Elizabeth Class Carriers and all processes designed to gather, handle data and exploit information and knowledge.	Yes	
Current forecast (with risks)		8 (4)	0
Last year's forecast (with risks)		8 (1)	0

D.2.2 Defence Line of Development Variation

Date	Defence Line of Development	Category	Reason for Variation
October 2010	Equipment	Changed Capability Requirements	The Strategic Defence & Security confirmed that both carriers should be built, with the current intention to convert one hull to operate the Carrier Variant of the Joint Strike Fighter. The risks connected to this relate to the development and integration of Electro Magnetic Launch Systems and Advanced Arrestor Gear technology.
October 2010	Training	Changed Capability Requirements	The risks associated with having sufficient trained, suitably qualified and experience personnel to operate the Electro Magnetic Launch Systems.
October 2010	Personnel	Changed Capability Requirements	The risks associated with ensuring suitably qualified and experienced aviation personnel to operate the converted Queen Elizabeth Aircraft Carrier.
Historic	Infrastructure	Technical Factors	Early cost estimates exceed provision, necessitating further investigation of options to ensure an affordable position.
Historic	Information	Technical Factors	The risks associated with the integration of Joint Combat Aircraft and the Queen Elizabeth Class has been addressed by the Equipment Defence Lines Of Development Steering and Integration Group. Analysis of the interface issues between the aircraft and the ship has been conducted and significant progress has been made in addressing the issues identified. As a result, the integration risk is now assessed as low.
Historic	Information	Technical Factors	Information Defence Lines Of Development remains at risk due to uncertainty over the resolution of Joint Combat Aircraft integration into UK Global Information Infrastructure.

D.3. Performance against Key Performance Measures

D.3.1 Queen Elizabeth Class

D.3.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
KUR 1	All	Interoperability – Queen Elizabeth class shall be able to operate with joint/combined forces to deliver a medium scale offensive air effort for power projection, focused intervention and peace enforcement operations	Yes	
KUR 2	All	Integration – Queen Elizabeth class shall be able to integrate with all elements of joint/combined forces necessary to conduct Strike operations and support 'agile mission groups'	Yes	
KUR 3	All	Availability – Queen Elizabeth class shall provide one platform at High Readiness for its principal role of Carrier Strike at medium scale and at Very High readiness for Carrier Strike small scale focused intervention, at all times.		Yes
KUR 4	All	Deployability – Queen Elizabeth class shall be able to deploy for the operations in the core regions as defined in Defence Strategic Guidance 05	Yes	

KUR 5	All	Sustainability – Queen Elizabeth class shall be able to conduct deployments away from port facilities for operations lasting 9 months continuously and support air operations for up to 70 days	Yes	
KUR 6	All	Aircraft Ops – Queen Elizabeth class shall be able to deploy the full medium scale offensive air effort	Yes	
KUR 7	All	Survivability – Queen Elizabeth class shall achieve a high probability of protection, survival and recoverability against both natural incidents and those threats identified in the Defence Intelligence Scale Threat Statement (Oct 04)	Yes	
KUR 8	All	Flexibility – The Queen Elizabeth class shall be able to operate and support the full range of defined aircraft and be adaptable such that it could operate air vehicles which require assisted launch/recovery	Yes	
KUR9	All	Versatility – Queen Elizabeth class shall be able to deploy agile Mission groups	Yes	
Current forecast (with risks)			8 (0)	1
Last year's forecast (with risks)			9 (0)	0

D.3.1.2 Key Performance Measures Variation

Date	Key Performance Measure	Category	Reason for Variation
October 2010	KUR3	Changed Capability Requirements	The Strategic Defence & Security Review confirmed that both carriers should be built, with one to be operational and the second in extended readiness or sold. With this change of readiness requirement announced and the current intention to convert one hull and to operate the Carrier Variant of the Joint Strike Fighter KUR 3 will not be met.

D.3.1.3 Operational Impact of variation

Date	Key Performance Measure	Forecast	Operational impact of variation
October 2010	KUR 3	Not to be met	The reduced availability of the Queen Elizabeth Class platform as a result of the Strategic Defence & Security Review decision to operate a single carrier may (depending on future decisions) reduce the availability of this element of Carrier Enabled Power Projection, although this could be offset by conversion of the second hull or close cooperation with the French Navy.

D.4 Support Contract

Project Title
Specialist Vehicles
Team Responsible
Medium Armoured Track Team
Senior Responsible Owner
Ground Manoevre

Project/Increment Name	Current Status of Projects / Increments
Specialist Vehicles	Pre-Main Investment Decision
Recce Block 1 Demonstration	Post-Main Investment Decision
Recce Block 2a Demonstration	Pre-Main Investment Decision
Recce Block 1 & 2a Manufacture	Pre-Main Investment Decision
Recce Block 2b Demonstration & Manufacture	Pre-Main Investment Decision

SPECIALIST VEHICLES

A. Section A: The Project

A.1 The Requirement

Specialist Vehicles will be more fightable, survivable, lethal, and have a greater find capability than the obsolescent legacy Combat Vehicle Reconnaissance (Tracked) fleet that is overmatched by even the most likely threat. Specialist Vehicles will contribute to a combined arms capability of modern, medium-weight, strategically deployable, tracked vehicles. The current planning assumption is to deliver a Reconnaissance fleet of up to *** vehicles over three increments; as part of the Department's 2011 Planning Round, the requirement for Medium Armour has been removed from the Specialist Vehicles Programme.

A.2 The Assessment Phase

GENERAL: Future Rapid Effects System Specialist Vehicles entered its Assessment Phase (Assessment Phase 2) in June 2008. The approval covered the anticipated Specialist Vehicles fleet scope, with high priority afforded to Scout (Recce Block 1), given the pressing need to replace Combat Vehicle Reconnaissance (Tracked). Specialist Vehicles was assumed to consist of three Recce Blocks plus Medium Armour and Manoeuvre Support components, all mounted on a common base platform. In broad terms the Assessment Phase Studies confirmed that the Common Base Platform concept was viable for all platforms and also set the time, cost performance and risk envelope for Recce Block 1. In accordance with the endorsed acquisition strategy, the Common Base Platform design will be used for Recce Block 2 and 3 with the addition of role specific sub-systems for each variant. Assessment studies will be used to determine the scope of each sub-system fit for each specific role.

TRADE-OFFS: Assessment Studies were used to derive the preferred Programme Option and its associated characteristics of performance (requirements), cost, time and risk, ahead of launching a competition to select the Prime contractor. These studies included an analysis of potential solutions ranging from off-the-shelf platforms, modified off the shelf and new design as well as studies on critical sub-system choices e.g. primary sighting system. Industry was engaged throughout to ensure data used reflected market reality, whilst still keeping competitive choices open. The Military Customer and User were also engaged throughout the process.

ACQUISITION STRATEGY: The Assessment Phase also determined the most appropriate Acquisition Strategy for the Specialist Vehicles. This product of this strand was subject to a separate Investment Approvals Board Approval. This approval endorsed the use of open international competition to select a 'prime contractor' to conduct the demonstration phase for Recce Block 1, and subject to further approval included progression to manufacture and initial in-service support, together with a Common Base Platform for all Specialist Vehicles. Major enabling sub-systems e.g. Guided Weapons (missiles) for later Recce Blocks were not included in the scope of Recce Block 1 and Common Base Platform in order to leave competitive choice for later Recce Blocks e.g. missile coherence with Team Complex Weapons.

MAIN WEAPON SELECTION - SCOUT: Approval for the selection of the 40mm Case Telescope Weapon System was given in 2008 to enable commonality with the Warrior Capability Sustainment Programme, thus taking the benefit of common ammunition and training. Qualification for the 40mm Case Telescope Weapon System is led by the Warrior Capability Sustainment Programme.

The Assessment Phase included risk reduction studies and demonstrators on the Specialist Vehicles platforms and on the high performance thermal imaging sighting systems which were subsequently down-selected as part of the main competition.

The Recce Block 1 element of Assessment Phase 2 was conducted in four Stages, with the key finding from each stage captured in a Stage Report. The final Stage - the formal competition and Investment Approvals Board approval for Demonstration was conducted under an aggressive timeline with transition through Main Gate 1 achieved seven months ahead of forecast. In 2010, the programme was subject to re-approval by the new Coalition Government which delayed contract award by three months, as progress was halted due to the pre-election period.

The Recce Block 1 element of the Assessment Phase concluded with a major international competition, which selected General Dynamics UK as the Prime contractor.

A.3 Progress

MAIN GATE 1 - DEMONSTRATION RECCE BLOCK 1 ONLY: The outcome of the Specialist Vehicles Assessment Phase for Recce Block 1 and Common Base Platform was presented as evidence for the Specialist Vehicles Main Gate 1 approval for entry into Demonstration. As part of this Main Gate 1 approval, the Office of Government Commerce conducted a Gateway Review in September 2009, followed by a full Major Projects Review Group examination, which confirmed that Specialist Vehicles was in a position to proceed to its planned Demonstration phase with General Dynamics UK as the Prime contractor. Approval was re-endorsed by the new Coalition Government in June 2010. The contract with General Dynamics UK commits to the Demonstration Phase for Recce Block 1 only, and contains priced Contract Options (to be exercised later subject to approval) for the Manufacture and Initial In-Service Support Phases for both Recce Block 1 and Common Base Platforms to be used for later Blocks. This contract includes seven Anchor Milestones, the first of which is currently forecast for March 2012.

The Strategic Defence and Security Review and the Department's 2011 Planning Round removed the Medium Armour and Manoeuvre Support elements and reset the total vehicle fleet numbers to up to ***, with the delivery profile recast to aspire to the emerging Army restructuring under Strategic Defence and Security Review (Five Multi-Role Brigades). Final size and shape of the Specialist Vehicles fleet will not be set until Main Gate 2, in 20**, when the first major production investment decision will be taken. The Recce Block 1 Planned Assumption for Service Entry was also deferred by nine months from *** to ***.

An Information Note and a Review Note are currently planned later in 2011 in order to capture the programme changes arising from the Department's Planning Round 2011 and the Strategic Defence and Security Review.

FURTHER APPROVALS - Manufacture and Demonstration of other Reece Blocks: It should be noted that Specialist Vehicles does not have a single Main Gate Approval. The size of the programme, together with previous lessons learned in other programmes, determined that a two-stage Main Gate approach should be used; Main Gate 1 for entry into Demonstration only, with a second Main Gate (2) for entry into the manufacture phase, the latter being the major investment decision. Further approvals (in effect sub-Main Gates) will approve Demonstration and Manufacture of later vehicle blocks (e.g. Recce Block 2) covering later variants. Main Gate 1 did not set Initial Operating Capability, Full Operating Capability or total fleet requirements, but merely noted the planning assumptions associated with these for service entry at the time of demonstration launch for Recce Block 1. There was also recognition that the then forthcoming Defence Review would change total fleet requirements and assumptions and these should not therefore be set at Main Gate 1.

A.4 Capability Risks

Specialist Vehicles will replace Combat Vehicle Reconnaissance (Tracked) which is increasingly becoming tactically un-deployable. Combat Vehicle Reconnaissance (Tracked) has already been extended beyond its Out of Service Date through a series of modifications and Urgent Operational Requirements. Combat Vehicle Reconnaissance (Tracked) is, however, restricted by its very small design meaning that it has reached its operational capacity. Combat Vehicle Reconnaissance (Tracked) must be replaced (by Specialist Vehicles) to avoid a long-term capability gap opening up in essential manned ground reconnaissance.

A.5 Associated Projects

A.6 Procurement Strategy

Pre-Main Investment Decision Projects / Increments only		
Project/Increment Title	**Procurement Route**	**Approval Status**
Specialist Vehicles	Acquisition Programme with full and open competition	Pre-Main Gate

Post-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Recce Block 1 Demonstration	General Dynamics UK	Demonstration to Manufacture	The Contract is a mixture of Firm, Maximum (to be converted to Firm) and Fixed Prices. The Firm Prices apply until 31 March 2015 and thereafter Fixed Prices will apply, with the exception of the Demonstration Phase activity which is Firm Price regardless	Competitive - International

A.7 Support Strategy

Description
Not yet commited. Contract Options are included for the first two years in service support with the Demonstration Phase contract. It is intended that an incentivised support contract is negotiated before Main Gate 2 and endorsed at Main Gate 2. This wil largely be underpinned by vehicle performance in demonstration.

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
First Two Years Support	General Dynamics UK	Support	Fixed Price	Competitive - International

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Specialist Vehicles	109	130	21	8%	9%
Total (£m)	**109**	**130**	**21**	**8%**	**9%**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Recce Block 1 Demonstration	1377	1394	1433
Recce Block 2a Demonstration	-	-	-
Recce Block 1 & 2a Manufacture	-	-	-
Recce Block 2b Demonstration & Manufacture	-	-	-

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
Specialist Vehicles	-	-	-	-
Recce Block 1 Demonstration	1394	1394	0	0
Recce Block 2a Demonstration	-	-	-	-
Recce Block 1 & 2a Manufacture	-	-	-	-
Recce Block 2b Demonstration & Manufacture	-	-	-	-
Total (£m)	**1394**	**1394**	**0**	**0**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	64	6	70
Demonstration & Manufacture Phase	0	118	118
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**64**	**124**	**188**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Specialist Vehicles	June 2008	Continuous Assessment Phase	
Recce Block 1 Demonstration	June 2008	March 2010	21
Recce Block 2a Demonstration	June 2008	***	***
Recce Block 1 & 2a Manufacture	June 2008	***	***
Recce Block 2b Demonstration & Manufacture	June 2008	***	***

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Specialist Vehicles	-	-	-
Recce Block 1 Demonstration	-	-	-
Recce Block 2a Demonstration	-	-	-
Recce Block 1 & 2a Manufacture	-	-	-
Recce Block 2b Demonstration & Manufacture	-	-	-

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
Specialist Vehicles	-
Recce Block 1 Demonstration	-
Recce Block 2a Demonstration	-
Recce Block 1 & 2a Manufacture	-
Recce Block 2b Demonstration & Manufacture	-

C.3.2 Progress against approved Dates

C.3.3 Timescale variation

C.3.4 Other costs / savings resulting from Timescale variation

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

C.4. Full Operating Capability

C.5. Support / Service / PFI Contract

D Section D: Performance

D.1. Maturity Measures

Sentinel Score	89% GREEN

D.2.1 Performance against Defence Lines of Development

Line of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1. Equipment	System Verification (Contract Acceptance against Systems Requirement Document)	Yes	
2. Training	Personnel trained for trials	Yes	
3. Logistics	In Service Support solution verified (contract acceptance in accordance with Integrated Test, Evaluation & Acceptance Plan).	Yes	
4. Infrastructure	Infrastructure solution demonstrated in accordance with the Integrated Test, Evaluation & Acceptance Plan.	Yes	
5. Personnel	Personnel solution demonstrated in accordance with the Integrated Test, Evaluation & Acceptance Plan.	Yes	
6. Doctrine	Draft Concept of Use developed by Concepts & Doctrine from Equipment's Initial Baseline Solution and Concepts & Doctrine's Concept of Employment, covering all funded platform variants, with gaps between funded Concept of Use and Concept of Employment fed back to Capability's Capability Gap.	Yes	
7. Organisation	Organisation solution demonstrated in accordance with the Integrated Test, Evaluation & Acceptance Plan.	Yes	
8. Information	The information solution, including hardware, software and data messages required to satisfy the information exchange requirements, has been successfully verified against the system requirements and design specification through analysis and developmental testing in synthetic and real-world development environments in accordance with the Integrated Test, Evaluation & Acceptance Plan.	Yes	
Current forecast (with risks)		8 (0)	0
Last year's forecast (with risks)		-	-

D.2.2 Defence Line of Development Variation

D.3. Performance against Key Performance Measures

D.3.1 Specialist Vehicles

D.3.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
KUR 1 Situational Awareness	Equipment	The User shall be able to gather and use information about the operational environment.	Yes	
KUR 2 Interoperability	Equipment	The User shall be able to operate national, and with multinational, C4I Battlespace Systems	Yes	
KUR 3 Deployability	Equipment	The User shall be able to deploy rapidly worldwide by land, sea and air.	Yes	
KUR 4 Operational Mobility	Equipment	The User shall be able to self deploy a total of around 500 km on a single load of fuel with the appropriate number of personnel and equipment according to role, ready to complete a Battlefield Mission after refuelling.	Yes	
KUR 5 Tactical Mobility	Equipment	The User shall be able to achieve levels of terrain accessibility and agility appropriate to role.	Yes	
KUR 6 Lethality	Equipment	The User shall be able to achieve the defined levels of lethality appropriate to role	Yes	

KUR 7 Survivability	Equipment	The User shall be provided with the defined levels of survivability appropriate to role.	Yes	
KUR 8 Sustainability	Equipment	The User shall be able to sustain FRES operational effectiveness for national and coalition operations.	Yes	
KUR 9 Availability	Equipment	The User shall be able to deliver high levels of operational availability, for durations of 14 day high intensity warfighting operation, with minimum maintenance.	Yes	
KUR 10 Environment	Equipment	The User shall be able to store, transport and operate the capability worldwide in all relevant operational environments and terrains.	Yes	
KUR 11 Growth Potential	Equipment	The User shall be able to develop the capability of FRES through life, through the ready integration of emerging technologies	Yes	
Current forecast (with risks)			11 (0)	0
Last year's forecast (with risks)			-	-

D.3.1.2 Key Performance Measures Variation

D.3.1.3 Operational Impact of variation

D.4 Support Contract

Project Title	
Type 45	
Team Responsible	
Destroyers	
Senior Responsible Owner	
Commodore Steve Brunton	
Project/Increment Name	**Current Status of Projects / Increments**
Type 45 Destroyer	Post-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

The Type 45 is a new class of six Anti-Air Warfare Destroyers, to replace the capability provided by the Royal Navy's existing Type 42s. The warship is being procured nationally. The Type 45 will carry the Principal Anti-Air Missile System which is capable of protecting the vessels and ships in their company against aircraft and missiles, satisfying the Fleet's need for area air defence capability into the 2030s. The Principal Anti-Air Missile System is being procured collaboratively with France and Italy. The Destroyers Team is responsible for providing the Principal Anti-Air Missile System to the warship Prime Contractor.

A.2 The Assessment Phase

The Type 45 Destroyer programme builds on the Assessment work carried out in Phase 1 of the collaborative Horizon project, the warship element of the Common New Generation Frigate programme. Following the decision of the three Horizon partners (France, Italy and the United Kingdom) to proceed with the Principal Anti-Air Missile System, but to pursue national warship programmes, BAE Systems was appointed Prime Contractor for the Type 45 in November 1999. The contract for the Principal Anti-Air Missile System Full Scale Engineering Development and Initial Production was placed in August 1999. Main Gate approval for the warship was achieved in July 2000 and a contract for Demonstration and First of Class Manufacture was placed in December 2000.

A.3 Progress

BAE Systems Electronics was appointed Prime Contractor for the Type 45 in November 1999 and a contrac for Demonstration and First of Class Manufacture for the first three ships was placed in December 2000. A contract for a further three Type 45 hulls was placed with the Prime Contractor in February 2002. The ships are being built under sub-contract by BAE Systems Surface Fleet Ltd. The Demonstration & Manufacture contract was amended to reflect the Investment Approvals Board Six-Ship Approval gained in August 2007. This change has introduced a staged acceptance process for each ship which commences with Acceptance off Contract, thereby giving control of the vessel to the MOD to undertake a further period of trials and acceptance activity leading to the declaration of In-Service Date. It was announced in June 2008 that as part the Department's 2008 Planning Round the decision was taken not to take up the option to proceed with Typ 45 Ships 7 and 8.

During the Department's 2010 Planning Round a decision was taken to amend the production programme of Aster Missiles. This decision deferred production of some missiles, reducing costs in early years, but addin £46m to the overall cost of the Principal Anti-Air Missile System programme. However, the effect of other Planning Round decisions in 2010 and the benefits accrued through the good progress of the Ship programm meant that the result was no overall cost growth of the Type 45 programme.

The past year has seen significant progress across the Type 45 programme with two ships now declared In-Service. The first ship, HMS Daring was accepted into service with the Royal Navy on 31 July 2010, with the second ship, HMS Dauntless, being similarly accepted on 16 November 2010. Good progress continues to achieved across the build programme with the third ship, HMS Diamond being accepted off contract on 22 September 2010 and the fourth ship, HMS Dragon completing her first contractor sea trials in December 201 The final Type 45, HMS Duncan, was launched in October 2010. The Principal Anti-Air Missile System development test firing programme was successfully completed in June 2010 with a Salvo firing from the Longbow barge at a French test range in the Mediterranean. The High Seas Firing programme from Type 45 platforms commenced with a successful firing from HMS Dauntless in September 2010 at the UK Hebrides test range.

The contract for up to seven years of Support for Type 45, awarded to BAE Systems Surface Ships Ltd in September 2009, has delivered the required availability to enable those ships declared in-service to achieve their programmed activities.

During the Department's 2011 Planning Round savings measures were implemented as a result of the combination of forecast Terms Of Business Agreement savings, risk retirement following successful completion of the Sea Viper development firing programme and early In-Service Date of the first two ships an early acceptance off-contract of the third ship against their 50% confidence dates. As a result of these savings, which amounted to some £34m, the decision was taken to reverse a Cost Capability Trade made in 2006 that proposed to reduce the spend on Aster missiles by some £30m. The overall effect of these decisions and the change in Departmental policy with respect to Cost of Capital is a forecast decrease of £30m in the overall cost of the programme.

A.4 Capability Risks

In order for a force of ships to operate safely at sea and project power onto the land, it has to reduce its susceptibility to attack from the air. The current generation of anti-air warfare capability (Type 42 Destroyer) has already been extended beyond its design life and is now rapidly approaching its Out of Service Date. The Type 45 Destroyer will ensure that UK maritime forces retain a sufficiently robust capability to counter the growing threat from the air for the next 25 years. Without the Type 45, the UK would be severely limited in its ability to operate maritime forces in all but the most benign environments. There would also be a significant shortfall in the number of ships available to deploy world-wide in support of wider British interests, fulfilling roles from defence diplomacy to disaster relief to crisis intervention.

A.5 Associated Projects

A.6 Procurement Strategy

Project/Increment Title	Contractor	Contract Scope	Contract Type	Procurement Route
Type 45 Destroyer	BAE Systems Surface Ships Ltd (BAE Systems Electronics Ltd Farnborough)	Full development and production	Target Cost Incentive Fee Shareline	Single Source
Principal Anti-Air Missile System	EURO PAAMS	Full scale engineering development and initial production including missiles for initial use	Fixed Price	Collaborative with France and Italy
Principal Anti-Air Missile System	EURO PAAMS	Follow-on ships production	Fixed price for five follow-on equipments	Collaborative with France and Italy
Principal Anti-Air Missile System	EUROSAM & UKAMS[4]	Production of missiles	Fixed Price	Collaborative with France and Italy through Organisation Conjointe de Cooperation en matiere d' Armement

A.7 Support Strategy

Description
There are 3 broad layers to Type 45 Destroyer support: a. Interim Support (Support to Stage 2 Trials) covers the period from the First of Class (HMS Daring) Acceptance off Contract to In-Service Date. The change to ship acceptance approved as part of wider programme re-approval in August 2007 advances the date that the First of Class is accepted off contract, consequently requiring interim support arrangements to be put in place until In-Service Date. Funding for Interim Support was approved under the Six Ship Approval and costs are reported against the Demonstration & Manufacture phase costs for Type 45, hence this element is not reported further within the Support section. The Interim support contract completed at In-Service Date for HMS Daring. For the other five Type 45s support to Stage 2 Trials will be provided under the Full Support contract, although, as above, funding was approved under the Six Ship Approval and costs are reported against the Demonstration & Manufacture phase costs for Type 45. b. Type 45 Initial Spares (Industrial Investment and Long Lead spares). Purchase of long-lead spares and industrial mobilisation activities for which contracts needed to be placed ahead of the Type 45 Full Support Solution (see c. below) in order to be available for In-Service Date. The Approval did not set any Time limits for contract end dates, therefore only progress against Cost boundaries is reported within the Support section. c. Full Support. Phase 1 of the long term support strategy is the delivery of a Class wide Type 45 Support Solution through a single source incentivised contract with BAE Systems Surface Fleet Ltd as the support integrator for Type 45. Support will then migrate into the Surface Ship Support Programme (SSSP). The Full Support contract for the warship (the Phase 1 work described above) was placed in September 2009. It includes the activities to establish the support solution infrastructure and team and then to provide up to 7 years In-Service support. Support to the Principal Anti-Air Missile System (PAAMS) will be provided by a separate single source incentivised contract with MBDA (UK). Negotiations for this contract are ongoing.

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
Type 45 Initial Spares	BAE Systems Surface Ships Ltd	Purchase of Long lead time spares and Industrial Mobilsation activities	Mix of fixed and firm price	Single Source
Type 45 Full Support	BAE Systems Surface Ships Ltd	Up to seven years' of Support for Type 45 Platform Equipments and some complex equipment	Target Cost Incentive Fee	Single Source

[4] UKAMS is a wholly owned company of MBDA.

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Type 45 Destroyer	213	232	+19	4%	4%
Total (£m)	**213**	**232**	+19	**4%**	**4%**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Type 45 Destroyer	-	4757	5209

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
Type 45 Destroyer	4757	5664	+907	-30
Total (£m)	**4757**	**5664**	**+907**	**-30**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.1.1 Type 45 Destroyer

Date	Variation (£m)	Category	Reason for Variation
April 2011	-21	Budgetary Factors	Planning Round decisions and adjustments in 2011. Risk reduction and re-profiling (-£11M), BAE Systems Terms of Business Agreement savings released through the six ship contract (-£10M)
March 2011	-21	Technical Factors	In Year underspend as a result of risk retirement (-£24m) from programme successes e.g. In Service date and Aster missiles firings. In Year overspend on Sea Viper (+£3m).
March 2011	-18	Accounting Adjustments and Re-definitions	Removal of IRDEL (Foreign Exchange) in accordance with a change of Departmental policy
March 2011	+30	Capability Trading	Decision to reverse Capability Trade with respect to funding of Aster missile production programme.

Historic	-277	Accounting Adjustments and Re-definitions	Removal of Cost of Capital due to Clear Line of Sight policy implemented by HM Treasury.
Historic	-17	Procurement Processes	Benefit of on time contractual delivery of Ships 1 & 2
Historic	-3	Procurement Processes	In-year underspend (-£9M), resulting in slippage of work (+£6M).
Historic	+2	Budgetary Factors	Planning Round decisions and adjustments in 2009 (+£2M)
Historic	-40	Budgetary Factors	Planning Round decisions and adjustments in 2010 (-£40M).
Historic	+20	Exchange Rate	Principal Anti-Air Missile System FOREX increase, In-year (+£14M) and in Planning Round 2010 (+£7M), but reduced FOREX related iRDEL (-£1M)
Historic	+46	Budgetary Factors	Principal Anti-Air Missile System Programme re-alignment of Aster Missile production schedule in Planning Round 2010
Historic	-26	Technical Factors	Benefits of earlier delivery of Platforms through reduced trials support costs (-£30M) offset by an increase in programme costs identified through the annual financial planning process (+£4M).
Historic	+44	Exchange Rate	Increase in the Principal Anti-Air Missile System in-year costs due to Exchange Rate (+£23M) and an increase in the Principal Anti-Air Missile System Planning Round 2009 costs for Exchange Rate (+£21M).
Historic	+2	Inflation	Additional Type 45 Ship costs due to higher than anticipated escalation of contractual Variation On Price indices (+£2M).
Historic	-113	Accounting Adjustments and Re-definitions	As a direct result of a move of ship build from Barrow to Clyde, in line with Maritime Industrial Strategy principles, there has been an increase in overheads for the 'Six Ship Proposal' price that is not directly attributable to this project (-£78m). Transfer to Maritime Training Systems Integrated Project Team (-£35m).

Historic	-114	Budgetary Factors	Equipment Programme 2007 savings measure to reduce the quantity of the Principal Anti-Air Missile System missiles (-£30m).A combination of Equipment Plan Options plus internal adjustments. The Options were: re-profiling of the contract for demonstration and manufacture (approved six-ship programme); re-profiling of the (planned) twelve ship programme; reducing the scope of the Principal Anti-Air Missile System missile buy and costs of shipbuilders' premium (+£91m). Increases to the Principal Anti-Air Missile System contract and additional funding and increases in delay and dislocation money (+£177m). Incremental Acquisition Programme re-profiling and Incremental Acquisition Programme upgrade deleted (-£238m). Equipment Plan Options re-profiling costs for ships five and six and deferring ships seven and eight (+£2m). Correction to forecast: costs wrongly attributed to ships The Principal Anti-Air Missile System increased cost of Longbow mooring (+£4m). Savings in ships capability (performance) to bring costs back to Equipment Programme 2005 baseline; Combat Systems risk provision (-£60m), Whole Life Support (support solution study) (-£21m) and Incremental Acquisition Programme (-£64m). Revised estimate of Westinghouse Rolls-Royce 21 engine concept/assessment phase (-£1m).

Historic	+1355	Contracting Process	Estimated increase in ship build cost based on an assessment of the 'Six Ship Proposal' price from the Prime Contractor (+£462m). Estimated increase in ship build cost (+£184m). Costs omitted from Equipment Programme 2005 and MPR05 relating to increase in ship build cost (+£52m). Higher than expected costs for the Principal Anti-Air Missile System Production Equipment (+£124m). Corrections to Warship costs (+£13m). Expected increase in costs of elements of batch two ships which are yet to be negotiated (+£250m). Corrections and adjustments to forecast costs (+£97m). The Principal Anti-Air Missile System missiles re-instated (+£173m).
Historic	+55	Exchange Rate	Pound to Euro rate worse than originally forecast (+£47m). The Principal Anti-Air Missile System exchange rate (impact of rate at Equipment Programme 2005) (+£8m).
Historic	+3	Technical Factors	Issues arising from migrating from Skynet 4 to Skynet 5 and to implement system growth (+£3m).
Net Variation (£m)	**+907**		

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

Project/ Increment Title	Category	Explanation
Type 45 Destroyer	Budgetary Factors	There was no operational impact on the programme as in 2007 and 2008 additional funding was acquired through the planning round.

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

Project/Increment Title	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Type 45 Destroyer Initial Spares	14	14	0	0
Type 45 Destroyer Full Support	804	742	-62	-58
Total (£m)	**818**	**756**	**-62**	**-58**

B.5.1 Cost Variation against approved Support / Service / PFI Cost

B.5.1.1 Type 45 Destroyer Full Support

Date	Variation (£m)	Category	Reason for Variation
April 2011	-16	Budgetary Factors	A Planning Round 2011 option re-profiled the Type 45 build and support programme to take account of the adjustments in the programme and the latest pricing information.
March 2011	-11	Procurement Processes	The impact of agreeing and placing remaining support contracts for Sea Viper at an overall lower cost than originally estimated.
March 2011	-31	Procurement Processes	Variation caused by better estimations made after awarding and embedding of support contract that have come in below approval figures used to estimate in the prior year
Historic	-4	Procurement Processes	The impact of agreeing and placing support contracts at a lower cost than originally estimated.
Net Variation (£m)	**-62**		

B.5.2 Operational Impact on Support / Service / PFI Cost

Project/Increment Title	Category	Explanation
Type 45 Destroyer Full Support		No operational impact is expected as the reduced spares holdings will still allow the Ships to meet their required operational availability.

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	232	0	232
Demonstration & Manufacture Phase	4639	361	5000
Support Phase / Service / PFI Cost	50	90	140
Total Expenditure	**4921**	**451**	**5372**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Type 45 Destroyer	July 1991	July 2000	108[5]

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Type 45 Destroyer	-	May 2007	November 2007

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
Type 45 Destroyer	The date to which the First of Class will meet the Customer's minimum operational requirement.

C.3.2 Progress against approved Dates

Project/Increment Title	Budgeted For Date	Actual / Forecast Date	Variation (+/- months)	In-Year Variation (+/- months)
Type 45 Destroyer	May 2007	July 2010	+38	0

C.3.3 Timescale variation

C.3.3.1 Type 45 Destroyer

Date	Variation (+/- months)	Category	Reason for Variation
Historic	-4	Technical Factors	Retirement of programme risk (e.g. 2 successful Principal Anti-Air Missile System missile firings, Daring Accepted off Contract) now reflected in latest Timescale Risk Analysis which indicated In-Service Date achievable 4 months earlier than previously anticipated.

Historic	+24	Procurement Processes	Longer than expected design phase plus an acknowledgement that a number of other factors which had impacted earlier in the programme had injected unrecoverable delay. These factors were principally related to delays in agreeing the original industrial strategy; problems associated with managing parallel and dependant development programmes and a better understanding of the programme to deliver In-Service Date. (MPR02 +6 months; MPR04 +18 months).
Historic	+18	Technical Factors	Latest Timescale Risk Analysis founded on data from Six Ship Proposal from BAE Systems (+11 months). Refinement of timescale risk analysis shows that there are a number of opportunities in the programme which support a most likely date of December 2009. Principal among these is the opportunity for parallel working that is not yet fully exploited within industry's plan and the potential to use the second ship to demonstrate elements of First of Class capability (-1 month). Impact of slippage to SAMPSON programme and measures taken to mitigate the full impact of that delay (+3 months). Assessment based on full timescale risk analysis (conducted jointly with BAE Systems) which gave a most likely date of March 2010, based on baseline programme. Agreement reached with company and Customer 1, however, on how Stage 2 trials programme can be de-scoped thereby giving a Most Likely date of October 2009 (+ 2 months). Latest assessment based on timescale risk analysis of most up to date programme reflecting de-scoping of trials programme (+3 months).
Net Variation (+/- months)	**+38**		

C.3.4 Other costs / savings resulting from Timescale variation

Project/Increment Title	Date	£m (+ Cost / - Saving)	Category	Reason for expenditure or saving
Type 45 Destroyer	Historic	-4	Technical Factors	Improved estimate as a result of recent studies.

Type 45 Destroyer	Historic	+2	Technical Factors	Additional maintenance periods required to run-on Type 42 Destroyer for 11 months.[6]
Type 45 Destroyer	Historic	+1	Technical Factors	Additional maintenance periods required to run-on Type 42 Destroyer for 7 months.
Type 45 Destroyer	Historic	+196	Technical Factors	Additional Type 42 run-on costs due to Type 45 slippage.
Total		**+195**		

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

Project/Increment Title	Operational Impact
Type 45 Destroyer	Delay in In-Service Date extended the period before a capability to defeat multiple attacks by sea-skimming missiles was available, as well as the capability for Royal Navy escorts to provide tactical control of combat aircraft.

C.4. Full Operating Capability

C.4.1 Definition

Project/Increment Title	Full Operating Capability	Progress to date
Type 45 Destroyer	Full Operating Capability will occur when all systems are at Full System Acceptance, the Principal Anti-Air Missile System Full Capability has been delivered and all environmental trials are complete. For Ship 1 Full Operating Capability will occur after In-Service Date.	Not applicable

C.5. Support / Service / PFI Contract

C.5.1 Scope of Support / Service / PFI Contract

Project/Increment Title	Scope
Type 45 Destroyer Initial Spares	Contract for purchase of Long Lead time spares and Industrial Mobilisation activities
Type 45 Destroyer Full Support	Up to seven years' of Support for Type 45 Platform Equipments and some complex equipments

C.5.2 Progress against approved Support / Service / PFI Contract Go-Live Date

Project/Increment Title	Approved Date	Actual Date	Variation (+/- months)	In-year Variation (+/- months)
Type 45 Destroyer Initial Spares	June 2008	June 2008	0	0

Type 45 Destroyer Full Support	April 2009	September 2009	+5	0

C.5.2.1 Go-Live Date Variation

Type 45 Destroyer Full Support

Date	Variation (+/- months)	Category	Reason for Variation
Historic	+5	Procurement Processes	5 month delay in placing Full Support Contract caused by extended contract negotiations and legal review of proposed Contract
Net Variation (+/- months)	**+5**		

C.5.3 Progress against approved Support / Service / PFI Contract Date

Project/Increment Title	Approved Date	Actual Date	Variation (+/- months)	In-year Variation (+/- months)
Type 45 Initial Spares	-	-	-	-
Type 45 Full Support	November 2017	-	-	-

C.5.3.1 End of Contract Date Variation

C.5.4 Other costs / savings resulting from Support Cost variation

C.5.5 Operational Impact of Support / Service / PFI Support Contract variation

Project/Increment Title	Operational Impact
Type 45 Destroyer	The delay in placing the support contract resulted in reducing the contract mobilisation period. There was no operational impact to HMS Daring as the ship did not enter service until July 2010.

[5] This aligns with the derived date for Initial Gate above. Type 45 is a legacy project building on the Assessment work carried out in phase 1 of the collaborative Horizon Project.

[6] Relates to slippage in In-Service Date of Type 45 First of Class only, to align with the definition of In-Service Date at Section C.3.2.

D Section D: Performance

D.1. Maturity Measures

Sentinel Score	82 GREEN

D.2.1 Performance against Defence Lines of Development

Line of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1. Equipment	Type 45 Platform including the Principal Anti-Air Missile System	Yes (with risks)	
2. Training	Provision of First of Class and Steady State Training for: Weapons Engineer; Marine Engineer; Warfare and the Principal Anti-Air Missile System. Also provision of Collective Training	Yes (with risks)	
3. Logistics	Investment Approval Board Submission; Unit Maintenance Management System; Tech. Docs.; Initial Provision Lists and First Outfit; Tooling; Support Data Pack; Support Solution Envelope; Principal Anti-Air Missile System & Long Range Radar; Information Management System	Yes (with risks)	
4. Infrastructure	Appropriate facilities for Type 45 to be available at the following: Her Majesty's Naval Base Portsmouth; Her Majesty's Naval Base Devonport; Her Majesty's Naval Base Clyde; Defence Storage and Distribution Agency Gosport	Yes (with risks)	
5. Personnel	Provision of Manpower (the crew) for all 6 ships	Yes	
6. Doctrine	Enable Type 45 to undertake assigned operations.; Enable Type 45 Air Defence activity; Tactical advice for use of the Principal Anti-Air Missile System Command and control, Aster missile system and Combat Management System; Capability upgrades are enabled through platform life	Yes	
7. Organisation	Maintenance of Type 45 In-Service Date and Type 42 paying off plan.	Yes	
8. Information	Included within the Equipment Defence Lines of Development for Type 45	Yes	
Current forecast (with risks)		8 (4)	0
Last year's forecast (with risks)		8 (4)	0

D.2.2 Defence Line of Development Variation

Date	Defence Line of Development	Category	Reason for Variation
July 2010	Equipment	Technical Factors	At In Service Date it was accepted that some technical issues remained within the Ship's Power and Propulsion System and Communications Systems.
June 2010	Equipment	Technical Factors	At In Service Date the previous issues with respect to Aster missile reliability had been successfully addressed through a salvo firing in June 2010.
Historic	Equipment	Technical Factors	The key remaining risk is against Aster missile reliability. Investigation continues through the tri-national Principal Anti-Air Missile System programme, mitigation includes further test firings and a UK salvo firing in June 2010.
Historic	Training	Technical Factors	The key remaining risk is the delivery of steady state training for Marine Engineering, Sea Viper and Warfare Maritime Composite Training System. Steady state training should be available during 2011, but this is currently being mitigated through interim training measures.
Historic	Logistics	Technical Factors	The key remaining risk is that the Sea Viper In-Service Support Contract will not be in place for HMS Daring In-Service Date. This affects the availability of HMS Daring's Sea Viper system, which is being mitigated by interim contractual arrangements. A further consequence of the Aster missile reliability issue is the availability of the Aster missile stockpile. This risk is to be tolerated until a revised delivery profile is received from the Sea Viper programme, at which time further mitigation may be possible.
Historic	Infrastructure	Technical Factors	The key remaining risk is the ability to maintain the Aster missile stockpile. This requires provision of a dedicated UK Missile Maintenance Installation which is due to be installed within Defence Storage and Distribution Agency Gosport and available in 2014. This risk, which is based on missile shelf life, is to be tolerated with careful stockpile management as reworked missiles are delivered.

Historic	Equipment	Technical Factors	The key remaining risk is the testing and integration of the Principal Anti-Air Missile system. This will be mitigated through further test firings and Naval Weapons Sea Trials during 2009.
Historic	Training	Technical Factors	The key remaining risk is the timely delivery of Marine Engineering shored-based training for Dauntless. This is being mitigated through the delivery of customised courses making use of training material already produced for Daring's crew, augmented by the increased use of onboard training.
Historic	Infrastructure	Technical Factors	The key remaining risk is the timely provision of an Aster capable missile loading facility in Portsmouth. The late provision of this facility would be mitigated by the use of alternative missile loading facilities at either Marchwood Military Port near Southampton or Glen Mallen near Glasgow.

D.3. Performance against Key Performance Measures

D.3.1 Type 45 Destroyer

D.3.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1	Equipment	Principal Anti-Air Missile System. The Type 45 shall be able to protect with a Probability of Escaping Hit of {w}, all units operating within a radius of {x}, against up to {y} supersonic sea skimming missiles arriving randomly within {z} seconds.	Yes (with risks)	

2	Equipment	Force Anti-Air Warfare Situational Awareness. The Type 45 shall be able to assess the Air Warfare Tactical Situation of 1000 air real world objects against a total arrival and/or departure rate of 500 air real world objects per hour.	Yes (with risks)	
3	Equipment	Aircraft Control. The Type 45 shall be able to provide close tactical control to at least 4 fixed wing aircraft, or 4 groups of aircraft in single speaking units, assigned to the force.	Yes (with risks)	
4	Equipment	Aircraft Operation. The Type 45 shall be able to operate both one organic Merlin (Anti-Submarine Warfare and Utility variants) and one organic Lynx Mk8 helicopter, although not simultaneously.	Yes (with risks)	
5	Equipment	Embarked Military Force. The Type 45 shall be able to operate an Embarked Military Force of at least 30 deployable troops.	Yes	

6	Equipment	Naval Diplomacy. The Type 45 shall be able to coerce potential adversaries into compliance with the wishes of Her Majesty's Government or the wider international community through the presence of a Medium Calibre Gun System of at least 114mm.	Yes	
7	Equipment	Range. The Type 45 shall be able to transit at least 3000 nautical miles to its assigned mission, operate for 3 days and return to point of origin, unsupported throughout, within 20 days.	Yes	
8	Equipment	Growth Potential. The Type 45 capability shall be able to be upgraded to incorporate new capabilities or to enhance extant capabilities through displacement Margins of at least 11.5%.	Yes	
9	Equipment	Availability. The Type 45 shall have a 70% availability to contribute to Maritime Operations over a period of at least 25 years, of which at least 35% shall be spent at sea.	Yes	
Current forecast (with risks)			9 (4)	0
Last year's forecast (with risks)			9 (1)	0

D.3.1.2 Key Performance Measures Variation

Date	Key Performance Measure	Category	Reason for Variation
July 2010	1	Technical Factors	The intent of this Key Performance Measure was met, but further work is required before operational deployment.
July 2010	2	Technical Factors	The intent of this Key Performance Measure was met, but at In-Service Date it was accepted that issues with the communications systems affected Situational Awareness. The agreed mitigations included software updates, improved training and the development of Standard Operating Procedures.
July 2010	3	Technical Factors	The intent of this Key Performance Measure was met, but at In-Service Date it was accepted that issues with the communications systems affected Aircraft Control. The agreed mitigation was a major software update in August 2010.
July 2010	4	Technical Factors	The intent of this Key Performance Measure was met, but at In-Service Date it was accepted that Aircraft Operations would be affected by adverse Electromagnetic Compatibility issues between ship's systems and helicopters. The agreed mitigation was through the implementation of Standard Operating Procedures.
June 2010	1	Technical Factors	The intent of this Key Performance Measure was met, but at In Service Date the previous issues with respect to Aster missile reliability were addressed through a successful salvo firing in June 2010.
Historic	1	Technical Factors	Most recent Principal Anti-Air Missile System test firings did not meet all of their planned objectives. The key remaining risk is therefore against Aster missile reliability. Investigation continues through the tri-national Principal Anti-Air Missile System programme.

Historic	2	Technical Factors	When MPR07 was compiled the extant version of Combat Management System software had insufficient capability to fully satisfy Key User Requirements 2 and 3. The decision was made during MPR08 reporting period to upgrade the Combat Management System software, which increased functionality and fully satisfied Key User Requirements 2 and 3.
Historic	2	Budgetary Factors	Revised programme to achieve earliest possible In-Service Date leads to a lower level of Combat Management System functionality at In-Service Date.
Historic	3	Technical Factors	When MPR07 was compiled the extant version of Combat Management System software had insufficient capability to fully satisfy Key User Requirements 2 and 3. The decision was made during MPR08 reporting period to upgrade the Combat Management System software, which increased functionality and fully satisfied Key User Requirements 2 and 3.
Historic	3	Budgetary Factors	Revised programme to achieve earliest possible In-Service Date leads to a lower level of Combat Management System functionality at In-Service Date.
Historic	4	Technical Factors	Integrated Project Team & Director of Equipment Capability agreed to conduct "First of Class Flying Trials" with a Merlin. This will remove the expectation that at In-Service Date only Lynx capability will have been demonstrated. Ability to operate Lynx but not Merlin will be demonstrated by Full Operating Capability In-Service Date. Merlin will be demonstrated beyond In-Service Date

D.3.1.3 Operational Impact of variation

Date	Key Performance Measure	Forecast	Operational impact of variation
July 2010	1, 2, 3 and 4	To be Met (with risks)	No operational impact. Mitigations are in place to ensure that HMS Daring is able to meet her operational commitments as programmed by Navy Command and promulgated through the Long Term Operating Schedule.

D.4 Support Contract

D.4.1 Type 45 Destroyer

D.4.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1	Logistics	Attributable Ship Availability Factor. An overall assessment of the ability of the class of ships to undertake their planned operational tasks.	Yes	
2	Logistics	Ship Material State. An assessment, conducted prior to operational training, of the actual condition of the equipment on each ship.	Yes (with risks)	
3	Logistics	Safety Performance. A measure of the number of safety items whose mitigation plans or completion dates are overdue.	Yes	
4	Logistics	Maintenance Clearance Rate. A measure of the number of outstanding Maintenance Items at the end of formal maintenance opportunities.	Yes	
5	Logistics	Support Service Responsiveness. A measure of the number of requests for support that are overdue for closure beyond their agreed target date.	Yes	

6	Logistics	Sustainability / Continuous Improvement. A measure of the work undertaken to improve the support service through a Continuous Improvement programme aimed at reducing support costs and/or increasing Ship availability.	Yes	
Current forecast (with risks)			6 (1)	0
Last year's forecast (with risks)			6 (0)	0

D.4.1.2 Key Performance Measures Variation

Date	Key Performance Measure	Category	Reason for Variation
February 2011	2	Technical Factors	HMS Dauntless Material Assessment & Safety Check in February 2011 showed that whilst Weapons Engineering aspects were satisfactory Marine Engineering aspects were deemed to be Below Standard.

D.4.1.3 Operational Impact of variation

Date	Key Performance Measure	Forecast	Operational impact of variation
February 2011	2	To be Met (with risks)	No operational impact. Recovery action is part of a wider power and propulsion package of work and the Below Standard assessment is not considered to be symptomatic of an underpinning long term failure. The recovery action will resolve all issues prior to HMS Dauntless' first deployment.

Project Title	
Typhoon	
Team Responsible	
Typhoon	
Senior Responsible Owner	
Head of Capability (Deep Target Attack)	

Project/Increment Name	Current Status of Projects / Increments
Typhoon	Post-Main Investment Decision
Typhoon Future Capability Programme	Post-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

Typhoon
Typhoon, formerly known as Eurofighter, is an agile multi-role combat aircraft. Originally designed primarily, but not exclusively, for air superiority the aircraft is also capable of delivering a precision ground attack capability. Typhoon has the flexibility to respond to the uncertain demands of the current and evolving strategic environment.

The aircraft is being developed, produced and supported in a collaborative project with Germany, Italy and Spain. The project is managed on behalf of the four partner nations by the NATO Eurofighter and Tornado Management Agency. To date, contracts have been placed for the RAF to receive 160 aircraft in three tranches. Typhoon support is being delivered through the letting of long-term contracts against five areas of support.

Typhoon Future Capability Programme
The Typhoon Future Capability Programme will provide enhancements to the Typhoon aircraft, both in the air-to-air and air-to-surface roles, to sustain the RAF's Typhoon fleet's multi-role capabilities.

The first phase of the Future Capability Programme, under a contract signed in March 2007, will integrate Paveway IV and the Litening III Laser Designator Pod onto Tranche 2 aircraft from 2012 as well as interoperability upgrades without which those aircraft will be neither compliant with new civil airspace regulations nor interoperable with key coalition allies. It will also provide the Human Machine Interface for Multi-Role operations, allowing Typhoon to fulfil air-to-air and air-to-surface operations with the current, planned and projected weapons.

The Department will continue to develop the Typhoon capability incrementally in line with the Strategic Defence and Security Review 2010.

A.2 The Assessment Phase

Typhoon
Pre-Development, which commenced with the approval of the feasibility study in 1984, comprised a number of activities. Following early concept studies, and various efforts at establishing a collaborative programme, there were two key Typhoon demonstration activities completed by the UK before development: the Experimental Aircraft Programme, an airframe programme primarily aimed at proving the feasibility of the Typhoon unstable flight control concepts, and the XG40 engine demonstrator programme at Rolls Royce. The results of these demonstrators and their associated studies, together with the results of similar work within the other Nations were harmonised in a Definition, Refinement and Risk Reduction phase that ran from the end of 1985 when four Nations signed the initial Memorandum of Understanding, until 1988 when the development contract was signed.

Typhoon Future Capability Programme
The approval process for Typhoon Tranche 2 noted the intention to develop the capability of the aircraft through life and envisaged an incremental route to the acquisition of future capability enhancements. The Assessment Phase found technology and integration were not a major challenge and that risks mostly pertained to the commercial and industrial aspects of the programme. These have been addressed and the MOD approvals process for the project was accelerated to combine Initial Gate, including the cost already incurred during the Assessment Phase, and Main Gate in order to maximise efficiency across the four Partner Nations.

A.3 Progress

Typhoon has been in service with the RAF since 2003 and commenced operational duties for the first time in June 2007 when it assumed Quick Reaction Alert responsibility for defence of UK airspace. Deployable Air Defence operational status was achieved on 1 January 2008, which enables Typhoon to deploy worldwide on air-to-air missions. Typhoon was declared to NATO in the deployable Air Defence – Advanced role on 1 April 2008. Typhoon assumed Quick Reaction Alert responsibility for defence of South Atlantic Islands airspace in September 2009, taking over from Tornado F3.

The existing advanced air-to-air missile capability on Tranche 1 aircraft has been complemented by the integration of an initial precision air-to-surface capability, which was declared combat ready by the RAF in July 2008. This air-to-surface capability enabled declaration of multi-role status and is in advance of more comprehensive air-to-surface capability through the Typhoon Future Capability Programme for Tranche 2 aircraft.

Deliveries of Tranche 2 aircraft commenced in October 2008. The original Typhoon fleet numbers required (232 aircraft) were established in the 1990s. Current fleet planning and assumptions to meet defence requirements have determined the aircraft numbers and capabilities required now (160 aircraft). The contract for the third Tranche, signed in July 2009, represents the best solution for the UK in balancing current military requirement and international obligations against affordability. The UK has retained the option to order further aircraft. Deliveries of Tranche 3 aircraft are scheduled to start in 2013.

The Typhoon Availability Service contract with BAE Systems, signed in March 2009 formally commenced in September 2009. The Engine Availability Service contract with Rolls-Royce was signed in December 2009. These contracts are part of the strategy to transform support arrangements through partnering with UK industry.

Number 6 Squadron, the first Typhoon fighter squadron in Scotland, officially formed at RAF Leuchars on 6 September 2010. The Typhoon Force assumed Quick Reaction Alert (North) air defence responsibility from RAF Leuchars in March 2011.

In March 2011, Typhoon aircraft were deployed overseas for the first time on contingent operations in support of the coalition plan to enforce United Nations Resolution 1973 (Libya).

A.4 Capability Risks

Typhoon is intended to be a cornerstone of UK air defence and the aircraft will be pivotal to the delivery of Standing Home Commitments. Having replaced Jaguar in the ground attack role and with future reductions in other aircraft types occurring, loss of Typhoon would reduce the UK's ground-attack and air superiority capabilities.

A.5 Associated Projects

A.6 Procurement Strategy

Post-Main Investment Decision Projects / Increments only				
Project / Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Typhoon	Eurofighter GmbH Airframe consortium comprising: Alenia, BAE Systems, Cassidian (formerly EADS(CASA) and EADS (Deutschland))	Development	Fixed Price for Airframe and equipments and Target Cost Incentive Arrangement for Aircraft Equipment Integration. Following a breach of the Limit of Contractor Liability provisions the price elements for Airframe and equipments have been converted to a Limit of Liability cost reimbursement without profit.	Non-competitive but with international sub contract competitive elements, the value of which amounts to some 30% of the overall value of the Prime Contract.
Typhoon	Eurojet Turbo GmbH Engine consortium comprising: Avio (formerly FIAT Avio), ITP, MTU, Rolls Royce	Development	Firm Price (Avio, ITP, MTU) Fixed Price (Rolls Royce) for propulsion systems	Non-competitive but with international sub contract competitive elements, the value of which amounts to some 10% of overall value of the Prime Contract.
Typhoon	Eurofighter GmbH Airframe consortium (see details under development above).	Production Investment / Production	Overall Maximum Prices for Production Investment and Production of Airframes for all 232 UK Aircraft (Fixed prices for production of 1st and 2nd Tranche Airframe). Fixed Prices for all Production, Investment and Production of Aircraft Equipment.	Non-competitive but with international sub contract competitive elements, the value of which amounts to some 30% of the overall value of the Prime Contract.

Typhoon	Eurojet Turbo GmbH Engine consortium (see details under development above).	Production Investment / Production	Overall Maximum prices for Production Investment and Production of Engines for all 232 UK aircraft. Firm Price (Avio, ITP, MTU) Fixed Price (Rolls Royce) for Tranche 1, Tranche 2 and Tranche 3 Engine Production Investment and Production.	Non-competitive but with International sub-contract competitive elements, the value of which amounts to some 10% of the overall value of the Prime Contract.
Typhoon Future Capability Programme	Eurofighter GmbH Airframe consortium comprising: Alenia, BAE Systems, Cassidian (formerly EADS(CASA) and EADS (Deutschland))	Design, development, demonstration, qualification and production clearance of the first batch of enhancements.	Overall Max Price to be converted to UK Firm Price	Collaborative. Non-competitive but with international competitive sub-contract elements.

A.7 Support Strategy

Description
Typhoon's partnered support strategy was originally approved in 2000. Its principles were reinforced by the results of a 2004 Support Review. The partnered support strategy - referred to as Typhoon Future Support - will be delivered through the letting of long-term contracts against five areas of support: for the Typhoon Availability Service on BAE Systems; for the propulsion availability service on Rolls Royce; for Avionics (Spares Provisioning and Component Repair) via the NATO Eurofighter and Tornado Management Agency; and for international Technical Support Services, also via the NATO Eurofighter and Tornado Management Agency. Valuable experience has already been gained through the letting of incremental contracts to transform Typhoon support, the first of which was the initial phase of the engine availability contract with Rolls Royce in 2005.

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
Typhoon Availability Service	BAE Systems	Support	Target Cost plus Incentive Fee	Non-competitive
Engine Availability Service	Rolls Royce	Support	Target Cost plus Incentive Fee	Non-competitive
Spares Provisioning	Eurofighter GmbH and Eurojet GmbH	Support	Fixed Price	International Non-competitive based on commitments under Memoranda of Understanding, with international workshare of sub-contracting also determined by those Memoranda

Component Repair	Eurofighter GmbH and Eurojet GmbH	Support	Fixed Price	International Non-competitive based on commitments under Memoranda of Understanding, with international workshare of sub-contracting also determined by those Memoranda
Technical Support Services	Eurofighter GmbH and Eurojet GmbH	Support	Fixed Price	International Non-competitive based on commitments under Memoranda of Understanding, with international workshare of sub-contracting also determined by those Memoranda

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Typhoon	87	78	-9	0.5%	0.4%
Typhoon Future Capability Programme	39	39	0	9%	9%
Total (£m)	**126**	**117**	**-9**	**1%**	**1%**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Typhoon	-	15173	-
Typhoon Future Capability Programme	355	410	420

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
Typhoon	15173	17740	+2567	+22
Typhoon Future Capability Programme	410	419	+9	-4
Total (£m)	**15583**	**18159**	**+2576**	**+18**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.1.1 Typhoon

Date	Variation (£m)	Category	Reason for Variation
March 2011	-9	Accounting Adjustments and Re-definitions	Removal of Indirect RDEL (Foreign Exchange) in accordance with a change in Departmental policy.
March 2011	+86	Exchange Rate	Changes to Planning Round 2011 assumptions for exchange rates.
June 2010	-55	Technical Factors	Reassessment of Development costs (-£29m) and Production costs (-£14m). Reduction in Development costs as a result of In Year savings (-£12m).

Historic	+87	Accounting Adjustments and Re-definitions	Removal of Cost of Capital due to Clear Line of Sight policy implemented by HM Treasury (+87m).
Historic	+71	Exchange Rate	Changes to planning round assumptions for foreign exchange rates
Historic	-74	Technical Factors	Reassessment of Development cost (-£70m). Reassessment of Production cost (-4m)
Historic	+2531	Technical Factors	Inclusion of Tranche 3 Aircraft contract (+£2531m)
Historic	+58	Exchange Rate	Changes to planning round assumptions for exchange rates and weakening of the Pound against the Euro and US Dollar during 2008/09
Historic	-47	Technical Factors	Reassessment of Development cost (-£83m). Reassessment of Production cost (+£36m).
Historic	-38	Budgetary Factors	Saving measures taken in Planning Round 2009 (-£38m)
Historic	-128	Budgetary Factors	Reduced provision for modifications (-£123m). Reduced quantity of Role Equipment (-£5m).
Historic	+118	Technical Factors	Development revised cost (+£55m) as a result of revised assessment of change proposals and risk. Tranche 1 production revised cost (+£50m) as a result of refined assessment of retrofit programme and interoperability modifications. Tranche 2 production revised cost (-£5m) as a result of revised assessment of change proposals. Revised assessment of UK contribution to Eurofighter, EuroJet and NATO Eurofighter and Tornado Management Agency admin costs (+£18m)
Historic	+53	Inflation	More accurate calculation of inflation based on advice from NATO Eurofighter and Tornado Management Agency (+£53m)
Historic	-18	Exchange Rate	Revised Euro Rate advised for Planning Round 2008 (-£18m).

Historic	-36	Technical Factors	Re-assessment of Tranche 2 estimated cost (-£418m),Revised assessment of Tranche 2 aircraft production contract (+£385m), Revised assessment for cost of Tranche 2 engine production contract (-£45m), Revised provision for future changes to production standards(-£35m), Revised estimate for retrofitting early Tranche 1 aircraft to final production standard (+£37m), Revised estimate for the precision air to ground capability (+£42m),Reduction in value of Role equipment required for multi role Squadrons (-£17m), Revised assessment of cost of NATO Eurofighter and Tornado Management Agency and industry management fees (+£25m), Reduction in forecast for cost of release to service support (-£10m).
Historic	-482	Procurement Processes	Transfer to Future Capability Programme.
Historic	+65	Technical Factors	Correction of omission of transferred cost in MPR05 calculation.
Historic	+19	Procurement Processes	Industry restructuring.
Historic	-1355	Changed Capability Requirements	Removal of provision for new weapons and Tranche 1 to Tranche 2 retrofit to create separate Typhoon Future Capability project ; subject to approval by Investment Approvals Board (-£377m). Separation of Tranche 3 (-£978m).

Historic	+945	Technical Factors	Higher than expected Development costs, notably for equipments (+£316m). Obsolescence costs resulting from rapid changes in computer hardware technology (+£33m). Increases in the estimated cost of enhancing the weapons system operational capabilities (+£140m). Further price variation due to slippage in the programme (+£136m). Reassessment of the cost of developing aircraft Enhanced Operational Capability and the production of Tranches 2 & 3 aircraft (most notably the reduced scope for savings due to learning curve efficiency gains) (+£320m).
Historic	+290	Changed Capability Requirements	Provision for integration of new weapons and sensors not contained within original approval (includes Conventionally Armed Stand-Off Missile, Advanced Anti-Armour Weapon, Low-Level Laser Guided Bomb, thermal imaging airborne laser designator) (+£239m) & the retrofit of Tranche 1 aircraft to Tranche 2 standard (+£117m).Deletion of requirements for gun (-£32m), 1500L fuel tank (-£16m), CRV7 Rocket (-£2m) & Air Launched Anti Radiation Missile (-£21m). Conventionally Armed Stand-Off Missile integration assets (+£5m).
Historic	-8	Budgetary Factors	Transfers to other budgets (-£8m).
Historic	-12	Inflation	Changes in inflation assumptions since approval: development (+£208m) and production (-£220m).
Historic	-114	Exchange Rate	Changes in exchange rate assumptions since approval (-£114m).

Historic	-52	Procurement Processes	Reprofiling and adjustment of anticipated Tranches 2 and 3 Airframe, Equipment and Engine prices (+£103m). Introduction of benefits to be assumed from planned implementation of SMART Procurement processes (-£165m). Reassessment of the cost and timing of integrating new weapons (+£5m). Increased estimates for QinetiQ/Dstl test facilities in support of the development trials programme (+£5m).
Historic	+413	Procurement Processes	German withdrawal from certain equipments (+£106m). Reorientation Development Assurance Programme to bridge gap between Development and Production Investment (+£28m); extension of Integrated Logistic Support programme (+£45m); Eurofighter/Eurojet GmbH management costs (+£30m); contract price increases (+£87m); risk provision (+£117m).
Historic	+259	Accounting Adjustments and Re-definitions	Changes in accounting rules (inclusion of intramural costs) (+£275m); transfer costs of industrial consortia management activities from production phase to support phase (-£218m); derivation of approved cost on a resource basis (+£202m).
Net Variation (£m)	**+2567**		

B.3.1.2 Typhoon Future Capability Programme

Date	Variation (£m)	Category	Reason for Variation
March 2011	-1	Accounting Adjustments and Re-definitions	Removal of Indirect RDEL (Foreign Exchange) in accordance with a change in Departmental policy.
March 2011	+5	Exchange Rate	Changes to planning round assumptions for exchange rates.
July 2010	-8	Technical Factors	Reduction in costs due to reassessment of risk
Historic	+8	Exchange Rate	Changes to planning round assumptions for foreign exchange rates

Historic	+7	Exchange Rate	Changes to planning round assumptions for exchange rates and weakening of the Pound against the Euro and US Dollar during 2008/09
Historic	-2	Technical Factors	Reduction in CDEL achieved at contract negotiation (-£2m).
Net Variation (£m)	**+9**		

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

Project/ Increment Title	Category	Explanation
Typhoon		None
Typhoon Future Capability Programme		None

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

Project/Increment Title	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Typhoon	13100	13100[7]	0	0
Total (£m)	**13100**	**13100**	**0**	**0**

B.5.1 Cost Variation against approved Support / Service / PFI Cost

B.5.2 Operational Impact on Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	117	0	117
Demonstration & Manufacture Phase	12672	1277	13949
Support Phase / Service / PFI Cost	3010[8]	547[9]	3557
Total Expenditure	**15799**	**1824**	**17623**

7 The forecast support cost of £13,100M includes two elements; Typhoon Project Team costs of £10,783M which have been validated by the NAO and Air Command Costs of around £2,300M which are not part of the Major Projects Report.

8 Of which £2750M are Project Team costs which have been validated by the NAO and around £260M are Air Command costs which are not part of the Major Projects Report.

9 Of which £2750M are Project Team costs which have been validated by the NAO and around £260M are Air Command costs which are not part of the Major Projects Report.

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Typhoon	(Legacy Project) Pre SMART	November 1987	-
Typhoon Future Capability Programme	Combined Initial and Main Gate approval	January 2007	-

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Typhoon	-	December 1998	-
Typhoon Future Capability Programme	January 2012	June 2012	June 2012

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
Typhoon	**In-Service Date** - Date of Delivery of first aircraft to the RAF. **Initial Operating Capability** - When Squadron Pilots begin training they start to contribute to Defence capability.
Typhoon Future Capability Programme	**In-Service Date** - Delivery to the RAF of autonomous precision Air-to-Surface military capability in 12 Tranche 2 aircraft. **Initial Operating Capability** - The same as In-Service Date.

C.3.2 Progress against approved Dates

Project/Increment Title	Budgeted For Date	Actual / Forecast Date	Variation (+/- months)	In-Year Variation (+/- months)
Typhoon	December 1998	June 2003	+54	0
Typhoon Future Capability Programme	June 2012	June 2012	0	0

C.3.3 Timescale variation

C.3.3.1 Typhoon

Date	Variation (+/- months)	Category	Reason for Variation
Historic	+32	Technical Factors	Resulting from the application of complex technologies required to enable the equipment to meet the original Staff Requirement (+32 months).
Historic	+22	Procurement Processes - International Collaboration	Reorientation of the Development phase in response to the changed strategic environment and budgetary pressures of the four nations and delays in signature of the Memoranda of Understanding for the Production and Support phases (+22 months).
Net Variation (+/- months)	**+54**		

C.3.3.2 Typhoon Future Capability Programme

C.3.4 Other costs / savings resulting from Timescale variation

Project/Increment Title	Date	£m (+ Cost / - Saving)	Category	Reason for expenditure or saving
Support costs of current equipment	Historic	+1075	-	Cost of running on Tornado and Jaguar
Other	Historic	-861	-	Estimated support costs for Typhoon not incurred
Total		+214		

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

Project/Increment Title	Operational Impact
Typhoon	Key improvements in capability not realised until revised In-Service Date are: i) Agility and all altitude performance; ii) Autonomous detection, identification and multiple engagement of air to air targets; iii) Human computer interface to reduce operator workload; iv) Multi role capability; v) Survivability through superior airframe and equipment performance; vi) Low mean time between failures. The 54 month delay has been mitigated to a small extent by compressing the entry into service period, but the net effect is a delay of four years.
Typhoon Future Capability Programme	-

C.4. Full Operating Capability

C.4.1 Definition

Project/Increment Title	Full Operating Capability	Progress to date
Typhoon	A declaration by Head of Capability (Theatre Airspace) that the full strength Military Capability has been achieved.	On track
Typhoon Future Capability Programme	A declaration by Head of Capability (Theatre Airspace) that Swing-role military capability has been achieved.	On track

C.5. Support / Service / PFI Contract

C.5.1 Scope of Support / Service / PFI Contract

Project/Increment Title	Scope
Typhoon Availability Service	Aircraft platform availability service integrating on-shore support activities with the outputs of mandated international contracts
Engine Availability Service	National engine spares inclusive availability contract with international support contracts
Spares Provisioning	International spares provisioning contract under the terms established in Memoranda of Understanding.
Component Repair	International component repair contract under the terms established in Memoranda of Understanding.
Technical Support Service	International contract for the provision of technical support services and advice under the terms established in Memoranda of Understanding.

C.5.2 Progress against approved Support / Service / PFI Contract Go-Live Date

C.5.3 Progress against approved Support / Service / PFI Contract Date

C.5.4 Other costs / savings resulting from Support Cost variation

C.5.5 Operational Impact of Support / Service / PFI Support Contract variation

D Section D: Performance

D.1. Maturity Measures

Sentinel Score	80 GREEN

Sentinel score applies to the Typhoon Future Capability programme only.

D.2.1 Performance against Defence Lines of Development

Line of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1. Equipment	Delivery of Typhoon platform, Typhoon Future Capability Programme and associated weapons.	Yes	
2. Training	The timely provision of suitably qualified and experienced personnel to deliver Defence outputs, now and in the future.	Yes (with risks)	
3. Logistics	The provision of maintenance and support to the Typhoon fleet, including the operation of support activities such as supply chain.	Yes (with risks)	
4. Infrastructure	The acquisition, development, management and disposal of all fixed, permanent buildings and structures, land, utilities and facility management services in support of the Typhoon capability.	Yes (with risks)	
5. Personnel	The timely provision of sufficient, capable and motivated personnel to deliver the Typhoon capability, now and in the future.	Yes (with risks)	
6. Doctrine	Doctrine is an expression of the principles by which military forces guide the use of Typhoon.	Yes	
7. Organisation	Relates to the operational and non-operational organisational relationships of people. It typically includes military force structures, MOD civilian organisational structures and Defence contractors providing support.	Yes	
8. Information	The timely provision of sufficient, capable IT and information systems to deliver Typhoon capability. It includes the production and validation of all mission support data for Operations, Trials and Training.	Yes (with risks)	
Current forecast (with risks)		8 (5)	0
Last year's forecast (with risks)		8 (3)	0

D.2.2 Defence Line of Development Variation

Date	Defence Line of Development	Category	Reason for Variation
March 2011	Infrastructure	Technical Factors	Overall performance is good with minor issues mainly relating to the second operating base at Leuchars. Minimum infrastructure was provided because the timescale for delivery was short (approximately two years) and some mitigations are still in place. Furthermore, funding for the building for synthetic simulators has still not been approved.
March 2011	Logistics	Technical Factors	National Support arrangements are working well, but there are problems with the timely supply of spares and repair of equipment under the collaborative support contracts which are contributing to the RAF failing to achieve its flying hours.
Historic	Information	Changed Capability Requirements	Generation and validation of mission data for elements of the weapon system continues to lag aircraft development. With mission data production reliant on interim industry equipment, additional future investment will be required.
Historic	Training	Budgetary Factors and Technical Factors	A Planning Round 2009 measure restricted the Annual Flying Task resource available to support flying training for Front Line pilots, capping the deliverable capability; pilots are now resourced to ensure minimum safe sustainable flying rate. Eurofighter Aircrew Synthetic Training Aids also failed to deliver software upgrades to programme timescales; synthetic multi-role training capability has been delayed as a result.
Historic	Equipment	Redefinition	The Equipment DLOD is not now considered "At Risk" as the previous assessment was based on an in-year perspective, rather than a forecast of progress towards achieving Full Operating Capability.
Historic	Logistics	Redefinition	The Logistics DLOD is not now considered "At Risk" as the previous assessment was based on an in-year perspective, rather than a forecast of progress towards achieving Full Operating Capability.

Historic	Personnel	Budgetary Factors	Generation of sufficient technical manpower to fulfil the combined requirements of the Typhoon Availability Service and those necessary to man the front line could not be met, largely due to a global shortfall of aircraft engineering technicians.
Historic	Equipment	Budgetary Factors	There are currently insufficient resources available at the right time to integrate weapons systems, such as BVRAAM, onto the Typhoon platform.
Historic	Training	Changed Capability Requirements	The requirement to provide additional training as a result of exports has adversely affected the UK's Typhoon training capacity.
Historic	Logistics	Changed Capability Requirements	The requirement to provide additional spares provisioning as a result of exports has adversely affected the UK's ability to deliver full logistics support.
Historic	Logistics	Changed Capability Requirements	The equipment required to generate, verify and validate mission dependent data for elements of the weapons system lags aircraft development by up to 2 years and is currently not fit for purpose. Therefore, mission dependent data production is reliant on interim industry equipment which does not permit validation or verification testing of this data to MOD quality assurance standards until January 2010 at the earliest. Mitigations are in place to manage this risk against Typhoon's tasks over the next 3 years, but this area will require further investment as Typhoon's tasks grow in accordance with extant Planning Assumptions.

D.3. Performance against Key Performance Measures

D.3.1 Typhoon

D.3.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1	Equipment	Take off Distance	Yes	
2	Equipment	Landing Distance		Yes
3	Equipment, Training, Logistics, Personnel	Attributable Failures per 1000 Flying Hours	Yes	
4	Equipment, Logistics	Life (Flying Hours)	Yes	
5	Equipment	Sustained Minimum Turn Radii at Sea Level, Max Reheat	Yes	
6	Equipment	Maximum speed at sea level	Yes	
7	Equipment	Maximum speed at 36,000 ft	Yes (with risks)	
8	Equipment	Acceleration Time at Sea level from 200 knots to Mach 0.9	Yes	
9	Equipment	Instantaneous Turn Rate Sea Level, Max Reheat	Yes	
10	Equipment	Sustained Turn Rate at Mach 0.9 at 5000ft, Max Dry	Yes	
Current forecast (with risks)			9 (1)	1
Last year's forecast (with risks)			9 (1)	1

D.3.1.2 Key Performance Measures Variation

Date	Key Performance Measure	Category	Reason for Variation
Historic	KUR 07	Technical Factors	Industry flight trials to extend the aircraft performance envelope have identified acoustic vibration within the engine intake which is causing the intake to resonate at very high speeds. This has potential long term fatigue implications. Trials are ongoing by Eurofighter GmbH as part of the main development contract.

Historic	KUR 02	Technical Factors	Refined modelling carried out to support the 1994 reorientation submission indicated that in the most adverse conditions the specified landing distance would not be achieved - this was accepted by the Equipment Approvals Committee.

D.3.1.3 Operational Impact of variation

D.3.2 Typhoon Future Capability Programme

D.3.2.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1	All	To engage a defined set of targets.	Yes	
2	All	To complete Air Policing duties.	Yes	
3	All	To maintain Typhoon rates of effort.	Yes	
4	All	To satisfy Communications and Information Systems interoperability requirements.	Yes	
5	All	To complete a mission in zero visibility.	Yes	
6	All	To complete the mission from zero to bright sunlight.	Yes	
7	All	To maintain the Typhoon supportability.	Yes	
Current forecast (with risks)			7 (0)	0
Last year's forecast (with risks)			7 (0)	0

D.3.2.2 Key Performance Measures Variation

D.3.2.3 Operational Impact of variation

D.4 Support Contract

D.4.1 Typhoon

D.4.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1	Logistics	Forward Available Fleet: Measured as a percentage of the average number of available Forward Available Fleet aircraft against the planned number of Forward Available Fleet aircraft for the accounting period.	Yes	
2	Logistics	Operational Aircraft: Measured as the number of operational aircraft within the appropriate readiness timescale.	Yes	
3	Training	Pilots: Measured as the percentage of productive pilots available for tasking against the planned number of pilots for the accounting period.	Yes	
Current forecast (with risks)			3 (0)	0
Last year's forecast (with risks)			3 (0)	0

D.4.1.2 Key Performance Measures Variation

D.4.1.3 Operational Impact of variation

Project Title
United Kingdom Military Flying Training System (UKMFTS)
Team Responsible
United Kingdom Military Flying Training System (UKMFTS)
Senior Responsible Owner
Air Marshal Andy Pulford

Project/Increment Name	Current Status of Projects / Increments
United Kingdom Military Flying Training System	Pre-Main Investment Decision
Advanced Jet Trainer	Post-Main Investment Decision
Advanced Jet Trainer Operational Capability 2	Post-Main Investment Decision
Training System Partner and Headquarters	Post-Main Investment Decision
Advanced Jet Trainer Ground Based Training Environment	Post-Main Investment Decision
Rear Crew Stage 1	Post-Main Investment Decision
Rear Crew Stage 2	Pre-Main Investment Decision
Multi Engine	Pre-Main Investment Decision
Basic Trainer	Pre-Main Investment Decision
Rotary Wing	Pre-Main Investment Decision
Elementary Flying Training	Pre-Main Investment Decision

UNITED KINGDOM MILITARY FLYING TRAINING SYSTEM

A. Section A: The Project

A.1 The Requirement

United Kingdom Military Flying Training System will deliver a coherent, flexible and integrated flying training capability catering for the needs of the Royal Navy, the Royal Air Force and the Army Air Corps. The flying training system takes aircrew from initial training through elementary, basic and advanced flying training phases to their arrival at their designated operational aircraft. The current system is at risk of being unable to deliver the required quantity and quality of aircrew to meet the input standard for the Operational Conversion Units. The existing training platforms are approaching the end of their useful lives and include outdated systems that are unable to prepare trainees for current and future front line aircraft. The current system is based on a number of separate contractual arrangements for the provision of equipment and support. Consequently the system is piecemeal, difficult to manage and inefficient. It also introduces significant delays due to lengthy training programmes and gaps between courses.

The focus for United Kingdom Military Flying Training System is to achieve a holistic system based on capability and service delivery; it is not solely about the provision of aircraft platforms. It also offers an opportunity to modernise the flying training processes for all three Services, realise efficiencies and, since training is currently spread across several organisations, take advantage of potential economies of scale.

Advanced Jet Trainer
The MOD requires an Advanced Jet Trainer for pre-operational training of fast-jet pilots. This task is currently fulfilled by the Hawk TMk1 aircraft, which will need to be replaced in the tactical weapons training role from 2010. The full range of skills required for aircrew to fly front-line aircraft cannot now be gained using the current jet trainer, so more training on operational aircraft has to be undertaken. The introduction of Typhoon and the future Joint Combat Aircraft exacerbates this training gap such that the required standard for Typhoon aircrew is not achievable with Hawk TMk1.

The Advanced Jet Trainer (known as Hawk T2) is the Fast Jet element of the wider UK Military Flying Training System programme and will deliver capabilities including: a modern glass cockpit environment, an avionics suite compliant with latest airspace legislation, an embedded training system that simulates front-line sensors and weapons and a flexible and upgradeable mission system. Support, Infrastructure and a Ground Based Training Environment will also be provided. Advanced Jet Trainer is contracted for in such a way to ensure that it can be subsumed within the main UK Military Flying Training System contract at a later date.

A.2 The Assessment Phase

Four possible procurement options were identified at Initial Gate. The Do-nothing option was discounted. The Do Minimum option would not deliver the required quality and quantity of students in the correct timescales. The remaining options, Public Private Partnership/Private Finance Initiative and Smart Conventional, were tested in a Convergence Phase which concluded that the adoption of a Public Private Partnership Contractual Partnering model would best harness the collective skills of MOD and industry by utilising a mix of Private Finance Initiative and conventional procurement to deliver a coherent and flexible system of systems.

This option envisaged the appointment of a Training System Partner to work with the MOD over the life of the project to deliver incrementally the total aircrew training requirement. The strategy was approved by Investment Approvals Board in February 2005. An Invitation To Negotiate was issued to three consortia in March 2005; the bids were received in August 2005. The Main Gate Business Case (Stage 1) was approved by Investment Approvals Board and Ascent was announced as Preferred Bidder in November 2006. The United Kingdom Military Flying Training System Main Gate (Stage 2) submission in the form of an Information Note was submitted in December 2007. This was approved by Minister (Defence Equipment and Support) and Treasury in February 2008. The Training System Partner Contract was signed in May 2008.

Additional assessment work will be required post-Main Gate for the different training platforms that will be acquired incrementally. These increments will be subject to further approvals.

Contract award for the United Kingdom Military Flying Training System was May 2008. The head lease for the Military Flying Training System Headquarters Building was signed 17th April 2008.

Four possible procurement options were identified at Initial Gate. The Do-nothing option was discounted. The Do Minimum option would not deliver the required quality and quantity of students in the correct timescales. The remaining options, Public Private Partnership/Private Finance Initiative and Smart Conventional, were tested in a Convergence Phase which concluded that the adoption of a

Advanced Jet Trainer
At Initial Gate (December 2002) Advanced Jet Trainer was a component of United Kingdom Military Flying Training System. Within the £39m approved for United Kingdom Military Flying Training System assessment, £2m related to Advanced Jet Trainer and a PFI approach was assumed. In July 2003 a Ministerial Direction was given to conventionally procure Hawk 128 from BAE Systems.

In 2003 a £31m Risk Reduction Contract was placed with BAE Systems to cover risk reduction activities to October 2003. BAE Systems continued to work at risk on Assessment Phase activities up to November 2004 when approval was given for a combined Assessment & Development Phase based on an incremental approach at a Not To Exceed price of £196m and a Not To Exceed completion date of August 2008; the Assessment Phase element of this approval was around £75m. A Design and Development Contract was let to BAE Systems in December 2004.

In May 2008 a contract was placed with BAE Systems to extend the initial demonstration and manufacturing phases to deliver the incremental capability (Operational Capability 2). The upgrade is primarily a software upgrade that adds synthetic simulation for radar, advanced air-to-air and air-to-ground missiles and surface to air missile threats.

Initial support contracts were placed in July 2008, August and December 2009 with BAE Systems to provide support capability for the aircraft at RAF Valley until December 2010. The In-Service Support Contract for the period to March 2014 was placed on the 31 March 2010.

A.3 Progress

United Kingdom Military Flying Training System
Following award of the Training System Partner Contract the next phase of the programme was the provision of a training capability for the Royal Navy Observers – Rear Crew Training Stage 1. A Review Note was submitted in November 2007 seeking approval to issue the Invitation to Negotiate, this was approved in December 2007. In May 2009 the Main Gate Business Case was submitted and approved subject to caveats in relation to In Year Affordability and Safety and Environmental assurances. An Information Note was submitted in July 2009 confirming resolution of the caveats and the contract was subsequently awarded in July 2009.

Advanced Jet Trainer
Operational Capability level 0 was completed by BAE Systems in August 2008 and Release to Service was achieved in April 2009. Initial Spares have been delivered to RAF Valley, maintainers and conversion training for pilots completed and BAE Systems delivered the first production aircraft in February 2009. The Operational Capability level 2 development programme is progressing to plan. Minister approved the In-Service Support Review Note in January 2010 with HM Treasury and commitment approval received in March 2010. To date 25 Hawk T2 aircraft have been delivered.

Advanced Jet Trainer - OC2
Operational Capability level 2 is an incremental capability to the AJT Operational Capability level 0 standard introducing in-cockpit simulation of sensors and weapons across a network of Hawk T2 aircraft. The development phase was placed on contract with BAE Systems at the end of May 2008 with Military Release to Service on the 18th February 2011. BAE Systems are on contract to embody the modification (datalink and avionics software update) to the RAF Valley fleet and work commenced on the 19th February 2011; to date 11 aircraft have been modified. The ground-based Mission Planning and Debriefing System has been made compatible with Operational Capability level 2 aircraft and development continues to provide full Operational Capability level 2 debriefing functionality by end 2011.

Advanced Jet Trainer Infrastructure and Ground Based Training Environment
Advanced Jet Trainer Initial Course Capability date is on schedule for November 2011, when the first ab-initio student training course commences. This date is aligned with the Advanced Jet Trainer Initial Operating Capability and has the same definition/requirements.

All interim Ready For Training Use dates have now been achieved, specifically;

- Ready For Training Use 1: interim Flight Training Device at RAF Valley – February 2010
- Ready For Training Use 2: infrastructure at RAF Valley – October 2010
- Ready For Training Use 3: Ground-Based Training Environment (excluding Full Mission Simulator # 2) – January 2011
- Ready For Training Use 4: Ascent Ground Instructors – December 2010
- Ready For Training Use 5: Full Mission Simulator #2 – February 2011

The first phase to upgrade the Ground-Based Training Environment devices to Operational Capability level 2 standard has been contracted via Ascent. The work, involving the development of a set of requirements and a technical solution for the upgrade of the devices, is due to complete in July 2012. The work will include delivery of the first engineering release of the re-targeted Operational Capability level 2 Operational Flight Programme software for use in the Ground-Based Training Environment .

Rear Crew Stage 1
Ready For Training Use 1 and Ready For Training Use 1a were achieved on 1st March 2011; all Training Service Enablers, with the exception of the KingAir 350ER Aircraft fitted with the Tactical Mission Trainer-Air, are ready for training to commence. This includes; Information and Communications Technology, Infrastructure, Ground-Based Training Environment together with Instructors and Pilots for both RAF Barkston Heath and RNAS Culdrose. This was a key milestone to the provision of the overall training system.

A.4 Capability Risks

The current training system is unable to train aircrew to the standard required, or to provide sufficient aircrew to meet manning requirements. Unless the training system is equipped to provide the skills needed, operational effectiveness will be seriously degraded. With legacy training aircraft fast approaching their Out of Service Date there is a belief that the current system will not be able to sustain the front line in the long term. Financial provision made in 2010 to maintain coherency has demonstrated that support costs to extend current platforms are more expensive.

The Advanced Jet Trainer delivers the Phase 4 Fast Jet training element into the United Kingdom Military Flying Training System project. There is a dependency on the United Kingdom Military Flying Training System Project for the provision of Ground Based Training Environment to achieve Advanced Jet Trainer Initial Operating Capability.

A.5 Associated Projects

A.6 Procurement Strategy

Pre-Main Investment Decision Projects / Increments only		
Project / Increment Title	**Procurement Route**	**Approval Status**
United Kingdom Military Flying Training System	Competition	Pre-Main Gate
Rear Crew Stage 2	-	Pre-Main Gate
Multi Engine	-	Pre-Main Gate
Basic Trainer	-	Pre-Main Gate
Rotary Wing	-	Pre-Main Gate
Elementary Flying Training	-	Pre-Main Gate

Post-Main Investment Decision Projects / Increments only				
Project / Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Advanced Jet Trainer	BAE Systems, Warton	Assessment and Demonstration	Target Cost Incentive Fee	No Acceptable Price, No Contract
Advanced Jet Trainer Operational Capability 2	BAE Systems, Warton	Demonstration to Manufacture	Target Cost Incentive Fee	No Acceptable Price, No Contract
Training System Partner and Headquarters	Ascent (consortium Lockheed Martin & Babcock International Group)	Assessment to In Service	PFI	Competitive - UK
Advanced Jet Trainer Ground Based Training Environment	Ascent (consortium Lockheed Martin & Babcock International Group)	Manufacture to In Service	PFI	Competitive - UK
Rear Crew Stage 1	Ascent (consortium Lockheed Martin & Babcock International Group)	Manufacture to In Service	Prime Contractor	Competitive - UK

A.7 Support Strategy

Description
Advanced Jet Trainer T2 contract placed in July 2008 to provide shakedown flying (flight testing of the aircraft under operational conditions to ensure fit for purpose) and to manage the Initial Provision of Spares package. Futher contract placed in August 2009 and December 2009 to continue shakedown flying and syllabus development until December 2010. HM Treasury and commitment approval received and contract placed on 31 March 2010 for In-Service Support to March 2014 incorporating previous Interim Support arrangements. For the remaining capabilities to be delivered through United Kingdom Military Flying Training System it is intended that long-term service provision contracts eg PFI will be placed. This is already the case for Advanced Jet Trainer Infrastructure and Ground Based Training Equipment and Rear Crew Stage 1.

Support Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
United Kingdom Military Flying Training System	-	-	-	-
Advanced Jet Trainer (Interim Support)	BAE Systems Salmesbury	Contract placed in July 2008 to provide shakedown flying (flight testing of the aircraft under operational conditions to ensure fit for purpose) and to manage the Initial Provision for Spares package	Firm Price	Under Existing Hawk Integrated Operational Support contract

Advanced Jet Trainer (Interim Support)	BAE Systems Salmesbury	Contract placed in August 2009 to conduct shakedown flying and syllabus development until December 2009.	Firm Price to be sustained within Target Cost Incentive Fee	Placed under existing Hawk Integrated Operational Support contract which will be subsumed into the main Service Support Contract
Advanced Jet Trainer (Interim Support)	BAE Systems Salmesbury	Contract placed in December 2009 to conduct shakedown flying and syllabus development until December 2010.	Firm Price to be sustained within Target Cost Incentive Fee	Placed under existing Hawk Integrated Operational Support contract which will be subsumed into the main Service Support Contract
Advanced Jet Trainer	BAE Systems Salmesbury	HM Treasury and Commitment Approval received and the contract was placed on 31 March 2010 for In Service Support to March 2014 incorporating previous Interim Support arrangements	Firm Price to be sustained within Target Cost Incentive Fee	Single Source
Advanced Jet Trainer Operational Capability 2	-	-	-	-
Training System Partner & Headquarters	Babcock International Group	Provision of Headquarters building	Lease	Babcock International Group hold Head Lease, MOD have license to underlet.
Advanced Jet Trainer Ground Based Training Environment	Support is included in main contract			
Rear Crew Stage 1	Support is included in main contract			

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
United Kingdom Military Flying Training System	39	34	-5	-	-
Advanced Jet Trainer	75	75	0	17%	17%
Advanced Jet Trainer Operational Capability 2	2	2	0	-	-
Training System Partner and Headquarters		-	-	-	-
Advanced Jet Trainer Ground Based Training Environment		-	-	-	-
Rear Crew Stage 1		-	-	-	-
Rear Crew Stage 2		-	-	-	-
Multi Engine		-	-	-	-
Basic Trainer		-	-	-	-
Rotary Wing		-	-	-	-
Elementary Flying Training		-	-	-	-
Total (£m)	**116**	**111**	**-5**	**-**	**-**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
United Kingdom Military Flying Training System	-	-	-
Advanced Jet Trainer	453	471	478
Advanced Jet Trainer Operational Capability 2	36	40	43
Training System Partner and Headquarters	304	307	328
Advanced Jet Trainer Ground Based Training Environment	340	344	361

Rear Crew Stage 1	73	73	78
Rear Crew Stage 2	-	-	-
Multi Engine	-	-	-
Basic Trainer	-	-	-
Rotary Wing	-	-	-
Elementary Flying Training	-	-	-

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
United Kingdom Military Flying Training System	-	-		
Advanced Jet Trainer	471	445	-26	+2
Advanced Jet Trainer Operational Capability 2	40	38	-2	+1
Rear Crew Stage 1	73	73	0	+2
Total (£m)	**584**	**556**	**-28**	**+5**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.1.1 United Kingdom Military Flying Training System

B.3.1.1 Advanced Jet Trainer

Date	Variation (£m)	Category	Reason for Variation
January 2011	+2	Technical Factors	Paint adherence issues may result in additional cost, although overall cost still within contract maximum price
Historic	+1	Accounting Adjustments and Re-definitions	Removal of Cost of Capital due to Clear Line of Sight policy implemented by HM Treasury.
Historic	-9	Accounting Adjustments and Re-definitions	Completion of design and development contract (Operational Capability 0) activities at less than forecast (-£6m) adjustment to Indirect RDEL (-£5m) from MPR08 and minor changes to other cost estimates (+£2m)
Historic	-5	Technical Factors	Changes between Production Contract Award and Planning round submission, including changes to production support estimates (-£4m), transfer of risk to UK Military Flying Training System (-£8m), increase in demonstration costs (+£2m). Additional Assessment work on an enhancement capability, Operational Capability 2. Including design and development contract increases (+£4m), support costs increases (+£1m).

Historic	-15	Procurement Processes	Change in BAE Systems labour rates from approval to the agreed contract price as a result of the agreement of rates between the MoD and BAE Systems.
Net Variation (£m)	**-26**		

B.3.1.2 Advanced Jet Trainer Operational Capability 2

Date	Variation (£m)	Category	Reason for Variation
March 2011	+2	Technical Factors	Cost of Ground Based Training Envirnment upgrade increase
March 2011	-1	Technical Factors	Various minor cost savings made by BAE Systems on development side
Historic	+1	Accounting Adjustments and Re-definitions	Removal of Cost of Capital due to Clear Line of Sight policy implemented by HM Treasury.
Historic	-1	Technical Factors	Reduction in Contractor estimate for security accreditation
Historic	-2	Accounting Adjustments and Re-definitions	Approved Budgetary Level included the maximum value. As Operational Capability 2 is a Target Cost Incentive Fee arrangement the forecast reflects the target value.
Historic	-1	Accounting Adjustments and Re-definitions	Reduction in project costs reflecting Approval Authority change to Approved Budgetary level (to £43m)
Net Variation (£m)	**-2**		

B.3.1.3 Rear Crew Stage 1

Date	Variation (£m)	Category	Reason for Variation
March 2011	+2	Technical Factors	Removal of Asbestos. Work not included in original approval.
March 2011	-1	Budgetary Factors	Cost management to offset European Aviation Safety Authority requirements
April 2010	+1	Technical Factors	Newly introduced European Aviation Safety Authority legislative requirements resulted in additional works being required to meet new standard.

Historic	-2	Exchange Rate	Reduction resulted from final contracted values impacted by changes In the US dollar exchange rate.
Net Variation (£m)	**0**		

B.3.1.4 Rear Crew Stage 2

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

Project/ Increment Title	Category	Explanation
United Kingdom Military Flying Training System		No Impact
Advanced Jet Trainer		No Impact
Advanced Jet Trainer Operational Capability 2		No Impact
Rear Crew Stage 1		No Impact
Rear Crew Stage 2		No Impact

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Advanced Jet Trainer (Support)	173	152	-21	-12
Training System Partner and Headquarters	307	293	-14	-13
Advanced Jet Trainer Ground Based Training Environment	344	344	-0	-0
Multi Engine	-	-		
Basic Trainer	-	-		
Rotary Wing	-	-		
Elementary Flying Training	-	-		
Total (£m)	**824**	**789**	**-35**	**-25**

B.5.1 Cost Variation against approved Support / Service / PFI Cost

B.5.1.1 Advanced Jet Trainer (Support)

Date	Variation (£m)	Category	Reason for Variation
March 2011	-6	Technical Factors	Lower than expected requirement for additional works; Post Design Services (-£4M), Integrated Maintenance Facility (-£1M) and other cost savings (-£1M)

March 2011	-2	Technical Factors	Capital Spares replenishment not incurred (no expenditure)
January 2011	-4	Budgetary Factors	Budget Transferred to Defence Estates for building at RAF Valley in respect of Integrated Maintenance Facility
Historic	-2	Accounting Adjustments and Re-definitions	Rounding up of approval figure (-£1M) and reduction in consumption of Capital Spares (-£1M)
Historic	-1	Budgetary Factors	Actual figure less than forecast.
Historic	-5	Technical Factors	Provision for BAE Systems accrual not required
Historic	-1	Technical Factors	Reduction in contract cost at the point of incorporation
Net Variation (£m)	**-21**		

B.5.1.2 Training System Partner and Headquarters

Date	Variation (£m)	Category	Reason for Variation
March 2011	-11	Budgetary Factors	Alignment of forecast with contract values and current indexation factors
March 2011	-2	Technical Factors	Reduction in running costs of Joint Headquarters
Historic	+2	Procurement Processes	Option to delay infrastructure rebuild leads to additional costs being built in for future years
Historic	-1	Technical Factors	Costs to refurbish building ready for occupation, less than forecast
Historic	-2	Procurement Processes	Delays in securing the building
Net Variation (£m)	**-14**		

B.5.1.3 Advanced Jet Trainer Ground Based Training Environment

B.5.1.4 Multi Engine

B.5.1.5 Basic Trainer

B.5.1.6 Rotary Wing

B.5.1.7 Elementary Flying Training

B.5.2 Operational Impact on Support / Service / PFI Cost

Project / Increment Title	Category	Explanation
Advanced Jet Trainer		No Impact

Training System Partner and Headquarters		No Impact
Advanced Jet Trainer Ground Based Training Environment		No Impact
Multi Engine		-
Basic Trainer		-
Rotary Wing		-
Elementary Flying Training		-

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	105	1	106
Demonstration & Manufacture Phase	471	31	502
Support Phase / Service / PFI Cost	86	71	157
Total Expenditure	**662**	**103**	**765**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
United Kingdom Military Flying Training System	September 2003	July 2013	118
Advanced Jet Trainer	November 2004	August 2006	21
Advanced Jet Trainer Operational Capability 2	November 2004	February 2008	39
Training System Partner and Headquarters	-	-	-
Advanced Jet Trainer Ground Based Training Environment	September 2003	February 2008	53
Rear Crew Stage 1	December 2007	May 2009	17
Rear Crew Stage 2	-	-	-
Multi Engine	-	-	-
Basic Trainer	-	-	-
Rotary Wing	-	-	-
Elementary Flying Training	-	-	-

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
United Kingdom Military Flying Training System		-	-
Advanced Jet Trainer	December 2008	May 2009	February 2010
Advanced Jet Trainer Operational Capability 2	-	-	-
Training System Partner and Headquarters	-	March 2008	-
Advanced Jet Trainer Ground Based Training Environment	-	July 2010	-
	-	September 2010	-
Rear Crew Stage 1	June 2011	July 2011	September 2011
Rear Crew Stage 2	-	-	-
Multi Engine	-	-	-
Basic Trainer	-	-	-
Rotary Wing	-	-	-
Elementary Flying Training	-	-	-

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
United Kingdom Military Flying Training System	-
Advanced Jet Trainer	In Service Date is defined as the date where Hawk T2 can be used for the development of the future Phase 4 training syllabus. This will require Initial Logistic Support Date to be achieved, delivery of 4 aircraft to Operational Capability 0 standard, 6 pilots converted to type and at least a Part Task Trainer. Initial Operational Capability is defined as the point where the first ab-initio student training on Hawk T2 can commence. This will require In Service Date plus delivery of the Ground Based Training Environment (2 Full Mission Simulators), Full Syllabus Development complete, sufficient Instructors trained, and Squadron /Maintenance Infrastructure delivered and accepted.
Advanced Jet Trainer Operational Capability 2	Operational Capability 2 is an incremental part of the design and development of the Hawk T2. As a software upgrade to the aircraft systems, Operating Capability 2 has no specific In Service Date but instead contributes to the overall Full Operating Capability of the Hawk T2.
Rear Crew Stage 1	Initial Training Capability equates to In Service Date and is the point in the programme where the Rear Crew Trainer 2B Contractor is ready to commence the instructor training phase. Initial Course Capability equates to Initial Operating Capability and is the point in the programme where the Rear Crew Trainer 2B Contractor is ready to commence the operational phase
Rear Crew Stage 2	Not yet defined

C.3.2 Progress against approved Dates

Project/Increment Title	Budgeted For Date	Actual / Forecast Date	Variation (+/- months)	In-Year Variation (+/- months)
United Kingdom Military Flying Training System	-	-	-	-
Advanced Jet Trainer	May 2009	February 2010	+9	0
Advanced Jet Trainer Operational Capability 2	-	-	-	-
Rear Crew Stage 1	July 2011	September 2011	+2	0
Rear Crew Stage 2	-		-	-

C.3.3 Timescale variation

C.3.3.1 United Kingdom Military Flying Training System

C.3.3.2 Advanced Jet Trainer

Date	Variation (+/- months)	Category	Reason for Variation
Historic	+2	Technical Factors	Negotiations in respect of production issues and Return to Work generated by Wing Spar problem extended programme timescale.
Historic	-5	Technical Factors	Variation as a result of mitigation actions by Training System Partner to meet Ready For Training Use requirements
Historic	+8	Technical Factors	Re-planning by Training System Partner of Ready For Training Use dates for Ground Based Training Environment as a result of delay in Training System Partner Contract Award.
Historic	+4	Technical Factors	Risk increase in late delivery of a dependency resulting in a 4 month slip to the In Service Date noted at Main Gate.
Net Variation (+/- months)	**+9**		

C.3.3.3 Advanced Jet Trainer Operational Capability 2

C.3.3.4 Rear Crew Stage 1

Date	Variation (+/- months)	Category	Reason for Variation
Historic	+2	Technical Factors	Delay in delivery of aircraft resulting from clearance through Federal Aviation Authority and European Aviation Safety Agency processes taking longer than expected.
Net Variation (+/- months)	+2		

C.3.3.5 Rear Crew Stage 2

C.3.4 Other costs / savings resulting from Timescale variation

Project/Increment Title	Date	£m (+ Cost / - Saving)	Category	Reason for expenditure or saving
Advanced Jet Trainer	Historic	-4	Procurement Processes	Reflects the anticipated change in BAE Systems estimates for supporting Hawk 128

Advanced Jet Trainer	Historic	+4	Budgetary Factors	Additional costs of further support to Hawk TMk 1 Training Fleet
Total		**0**		

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

Project/Increment Title	Operational Impact
United Kingdom Military Flying Training System	-
Advanced Jet Trainer	There was no operational impact as the Hawk TMk1 Out of Service Date has been extended such that the continuity of flying training will be maintained.
Advanced Jet Trainer Operational Capability 2	-
Rear Crew Stage 1	-
Rear Crew Stage 2	-

C.4. Full Operating Capability

C.4.1 Definition

Project/Increment Title	Full Operating Capability	Progress to date
United Kingdom Military Flying Training System	-	-
Advanced Jet Trainer	Full Operating Capability will occur when all student courses are being trained on the Hawk T2 aircraft at the Operational Capability 2 standard.	-
Advanced Jet Trainer Operational Capability 2	After incorporation into the Advanced Jet Trainer aircraft software - Full Operating Capability will occur when all student courses are being trained on the Hawk T2 aircraft at the Operational Capability 2 standard.	-
Rear Crew Stage 1	Ready For Training Use Full course Capability equates to Full Operating Capability and is when the full training service commences.	-
Rear Crew Stage 2	-	-

C.5. Support / Service / PFI Contract

C.5.1 Scope of Support / Service / PFI Contract

Project/Increment Title	Scope
United Kingdom Military Flying Training System	-

Advanced Jet Trainer (Support)	Initially to provide shakedown flying (flight testing of the aircraft under operational conditions to ensure fit for purpose), management of Initial Spares package and subsequent full support of aircraft fleet.
Training System Partner and Headquarters	To design and implement a Training System to meet the requirements of UK Military Flying Training System. To provide a combined headquarters building for MOD and Ascent (the Training System Partner).
Advanced Jet Trainer Ground Based Training Environment	Provide the Infrastructure and Ground-based Training Environment and, in conjunction with the MoD supplied Advanced Jet Trainer (Hawk T2), integrate to provide training for Fast Jet pilots within the overall UK Military Flying Training System construct.
Multi Engine	-
Basic Trainer	-
Rotary Wing	-
Elementary Flying Training	-

C.5.2 Progress against approved Support / Service / PFI Contract Go-Live Date

Project/Increment Title	Approved Date	Actual Date	Variation (+/- months)	In-year Variation (+/- months)
United Kingdom Military Flying Training System	-	-	-	-
Advanced Jet Trainer (Support)	-	July 2008	-	-
Training System Partner and Headquarters	March 2008	November 2008	+8	0
Advanced Jet Trainer Ground Based Training Environment	July 2010	January 2011	+6	0
	September 2010	February 2011	+5	0
Multi Engine	-	-	-	-
Basic Trainer	-	-	-	-
Rotary Wing	-	-	-	-
Elementary Flying Training	-	-	-	-

C.5.2.1 Go-Live Date Variation

United Kingdom Military Flying Training System

C.5.2.2 Advanced Jet Trainer (Support)

C.5.2.3 Training System Partner and Headquarters

Date	Variation (+/- months)	Category	Reason for Variation
Historic	+8	Procurement Processes	Negotiations for a Headquarters Building lease were delayed when the Landlord opted to negotiate with a higher bidder
Net Variation (+/- months)	**+8**		

C.5.2.4 Ready for Training Uses Date 1 - Advanced Jet Trainer Ground Based Training Environment

Date	Variation (+/- months)	Category	Reason for Variation
Historic	+6	Procurement Processes	Due to additional time taken to complete negotiations on Training Service Partner and Advanced Jet Trainer Infrastructure/Ground-Based Training Environment contract following submission of Main Gate 2 Information Note and reflects the actual delivery timescales agreed at contract signature.
Net Variation (+/- months)	**+6**		

C.5.2.5 Ready for Training Uses Date 2 - Advanced Jet Trainer Ground Based Training Environment

Date	Variation (+/- months)	Category	Reason for Variation
Historic	+5	Procurement Processes	Due to additional time taken to complete negotiations on Training Service Partner and Advanced Jet Trainer Infrastructure/Ground-Based Training Environment contract following submission of Main Gate 2 Information Note and reflects the actual delivery timescales agreed at contract signature.
Net Variation (+/- months)	**+5**		

C.5.2.6 Multi Engine

C.5.2.7 Basic Trainer

C.5.2.8 Rotary Wing

C.5.2.9 Elementary Flying Training

C.5.3 Progress against approved Support / Service / PFI Contract End Date

Project/Increment Title	Approved Date	Actual Date	Variation (+/- months)	In-year Variation (+/- months)
United Kingdom Military Flying Training System	-	-	-	-
Advanced Jet Trainer (Support)	-	-	-	-
Training System Partner and Headquarters	March 2013	November 2013	+8	-
Advanced Jet Trainer Ground Based Training Environment	-	-	-	-
Multi Engine	-	-	-	-

Basic Trainer	-	-	-	-
Rotary Wing	-	-	-	-
Elementary Flying Training	-	-	-	-

C.5.3.1 End of Contract Date Variation

United Kingdom Military Flying Training System

C.5.3.2 Advanced Jet Trainer

C.5.3.3 Training System Partner and Headquarters

Date	Variation (+/- months)	Category	Reason for Variation
Historic	+8	Procurement Processes	Negotiations for a Headquarters Building Lease were delayed when the Landlord opted to negotiate with a higher bidder
Net Variation (+/- months)	**+8**		

C.5.3.4 Advanced Jet Trainer Ground Based Training Environment

C.5.3.5 Multi Engine

C.5.3.6 Basic Trainer

C.5.3.7 Rotary Wing

C.5.3.8 Elementary Flying Training

C.5.4 Other costs / savings resulting from Support Cost variation

C.5.5 Operational Impact of Support / Service / PFI Support Contract variation

D Section D: Performance

D.1. Maturity Measures

Sentinel Score	100 GREEN

Score is based on the Advanced Jet Trainer and Advanced Jet Trainer Ground Based Training Environment increments only.

D.2.1 Performance against Defence Lines of Development

Line of Development		Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1.	Equipment	Aircraft, Initial Provisioning Ground Support Equipment, Ground Based Training Environment	Yes	
2.	Training	Training Service Provider on contract	Yes	
3.	Logistics	Spares and maintenance support	Yes	
4.	Infrastructure	Involves Authority dependencies at RAF Valley, RNAS Culdrose & RAF Barkston Heath	Yes	
5.	Personnel	Management of the transition period where there will be an overlap of the legacy and new flying training systems, placing additional demands on Instructors, to ensure sufficient instructor hours are available.	Yes	
6.	Doctrine	Concept Employment and Concept Use documentation in place. Concept Operations in production. These documents form the basis of the provision of flying training services such as the development of the flying training strategy.	Yes	
7.	Organisation	Agreement of the division of responsibility between the military instructors and those provided by Ascent as part of the contract.	Yes	
8.	Information	Defence Information Infrastructure (Future)	Yes	
Current forecast (with risks)			8 (0)	0
Last year's forecast (with risks)			8 (0)	0

D.2.2 Defence Line of Development Variation

Date	Defence Line of Development	Category	Reason for Variation
Historic	Equipment	Technical Factors	Data drop (Technical information to support development of Ground Based Training Environment) was received from BAE Systems and incorporated into the Simulators. This increment is now on contract with service being delivered.

Historic	Equipment	Technical Factors	Data drop (Technical information to support development of Ground based training Environment) delays from BAE Systems

D.3. Performance against Key Performance Measures

D.3.1 United Kingdom Military Flying Training System

D.3.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1	Training	United Kingdom Flying Training System shall be able to design the training for selected Tri-Service personnel to meet defined standards.	Yes (with risks)	
2	Training	United Kingdom Flying Training System shall be able to inculcate Tri-Service personnel with military ethos throughout their periods of training.	Yes (with risks)	
3	Training	United Kingdom Flying Training System shall be able to provide for progressive implementation of new training systems without any shortfall to the required throughput of trained aircrew to the Operational Conversion Units	Yes (with risks)	
4	Training	United Kingdom Flying Training System shall be able to deliver trained selected Tri-Service personnel to Operational Conversion Units who meet the required input standards.	Yes (with risks)	

5	Training	United Kingdom Flying Training System shall be able to deliver trained selected Tri-Service personnel to Operational Conversion Units in the required quantities.	Yes (with risks)	
6	Training	United Kingdom Flying Training System shall be able to deliver trained selected Tri-Service personnel to Operational Conversion Units in the required timescales.	Yes (with risks)	
7	Training	United Kingdom Flying Training System shall be able to reallocate the capacity of the system to react to requirement changes at minimum cost and time.	Yes (with risks)	
8	Training	United Kingdom Flying Training System shall be able to ensure the system is sustainable for a period of at least 25 years from the date of Initial Service Provision.	Yes (with risks)	
Current forecast (with risks)			8 (8)	0
Last year's forecast (with risks)			8 (8)	0

D.3.1.2 Key Performance Measures Variation

Date	Key Performance Measure	Category	Reason for Variation
Historic	1 - 8	Technical Factors	Work to develop realistic and achievable plans for the remainder of the United Kingdom Military Flying Training System increments is on-going. Risk will remain against all the system-wide Key Performance Measures until these plans are fully mature.

D.3.1.3 Operational Impact of variation

D.3.2 Advanced Jet Trainer

D.3.2.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1	Training	The System shall be powered by a jet engine or engines	Yes	
2	Training	The System platform shall incorporate primary flying controls that are fully operable from both cockpits.	Yes	
3	Training	The System platform shall incorporate a Stores Management System to allow the selection, firing/release and jettison of simulated weapons.	Yes	
4	Training	The System platform shall present Artificial Intelligence radar data to allow search, location, tracking and engagement of real, simulated and synthetic airborne targets.	Yes	
5	Training	The System platform shall perform representative Basic Fighter Manoeuvres.	Yes	
6	Training	The System platform shall complete a low level evading route of at least 45 mins at a speed of at least 420 knots.	Yes	

7	Training	The System platform shall present automatic steering for planned attacks on surface targets involving target position correction in-flight and updating of the targeting system to ensure accurate attacks.	Yes	
8	Training	To the maximum extent possible, the System shall embody technology transparency in order to accommodate Platform upgrades without redesign of functionally unrelated areas.	Yes	
9	Training	The platform shall be Reliable and Maintainable.	Yes	
Current forecast (with risks)			9 (0)	0
Last year's forecast (with risks)			9 (0)	0

D.3.2.2 Key Performance Measures Variation

D.3.2.3 Operational Impact of variation

D.3.3 Advanced Jet Trainer Operational Capability 2

D.3.3.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1	Training	SR961 The system platform shall present threats from simulated airborne emitters generated by "real" aircraft on a Radar Warning Receiver display with associated visual & audio warnings	Yes	

2	Training	SR1003 The system platform shall select simulated radar guided missiles via a Short Message Service interface	Yes	
3	Training	SR962 The system shall represent the effects of correct radar countermeasure employment by causing the attacking radar or system to break lock	Yes	
4	Training	SR513 The System platform shall incorporate a Stores Management System to allow the selection, firing/release and jettison of simulated weapon.	Yes	
5	Training	SR558 The System platform shall present Artificial Intelligence radar data to allow search, location, tracking and engagement of real, simulated and synthetic airborne targets.	Yes	
Current forecast (with risks)			5 (0)	0
Last year's forecast (with risks)			5 (0)	0

D.3.3.2 Key Performance Measures Variation

Date	Key Performance Measure	Category	Reason for Variation
Historic	4	Technical Factors	MPR10: Financial approval for Operational Capability 2 has now been received and Key Performance Measure 4 is currently forecast to be met.

Historic	4	Technical Factors	At Main Gate the Key Performance Measures were endorsed noting that the operational capability of the Aircraft would be delivered incrementally. Key Performance Measure 4 is forecast not to be met as financial approval is still outstanding on Operational Capability 2

D.3.3.3 Operational Impact of variation

D.3.4 Training System Partner and Headquarters

D.3.5 Advanced Jet Trainer Ground Based Training Environment

D.3.6 Rear Crew Stage 1

D.3.6.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
KUR 1a	Training	United Kingdom Military Flying Training System shall be able to design the training for selected Service Personnel, undertaking Rear Crew to meet defined standards.	Yes	
KUR 2a	Training	United Kingdom Military Flying Training System shall be able to provide for progressive implementation of new training systems without any shortfall to the required throughput of trained Rear Crews to the Operating Conversion Units.	Yes	

KUR 3a	Training	United Kingdom Military Flying Training System shall be able to deliver trained ab-initio students to Operating Conversion Units.	Yes	
KUR 4a	Training	United Kingdom Military Flying Training System shall be able to deliver trained instructors.	Yes	
KUR 5a	Training	United Kingdom Military Flying Training System shall be able to deliver miscellaneous courses/flying.	Yes	
KUR 6a	Training	United Kingdom Military Flying Training System shall be able to interoperate with the overall training pipeline.	Yes	
Current forecast (with risks)			6 (0)	0
Last year's forecast (with risks)			6 (0)	0

D.3.6.2 Key Performance Measures Variation

D.3.6.3 Operational Impact of variation

D.3.7 Rear Crew Stage 2

D.3.8 Multi Engine

D.3.9 Basic Trainer

D.3.10 Rotary Wing

D.3.11 Elementary Flying Training

D.4 Support Contract

Project Title
Watchkeeper
Team Responsible
Unmanned Air Systems
Senior Responsible Owner
Head of Capability Intelligence, Surveillance, Target Acquistion & Reconnaissance

Project/Increment Name	Current Status of Projects / Increments
Watchkeeper	Post-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

Watchkeeper will provide the operational commander with a 24 hour, all weather, intelligence, surveillance, target acquisition and reconnaissance capability supplying accurate, timely and high quality imagery to support decision-making. The system consists of unmanned air vehicles, sensors, data links and ground control stations. Watchkeeper is planned to be delivered through an incremental programme to allow the system to benefit from both existing and emerging future sensors and air vehicle technology.

A.2 The Assessment Phase

Watchkeeper is a consolidation of the Sender and Spectator projects. Initial Gate approval was received for Sender in November 1999 and approval for a joint Assessment Phase for both projects was given in July 2000.

The acquisition strategy has been based on selecting Unmanned Air Vehicle systems to suit a defined capability requirement rather than an air vehicle-centred approach. Through evaluation and system concept demonstration, the Assessment Phase has driven down technical and schedule risks and derived the whole life costs associated with the proposed options. User and System Requirements were identified and revalidated. Trade-off activity was undertaken, taking full account of the impact across all Lines of Development and supported by balance-of-investment studies.

Alternative acquisition options have been considered. PFI was not deemed appropriate for the provision of a tactical capability deployed in theatre, due to the potential risks to contractor personnel and the required levels of availability as well as legal implications. Collaboration was explored during the early stages of the Assessment Phase, but it was not possible to align requirements. There is continuing dialogue with and between allied nations on matters of requirement definition, technology, operational experience and acquisition. The need for significant system integration with the emerging Network Enabled Capability requirements led the then Defence Procurement Agency and the potential contractors to adopt an incremental approach to delivery. This approach also supports the Force Readiness Cycle which provides for a phased uplift of capability at discrete intervals.

Opportunities to enhance Watchkeeper beyond the Full Operating Capability under further incremental acquisition have been considered during the Assessment Phase and will inform future investment decisions.

Following a competitive tendering process, Thales (UK) was announced as preferred bidder in July 2004. The programme completed the Assessment Phase of the acquisition cycle in July 2005, when Main Gate approval was given to proceed to the Demonstration and Manufacture phase.

A.3 Progress

In July 2005, following an international competition, Thales (UK) was awarded prime contactor of the Watchkeeper Demonstration and Manufacture contract. Major project milestones completed to date include the System Design Review in December 2005, the Preliminary Design Review in July 2006 and the Critical Design Review of the air vehicle in December 2006. The System Critical Design Review was conducted in May 2007 and finalised in September 2007.

Watchkeeper's maiden flight took place on 16 April 2008 in Israel and was followed by the successful achievement of the Automatic Take Off & Landing System demonstration in July 2008.

2009 saw a number of key milestones including: Stage 2 flight trials concluded successfully in Israel in March, the Watchkeeper Training facility at 32 Regiment Larkhill was commissioned in September, and the Automatic Take Off & Landing System initial maturity flights were concluded during Stage 3 flight trials in Israel in November.

However, towards the end of 2009 industry was struggling to resolve technical issues in the software development programme and was late with delivery of the necessary safety and airworthiness evidence in time to commence the UK's Stage IV flight trials test programme at Parc Aberporth in South Wales. The trials programme, therefore, started six months behind the planned schedule. MOD expressed its reservations that the programme was at risk to Thales (UK) numerous times but industry maintained that it could deliver Watchkeeper on time. The first UK flight took place on 14 April 2010, signalling the start of the UK flight trials programme. Flight trials also continued in parallel in Israel during 2010 to reduce risk by providing additional system and software testing.

2010 started on a positive note with the Watchkeeper Initial Contractor Logistic Support contract signed in January and also saw the Watchkeeper Training solution continue to develop. In June 2010, a contract was awarded to QinetiQ, through the exploitation of the Long Term Partnering Agreement, to deliver Steady State UK training facilities, infrastructure and airspace at Boscombe Down for Watchkeeper. This contract minimises capital investment costs, maximises airfield operational flexibility as the runway at Boscombe Down already exists and is the correct length and width and is situated in the Restricted Airspace. The Facility was handed over to MOD in December 2010.

However, the challenging development programme was by now also experiencing severe technical integration issues in the following areas: most critically completion of the Client-Server software (the core software providing all mission functionality) Development and Integration, Automatic Take Off & Landing System and the De-icing System. Thales declared that it was unable to meet the main equipment delivery Anchor Milestone of June 2010 (50% date), and forecast a revised delivery schedule reflected in the current delivery dates. The MOD Project Team has since continued working closely with Thales (UK) to understand the causes of the problems and implement an agreed revised schedule and project plan. Contract negotiations to account for the technical issues and optimise delivery of the system for deployment to Afghanistan have now concluded; MOD has reached a settlement to remedy the situation and mitigate risk to operations at no further cost. An Information Note informed the Investment Approvals Board of the situation in October 2010. A Review Note was subsequently submitted to the Investment Approvals Board in March 2011 to endorse the accepted position and to approve the revised project schedule, which "reset" the In-Service Date. Despite this setback Thales (UK) has confirmed its commitment to delivering Watchkeeper and continues to work closely with the MOD project team and end Users.

Under the revised programme, considerable additional resources and facilities have been deployed by Thales (UK) to maintain the new schedule timescales and minimise risk. An intensive programme of software development, "bug" fixing and integration of the final version of software finished during 2010, which resulted in a successful Trials Readiness Review and Functional Qualification Testing in March 2011. This version of the software will now be extensively trialled and tested at Parc Aberporth and Boscombe Down in the Stage V flight trials against mission specific scenarios to allow the Watchkeeper system to be deployed to Afghanistan. Delivery of the necessary production standard equipment has remained on track, albeit with some technical risk, and Thales (UK) has agreed to deliver additional equipment required for deployment of Watchkeeper to Operation Herrick.

A number of specific modifications to make the Watchkeeper System compatible with current operations are also required; these are not shortfalls in the Watchkeeper specification but theatre-specific modifications not in the Watchkeeper technical specification. For example, to make the imagery produced by Watchkeeper's sensors compatible with the existing Remote Viewing Terminals used in Operation Herrick, operational equipment specific to Watchkeeper was required and was contracted for in June 2010. Furthermore, to reduce risk to operational deployment and ensure the revised programme timescales were maintained, some of the more complex software functionality unessential for initial operational deployment has also been deferred and is planned to be delivered in the next formal software release in 2012 at no additional cost to MOD.

A.4 Capability Risks

Watchkeeper replaces the capability previously provided by Phoenix Unmanned Air Vehicle which reached it's Out of Service Date in April 2008. The Hermes 450 (known as Lydian) Unmanned Air Vehicle has been contracted on a service-based provision to provide continued capability and cover an Urgent Operational Requirement in Iraq and Afghanistan prior to Watchkeeper being delivered into service this has subsequently moved to an Urgent Operational Requirement in Afghanistan. If the capability is not acquired, UK forces in Multi-National Division (South East) will face a critical shortfall in the provision of formation-level persistent Intelligence, Surveillance, Target Acquisition and Reconnaissance.

A.5 Associated Projects

Title of Associated Project	Forecast In Service Date/ Initial Operating Capability	Approval Status
Bowman and Common Battlefield Application Toolset, Digitisation Battlespace Land Infrastructure and Platform Battlefield Information System Application Programme 5	2008	In Service

A.6 Procurement Strategy

Post-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Watchkeeper	Thales Defence Ltd Weybridge	Demonstration to Manufacture	Firm Price	Competitive - International
Watchkeeper	UAV Tactical Systems Limited, Leicester	Demonstration to Manufacture	Firm Price	Non-Competitive - International

A.7 Support Strategy

Description
The aim of the Watchkeeper Support Solution is to put in place through-life maintenance and support to sustain the Watchkeeper Military Capability on deployed operations and to meet the training requirement. The Watchkeeper military capability is delivered through a combination of MOD manpower and equipment, operating in conjunction with equipment and software provided by Industry. The scope of the support solution covers both the equipment from Thales (UK), the Prime Integrator, and the Government Furnished Assets. The scope of the Thales (UK) support will be detailed in the associated support contract whilst the scope of the Government Furnished Assets support will be defined in a series of Internal Business Agreements with the relevant project delivery teams. The through life strategy focuses on two phases: Phase I - The first three Years – 2011-2014. Phase II - The follow on contract (2014 onwards) will be based on an approval strategy that will provide a robust concept of analysis, Investment Appraisal and Business Case all based on sound performance data collected in Phase I. Because the Watchkeeper Demonstration Manufacture and Initial Support contract finishes as this contract is set up it will be important to ensure that Phase II can support Watchkeeper in terms of capital and resource. Phase II is most likely to be competed.

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
Watchkeeper	Thales Defence Ltd Weybridge	Contractor Logistic Support	Firm Price	Competitive - International

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Watchkeeper	52	65	+13	6%	8%
Total (£m)	**52**	**65**	**+13**	**6%**	**8%**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Watchkeeper	824	847	856

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
Watchkeeper	847	839	-8	-4
Total (£m)	**847**	**839**	**-8**	**-4**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.1.1 Watchkeeper

Date	Variation (£m)	Category	Reason for Variation
March 2011	-3	Procurement Processes	Reduction of in-year accrued (completed, but not yet paid) activity following In-Service Date slippage and milestone delivery re-negotiations
March 2011	+5	Procurement Processes	Extended technical support requirements following In-Service Date slippage
March 2011	-8	Budgetary Factors	Inability to progress Contract Change Proposals and undertake risk mitigation activities following contract re-negotiations
January 2011	+2	Accounting Adjustments and Re-definitions	Increase in VAT from 17.5% to 20% from January 2011and against delayed payment milestones.
Historic	-1	Budgetary Factors	Reductions in Contract Change Proposal requirements.

Historic	-2	Budgetary Factors	Reductions in costs due to VAT decrease from 17.5% to 15% till December 2009.
Historic	-2	Budgetary Factors	Option taken to change Watchkeeper runway from hardened to grass surface
Historic	+2	Budgetary Factors	Increase in cost due to re-profiling of funding as result of Options
Historic	-1	Change in Associated Project	Delay in start date of Defence Estates task into 2007/2008
Net Variation (£m)	**-8**		

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

Project/ Increment Title	Category	Explanation
Watchkeeper	Technical Factors	The option was taken to use the existing grass strip at Upavon rather than build a purpose built runway for Watchkeeper. Repetitive use of a grass strip during take-off and landing, whilst training, will increase air vehicle fatigue. Regular deployment to an airfield with a hardened strip and adjacent range facilities such as Boscombe Down or Aberporth is planned to minimise this impact.

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

Project/Increment Title	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Watchkeeper	55	53	-2	+3
Total (£m)	**55**	**53**	**-2**	**+3**

B.5.1 Cost Variation against approved Support / Service / PFI Cost

B.5.1.1 Watchkeeper

Date	Variation (£m)	Category	Reason for Variation
January 2011	+3	Procurement Processes	Additional Contractor Logistic Support sustainment activity required to maintain support team continuity following In Service Date slippage
Historic	-5	Procurement Processes	Differential between approved business case (December 2009) as profiled in MPR2010 and contracted value (January 2010)
Net Variation (£m)	**-2**		

B.5.2 Operational Impact on Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	65	0	65
Demonstration & Manufacture Phase	518	124	642
Support Phase / Service / PFI Cost	5	3	8
Total Expenditure	**588**	**127**	**715**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Watchkeeper	November 1999	July 2005	68

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Watchkeeper	February 2010	June 2010	February 2011

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
Watchkeeper	One sub-unit trained and equipped to support a Medium Scale of Effort deployment

C.3.2 Progress against approved Dates

Project/Increment Title	Budgeted For Date	Actual / Forecast Date	Variation (+/- months)	In-Year Variation (+/- months)
Watchkeeper	June 2010	February 2012	+20	+12

C.3.3 Timescale variation

C.3.3.1 Watchkeeper

Date	Variation (+/- months)	Category	Reason for Variation
March 2011	-2	Changed Capability Requirements	Head of Capability (ISTAR - Intelligence, Surveillance, Target Acquisition and Reconnaissance) agreement that the user could derive "beneficial use" from the 3 task line capability earlier than the deployment In-Service Date.
January 2011	+4	Changed Capability Requirements	Head of Capability (ISTAR - Intelligence, Surveillance, Target Acquisition and Reconnaissance) directed that the point at which the In-Service Date should be measured is the more "robust" 3 x tasking line capability (rather than 1 x tasking line previously agreed). The Programme has not slipped, but the point of measuring the In-Service Date has changed.

November 2010	+2	Technical Factors	Core software Integration Readiness Review delayed due to significant outstanding technical issues.
July 2010	+5	Technical Factors	Continuing severe technical problems with development and integration of the core software, on the critical path. Risk model and schedule completion estimates revised and updated by Thales (UK).
June 2010	+2	Technical Factors	Impact of the core software delay re-modelled by Thales.
April 2010	+1	Technical Factors	In Service date impacted by Thales (UK) declaring a further six week slip to the Client-Server software release (core software providing essential system functionality).
Historic	-2	Technical Factors	Re-baseline programme schedule and revised Training and Development Plan
Historic	+1	Technical Factors	The main issues are the production of safety and airworthiness evidence to obtain the UK Military Flight Trials Permit the demonstration the maturity of the Automatic Take Off and Landing System and issuing a baseline version of the Client Server Software
Historic	+2	Technical Factors	Emerging issues on Military Flight Trials Permit evidence, Automatic Take Off & Landing System maturity and software development
Historic	+1	Technical Factors	Risk reduction and trials result
Historic	+2	Procurement Processes	Impact of Israeli conflict being assessed
Historic	-1	Technical Factors	Risk Mitigation and Technology Readiness Level improvement emanating from trials programme
Historic	+1	Technical Factors	Increased risk to software programme and impact of Israel Conflict
Historic	-1	Technical Factors	Improved progress with trials in Israel
Historic	-3	Technical Factors	De-risked Initial Operating Capability
Historic	+1	Technical Factors	Delays to trials programme in Israel
Historic	+1	Technical Factors	Delays to trials in Israel
Historic	-1	Technical Factors	Reduced duration of Technical Field Trials has reduced risk on Trials Programme.
Historic	+2	Technical Factors	Trials delays in Israel.
Historic	-1	Technical Factors	Continued risk mitigation has improved the forecast

Historic	-1	Procurement Processes	Agreement to provide underpinning design data has reduced airworthiness and Release To Service risks
Historic	+7	Technical Factors	Changes to the planned trials site have caused delays to Trials and Evaluation (+9m) Alternative Trials arrangements now contracted (-2m)
Net Variation (+/- months)	+20		

C.3.4 Other costs / savings resulting from Timescale variation

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

Project/Increment Title	Operational Impact
Watchkeeper	The delays to the Watchkeeper programme reflect unforeseen time taken to be able to deliver support for one medium scale operation at Initial Operating Capability. The delay to the introduction of Watchkeeper to theatre is being mitigated by the continuation of the Lydian service to ensure there is no capability impact to the current operation.

C.4. Full Operating Capability

C.4.1 Definition

Project/Increment Title	Full Operating Capability	Progress to date
Watchkeeper	The complete provision of capability to support 1 Large Scale war-fighting operation of 6 months duration, or a scale of effort of 2 concurrent operations (1 X Medium Scale Peace Enforcement, 1 Medium Scale Peace Keeping [1 6 months duration and 1 enduring]) in different operational theatres, both across the full spectrum of natural and environmental conditions.	The resulting delay to the In-Service Date has impacted the full operating capability date by the same 12 month duration.

C.5. Support / Service / PFI Contract

C.5.1 Scope of Support / Service / PFI Contract

Project/Increment Title	Scope
Watchkeeper	Watchkeeper Through Life Support - Phase 1

C.5.2 Progress against approved Support / Service / PFI Contract Go-Live Date

Project/Increment Title	Approved Date	Actual Date	Variation (+/- months)	In-year Variation (+/- months)
Watchkeeper	January 2010	January 2010	0	0

C.5.2.1 Go-Live Date Variation

C.5.3 Progress against approved Support / Service / PFI Contract Date

Project/Increment Title	Approved Date	Actual Date	Variation (+/- months)	In-year Variation (+/- months)
Watchkeeper	May 2013	September 2014	+16	+16

C.5.3.1 End of Contract Date Variation

Watchkeeper

Date	Variation (+/- months)	Category	Reason for Variation
March 2011	+16	Technical Factors	As Watchkeeper equipment delivery is delayed, the end of the support service has moved in line with this.
Net Variation (+/- months)	**+16**		

C.5.4 Other costs / savings resulting from Support Cost variation

C.5.5 Operational Impact of Support / Service / PFI Support Contract variation

D Section D: Performance

D.1. Maturity Measures

Sentinel Score	67% AMBER

D.2.1 Performance against Defence Lines of Development

Line of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
1. Equipment	● Initial Operating Capability Key User Requirements met ● Initial Operating Capability Key System Requirements met ● Initial Operating Capability aspects of Integrated Test & Evaluation & Acceptance completed ● Whole life Costs within 90% approved figure ● Release to Service & Safety Case achieved ● Initial Operating Capability achieved at planned In Service Date (90% confidence figure) or earlier	Yes (with risks)	
2. Training	● Training System requirement identified and appropriate funding in place to deliver it. ● Training System in place to support Conversion and Steady State Training ● High confidence that training infrastructure will be available to support conversion and Initial Operating Capability. ● Short Term Plan costs identified and Top Level Budget funding arranged. ● Training strategy and plan agreed	Yes (with risks)	
3. Logistics	● Repair policy and line/levels of repair identified ● Level of Contractor Logistic Support identified ● Supply support procedure identified ● Short term Plan costs being refined – Short Term Plan 07 bid. ● Support Solutions Envelope compliant. ● Impact of Tactical Party Vehicle on Integrated Logistic Support lines identified. ● Reliability and Maintainability tests have been successfully completed. ● Support readiness reviews have been successfully held. ● Logistic Support Data has been declared.	Yes (with risks)	

4.	Infrastructure	● Watchkeeper Unit(s) estate defined - plans for new works. ● Estate ready for Initial Operating Capability. ● Short Term Plan costs identified and agreed.	Yes	
5.	Personnel	● Watchkeeper manpower pool identified and confirmed. ● High confidence manpower will be in place to meet Initial Operating Capability. ● Short Term Plan costs identified and Top Level Budget funding responsibility agreed. ● Manning plan implemented to ensure provision of appropriate manpower for Initial Operating Capability.	Yes	
6.	Doctrine	● Watchkeeper ConUse developed and a writing plan has been confirmed for progression to final version ● Watchkeeper ConUse evaluated & issued ● Tactics Techniques and Procedures evaluated & issued	Yes	
7.	Organisation	● 32 Regiment Royal Artillery's manpower establishment table agreed by stakeholders. ● Establishment endorsed and promulgated. ● Appropriate vehicles identified and their provision agreed.	Yes	
8.	Information	● Information Exchange Requirements defined and agreed. ● Secure, robust communications to support Information Exchange Requirements agreed. ● Interface to Bowman and Fire Control Battlefield Information Systems Application agreed. ● System configuration and information formats allow connectivity and interoperability (Joint and Multi National).	Yes (with risks)	
Current forecast (with risks)			8 (4)	0
Last year's forecast (with risks)			8 (6)	0

D.2.2 Defence Line of Development Variation

Date	Defence Line of Development	Category	Reason for Variation
December 2010	Infrastructure	Technical Factors	Risk from last year resolved as infrastructure work complete at Boscombe Down

Historic	Training	Technical Factors	Training facility building in place with internal infrastructure being integrated for delivery on time. User revised conversion programme agreed with Thales (UK). Course development remains an area of concern and is dependent upon the successful review and delivery of the data modules.
Historic	Logistics	Procurement Processes	The scope of the Contract Logistic Support contract has been agreed and contracted for with Thales (UK). Logistic Support Date is due to be declared in July 2011.
Historic	Equipment	Technical Factors	Testing and evaluation of the contractor deliverable system is at risk for a number of reasons, but the current phase of trials is due for completion on schedule. The contributing risks include recent activities in Israel and resources dedicated to test and evaluation by sub contractors not being as they should to ensure delivery of scheduled test and evaluation. Issues are further compounded by the maturity of the client server software (which impacts upon test and evaluation). Trials mitigation strategy is under review. Mitigation action for the software was taken as part of the overall De-risking Initial Operating Capability package. Technical maturity has been further compounded by the immaturity of both the client server software (which also impacts upon test and evaluation) and the Automatic Take Off and Landing System. The start of the trials programme in the UK has been impacted by the lack of safety and airworthiness evidence presented by Thales. A trials mitigation strategy, aimed at recovering the situation is under review.
Historic	Infrastructure	Technical Factors	Technical accommodation available. Runway options progressing with plans to use both Upavon (tactical strip) and Boscombe Down (tarmac strip). Change proposal for additional airspace over Salisbury Plain Training Area going through Public Consultation.

Historic	Information	Technical Factors	The requirement to disseminate the Watchkeeper product across the battlespace has grown beyond the capacity of Bowman. There is now a need to inter-operate with the deployed UK Core network (Defence Information Infrastructure Future Deployed, Defence Information Infrastructure Current Deployed, Falcon, Cormorant, Reacher) to allow exploitation via the Dabinett programme and Urgent Operational Requirements that will provide early capability such as Attacker. This is put at risk by dependency on other programmes as well as a required change to the Watchkeeper approach to exchange of information. The need to ensure that Watchkeeper Full Motion Video will be accessible by Remote Video Terminal users is being addressed by a Planning Round enhancement option to achieve initial delivery by July 2011.

D.3. Performance against Key Performance Measures

D.3.1 Watchkeeper

D.3.1.1 Performance against Key Performance Measures

Key Performance Measure	Related Defence Lines of Development	Description	Met / Forecast to be met (with risks)	Not met / Forecast not to be met
01		Watchkeeper shall have at least a 95% probability of detecting all 5 of 5 static NATO standard tank targets within an open area of $4km^2$ in no more than 8 minutes.	Yes (with risks)	
02		In support of unit operations Watchkeeper shall have at least a 95% probability of identifying all 5 of 5 static NATO standard tank targets within a $4km^2$ area within 30 minutes of receipt of tasking.	Yes (with risks)	

03		To concurrently support two Medium Scale operations (one of 6 months duration and one enduring), Watchkeeper shall provide imagery and imagery intelligence concurrently to at least 8 Headquarters comprising a total of at least 10 Tasking Users throughout the battlespaces of 2 disparate operational theatres.	Yes (with risks)	
04		Watchkeeper shall satisfy its tasking, world-wide, day and night, under climatic conditions A2, A3, B1, B2, B3, C0 and C1 as defined in Defence Standard 00-35 and Defence Standard 00-970.	Yes (with risks)	
05		Watchkeeper shall satisfy its tasking, world-wide, day and night, on surface targets located at up to 4000m altitude Above Mean Sea Level International Standard Atmosphere.	Yes	
06		Watchkeeper shall be transportable by two C130J Mk 4 to support theatre entry force operations for one Battlefield Mission.	Yes	
07		Watchkeeper shall not constrain the tactical mobility of its Users.	Yes	

08		Watchkeeper shall satisfy its tasking for 24 hours per day for a period of at least 14 days with an Operational Availability of at least 85%.	Yes	
09		Watchkeeper shall enable training for War fighting Operations.	Yes	
10		Watchkeeper shall exchange data with Bowman and dependent Battlefield Information System Applications to at least NATO interoperability level 3 (seamless sharing of data).		Yes
11		Watchkeeper shall provide the location of static targets to within an absolute targeting error not exceeding 10m in the horizontal circular error (at 90% confidence levels).	Yes	
Current forecast (with risks)			10 (4)	1
Last year's forecast (with risks)			10 (0)	1

D.3.1.2 Key Performance Measures Variation

Date	Key Performance Measure	Category	Reason for Variation
March 2011	1, 2, 3 and 4	Technical Factors	The reason all of these KPMs are at risk is a result of the recent programme slip from the Watchkeeper Prime Contractor due them experiencing technical difficulties. The risk is therefore related to the schedule rather than performance. The programme has focussed on the initial delivery of capability to Operation Herrick, where none of these performance requirements are a concern. Requirements can therefore be validated and accepted after In-Service Date.

Historic	11	Technical Factors	No longer considered at risk - Quantities of Electro Optical/Infra-Red sensors with laser range finders have now been re-negotiated at nil additional cost, to the satisfaction of all.
Historic	10	Technical Factors	The data exchange in the key user requirements is of a tactical nature (i.e. reports on tasking, intelligence, airspace etc), rather than Unmanned Air Vehicle control at NATO Interoperability level 3 which is not required or sensible and requires amendment – the revised Key User Requirements is currently on target to be met.
Historic	11	Technical Factors	Quantities of Electro Optical/Infra-Red sensors with laser range finders require re-negotiation. Minor risk, expected to be resolved for Initial Operating Capability.

D.3.1.3 Operational Impact of variation

Date	Key Performance Measure	Forecast	Operational impact of variation
March 2011	1, 2, 3 and 4	At Risk	No operational impact
Historic	10	Not to be met	No operational impact

D.4 Support Contract

ASSESSMENT PHASE PROJECTS

Project Title	
Chinook New Buy	
Team Responsible	
Chinook Project Team	
Senior Responsible Owner	

Project/Increment Name	Current Status of Projects / Increments
Chinook New Buy	Pre-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

The UK currently has a fleet of 46 Chinook, delivered between 1981 and 2001. The new Rotary Wing Strategy, announced by the Secretary of State in December 2009, established that the Future Heavy Lift capability would be provided by the Chinook helicopter. The Rotary Wing Strategy set out the intention to buy an additional 22 new Chinook, in addition to the replacement for the two aircraft destroyed on operations in Afghanistan in August 2009 (for which approval will be sought through the HM Treasury Reserve), that would take the Chinook fleet up to 70 aircraft.

Operational Analysis has routinely identified the unique strength of capability provided by Chinook. The most recent Lift Advanced Concept Phase 3 analysis provides clear evidence of the need for a greater number of Chinook helicopters. However, Operational Analysis has not identified an obvious blend of helicopter types that is affordable, cost-effective, and which meets all the MOD's helicopter requirements. Chinook delivers more capability for a given investment than smaller types, and hence the earlier this rebalancing can occur, the faster overall UK helicopter capability can be increased.

The user requires a vertical heavy-lift capability to support military operations in the Land domain, which must enable the rapid deployment, in-theatre movement, insertion, re-supply and extraction of Joint Forces along with their equipment. It must be tactically flexible, agile, network-enabled and able to operate and survive throughout the joint and combined battle space, conducting high tempo missions from land bases with a minimal logistics footprint, in all environments and able to sustain missions for the duration of operations.

A.2 The Assessment Phase

In March 2010 Initial Gate approval for the Chinook New Buy project was granted to conduct an Assessment Phase at a total cost of £67M. This funding approval assumed that a Main Gate Business Case would be presented in December 2010, and that a Demonstration and Manufacture contract would be placed shortly thereafter.

A key issue for the Assessment Phase was to reach a decision on the configuration of the aircraft. As the standard of Chinook operated by the UK (old US 'D' model) is no longer in production, only two aircraft configurations were considered:
(1) standard US Army CH-47F models procured through Foreign Military Sales and (2) CH-47F with a modification based on the UK JULIUS "glass" cockpit configuration, a programme which was subject to a separate investment decision in 2009.

In April 2010 the Investment Approvals Board endorsed a Review Note to down-select to a preferred configuration for the new Chinooks. The configuration selected was the CH-47F equipped with a development of the Thales JULIUS cockpit and a digital automatic flight control system and current UK Chinook Theatre Entry Standard modifications.

In Sept 2010 the Strategic Defence and Security Review reduced the requirement to 14 aircraft (12+ 2 attrition), reflecting reprioritisation of resources. The further two Chinook would still be procured as attrition aircraft to replace those lost in Afghanistan in 2009.

In January 2011, subsequent to Strategic Defence and Security Review announcements, and the delay to a Main Gate decision for New Buy Chinook, a Review Note was submitted to the Investment Approvals Board seeking an uplift of £29M to the approval to sustain critical path activity and protect all delivery options to the end of May 2011. However, the Investment Approvals Board only approved an uplift of £6.5M to fund programme activity to the end of March 2011 and requested further advice in early March, assuming the Defence Board and Ministers had determined the way forward on Chinook in the context of the wider Planning Round.

The target Initial Operating Capability of the new Chinook capability is one aircraft Theatre Entry Standard available by 31 December 2012 for deployment to Afghanistan with sufficient Defence Lines of Development in place.

A.3 Progress

In April 2011 the Department's latest financial plan captured the Defence Board's direction to pursue a 14 Chinook aircraft programme that would see the first flight in Quarter one of 2013 and all aircraft delivered by end of 2015. HM Treasury approved an Investment Approvals Board uplift to the Assessment Phase of £23.4M in April 2011. The Department is currently seeking an extension to the Assessment Phase which was due to expire at the end of May 2011 as the Main Gate investment decision is on hold pending a review of affordability within the defence programme.

A.4 Capability Risks

There is an urgent need to replace those aircraft recently lost on operations and to build the MOD's CH-47 capability in Afghanistan to allow for the withdrawl of Sea King Mk4. Further investment will be required to address obsolescence and sustain the Chinook fleet to the planned Out of Service Date of 2040. In the interim, the output of our current helicopter fleet continues to be eroded by insufficient support budgets that limit the number of hours flown by the fleet and, as a result, the efficiency and effectiveness of the MOD's capabilities.

A.5 Associated Projects

A.6 Procurement Strategy

Pre-Main Investment Decision Projects / Increments only		
Project/Increment Title	**Procurement Route**	**Approval Status**
Chinook New Buy	Boeing as Directed Prime Contractor	Pre-Main Gate

A.7 Support Strategy

Description
Since May 2006, the in-service Chinook fleet has been successfully supported through a spares-inclusive availability based contract with Boeing, known as Through-Life Customer Support.. The second five year pricing period of Through Life Customer Support commences in 2011. The intent would be to continue supporting the fleet through this arrangement, provided it can be proved to offer the best Value for Money.

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
Through-life Customer Support	Boeing	Assessment to In Service	Prime Contractor	Single Source

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Chinook New Buy	67	97	+30	-	-
Total (£m)	**67**	**97**	**+30**	**-**	**-**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Chinook New Buy	***		

B.3 Cost of the Demonstration and Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	0	70	70
Demonstration & Manufacture Phase	0	0	0
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**0**	**70**	**70**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Chinook New Buy	March 2010	May 2011	14

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Chinook New Buy	***		

C.3 In-Service Date/Initial Operating Capability

C.4. Full Operating Capability

C.5. Support / Service / PFI Contract

Project Title	
Cipher	
Team Responsible	
Networks	
Senior Responsible Owner	
Darrell Midgley	

Project/Increment Name	Current Status of Projects / Increments
Cipher	Pre-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

Cipher will provide protection for all of MOD's sensitive information and communications both at home and overseas. The project encapsulates work to renew the MOD cryptographic inventory and key management systems. Cipher will replace a number of current systems, in particular the General Key Management System.

There are three business drivers for Cipher. The first is to overcome the obsolescence of existing equipment and key management systems. The second is to enable network agility and interoperability with our Allies. The final driver is to improve security and efficiency in the delivery of cryptographic services.

Cipher will be delivered in three increments. Increment 1 provides an Enduring Operational Capability, Increment 2 replaces all legacy services and Increment 3 provides the additional services required to satisfy new requirements.

A.2 The Assessment Phase

Cipher is a combination of two earlier MOD projects, the Future Crypto Programme (delivering the hardware) and Interoperable Electronic Key Distribution (the complementary system to deliver keying material, and other supporting configuration and management data). The Initial Gate approval, issued in August 2007, for a combined Assessment Phase for the two programmes authorised an Assessment Phase funding *** with agreement that the funding could be increased to *** subject to written confirmation from Head of Capability that the additional funding was available. No delivery phase timescale or funding estimate was provided in the Initial Gate submission beyond the available ten year funding profile. However, an Information Note issued in December 2008 stated 2012 as the date for the Initial Operating Capability.

Following Initial Gate approval, two consortia were down-selected and awarded Assessment Phase contracts in November 2008 to evaluate potential options, develop solutions, undertake demonstration programmes and deliver costed delivery phase proposals. The competition was undertaken in accordance with the Initial Gate strategy and the Procurement Strategy and both consortia agreed to at least match MOD funding for their Assessment Phase programmes of work.

Recognising the importance of Cipher and its potential use across Government, the Government Communication Head Quarters has engaged proactively, providing guidance on standards to ensure that the resulting solutions and services can be readily adopted by Other Government Departments and Partners Across Government and be interoperable with our Allies.

In June 2010, Performance Delivery Improvement issued a report on Cipher. Head of Capability responded by producing a Project Mandate defining the project vision, scope, outcomes, delivery timelines and Governance arrangements. An Information Note was submitted to the Investment Appraisal Board in January 2011 to notify of the changes necessary, with a review of progress being held in February 2011 at a 2-Star Foundation Milestone Review. A Review Note is being prepared for submission to the Investment Approvals Board in April 2011 seeking approval for the revised project timescales, the adoption of an incremental acquisition strategy and a revision to the approved budgetary level for the Assessment Phase *** representing an uplift of *** to the Initial Gate approval at 50% confidence. The programme includes four key mitigation actions of a) maturing the incremental approach, b) enhancing the delivery team with additional MOD and Government Communications Head Quarters staff, c) developing a detailed and resourced plan and d) improving stakeholder and benefits management.

The two consortia have been actively engaged throughout, to ensure that they remain within the information loop regarding changes to the Acquisition Strategy, with contracts being re-negotiated where necessary to cover extensions to the Assessment Phase.

A.3 Progress

A Review took place in February 2011. The outcome was to proceed, but with caveats noting that all outstanding actions from the Performance Delivery Improvement Treatment Phase have been rolled up into the recommendations of this review. The additional funding required for the delivery of the extended Assessment Phase has been identified and sufficient staff levels have been agreed.

The production of the Tender Pack is currently the main thrust of the team's efforts, with delivery being planned for end of June 2011. Both consortia are actively engaged in the production of the Tender Pack, to ensure their familiarity with it. This will be supported by the development of the detailed business benefits and project plans by end April 2011.

A.4 Capability Risks

Capability risks if Cipher is delayed:

***

Crypto capability lacks the flexibility to deliver Network Enabled Capability.
Efficiency savings related to automation of crypto capability are delayed leading to increased demand on service manpower.

A.5 Associated Projects

Title of Associated Project	Forecast In Service Date/ Initial Operating Capability	Approval Status
Key Production Authority Futures Project	2015	Pre-Main Gate

A.6 Procurement Strategy

Pre-Main Investment Decision Projects / Increments only		
Project/Increment Title	**Procurement Route**	**Approval Status**
Cipher	UK Sovereign Competition	Pre-Main Gate

A.7 Support Strategy

Description
The Cipher Intergrated Logistic Support strategy aims to provide a robust and 'fit for purpose' solution and assured adherence to the Support Solution. It will articulate the support framework that will be required for Cipher, bringing together the major elements of support, including the potential Contractor Logistic Support arrangements, the Support Solution Envelope and the role of the crypto System Operating Authority, Networks Crypto Services for Defence. The Plan will be developed through progressive discussion with the major Intergrated Logistic Support stakeholders, including both consortia.

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
Increment 1	Awaiting down selection	Demonstration to Manufacture	Fixed Price	Competitive - UK

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Cipher	19	***	***	-	-
Total (£m)	**19**	***	***	**-**	**-**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Cipher	***	-	-

B.3 Cost of the Demonstration and Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	11	4	15
Demonstration & Manufacture Phase	0	0	0
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**11**	**4**	**15**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Cipher	August 2007	September 2012	61

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Cipher	***	-	-

C.3 In-Service Date/Initial Operating Capability

C.4. Full Operating Capability

C.5. Support / Service / PFI Contract

Project Title
Indirect Fire Precision Attack
Team Responsible
Indirect Fire Precision Attack
Senior Responsible Owner
-

Project/Increment Name	Current Status of Projects / Increments
Indirect Fire Precision Attack	Pre-Main Investment Decision
Loitering Munition	Post-Main Investment Decision
Guided Shell	Pre-Main Investment Decision
Guided Multiple Launch Rocket System	Pre-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

Indirect Fire Precision Attack will provide, by incremental acquisition, a suite of munitions for indirect precision attack of static, mobile, and manoeuvring targets extending to ranges in excess of 150 kilometres.

The capability required under Indirect Fire Precision Attack will be delivered through a structured programme of Assessment, Demonstration and Manufacturing phases. To support the incremental nature of the programme an overarching Assessment Phase provided the evidence to support decisions on individual components via a series of Main Gate (or similar) Business Cases.

The Assessment Phase indicated that the Indirect Fire Precision Attack capability is likely to be achieved by a mixture of guided rockets, enhanced artillery shells and Loitering Munitions. They will carry a variety of payloads. Indirect Fire Precision Attack munitions will make use of a number of in-service platforms such as the Multiple Launch Rocket System and the AS90 self-propelled howitzer. The Loitering Munition early capability does not include a platform although the munitions are trailer mounted. Integration into a platform could be part of later Blocks (variants). The mix of munitions procured under the programme will have a range of In-Service dates: this multi-solution approach is being managed through an incremental procurement strategy.

The Main Gate Business Case for the first component, a 155mm Ballistic Sensor Fuzed Munition, was approved in July 2007 with a target In-Service Date of September 2011. Cancellation of this programme was approved by the Investment Approvals Board on 21 December 2009. This was as a result of technical difficulties resulting in the Contractor being unable to achieve an acceptable level of technology maturity within the approved time and cost boundaries.

The second component is the Loitering Munition. Loitering Munitions can be launched in response to an identified target but can also be flown to re-programmable locations and maintained in a holding pattern until given a target. They are controlled by an operator who will have a real-time image of the intended target and surrounding area providing the ability to control the exact time, attitude and direction of the attack of a static, re-locatable or moving target, including providing a contribution to the formal target identification and confirmation process.

The remaining components identified in the Assessment Phase were Guided Multiple Launch Rocket System (GMLRS), Guided Shell and Large Long Range Rocket.

A.2 The Assessment Phase

The Initial Gate Business Case for Indirect Fire Precision Attack was approved in May 2001. Following competition using a Capability Based Questionnaire, an Assessment Phase contract was awarded in May 2002 to a consortium of companies led by BAE Systems Strategic Capability Solutions (formerly known as BAE Systems Future Systems). The first Indirect Fire Precision Attack Assessment Phase was designed to provide, and iteratively update, a 'Route Map' to achieving the full Indirect Fire Precision Attack capability with recommendations about the type, quantities and mix of munitions. In line with the approved strategy for an incremental programme, a series of Assessment Phases are planned, each being approved by a separate Review Note. A contract for the second Assessment Phase was placed with the BAE Systems led consortium in January 2007. This included the Loitering Munition Capability Demonstration programme, which completed in December 2008. The BAE Systems led Assessment Phase contract completed in mid April 2010.

In light of the incremental procurement strategy, procurement of components will be approved via a series of Main Gate Business Cases. After each component receives a Main Gate approval, it will be managed as a separate programme in its own right. However, each capability will continue to be included in the ongoing operational analysis work, so that the overall mix and quantity of munitions to be procured can be refined as the programme progresses.

A contract for the Demonstration and Manufacture of the first component, Ballistic Sensor Fuzed Munition, was placed with Gesellschaft für Intelligente Wirksysteme GmbH in September 2007 and terminated in February 2010.

The Loitering Munition procurement strategy deviates from the above process in that approval is being sought as part of the Complex Weapons Programme. The capabilities/quantities of this munition are therefore additionally assessed in their contribution to the Complex Weapons portfolio.

A.3 Progress

Approval for the cancellation of Ballistic Sensor Fuzed Munition was granted by the Investment Approvals Board on 21 December 2009 and the contract was terminated in February 2010.

The Demonstration and Manufacture phase for Loitering Munition was approved by the Investment Approvals Board in March 2010 as part of the Complex Weapons Interim Main Gate 1 submission. It is intended that this will be demonstrated on current operations in 2012.

Guided Multiple Launch Rocket System has a proposed first delivery date of June 2018.

Guided Shell has had its funding deleted in Planning Round 2011; however, the planned capability requirement remains.

The Large Long Range Rocket capability was deleted in Planning Round 2011.

The Loitering Munition Capability Demonstration was transferred to the Royal School of Artillery during 2010. The system will be used for training purposes only.

A.4 Capability Risks

The impact of not having Indirect Fire Precision Attack is that the Land Component would not have independent capability to attack with precision, targets beyond the range of direct fire weapons such as tanks and anti-tank guided weapons. In this respect Attack Helicopters are considered as direct fire weapons as the helicopter crew have to be able to see the target. This means that the indirect fire systems can only suppress or neutralise enemy forces beyond the range of direct fire weapons by using un-guided munitions. This results in large wastage and a collateral damage risk which must be reduced.

Two key benefits of Indirect Fire Precision Attack are the ability to destroy targets that UK forces could previously only suppress and that UK forces can do so with no or minimal collateral damage. That Indirect Fire Precision Attack is fully controlled by the Land Component is important because of the persistence and responsiveness of its own capabilities. Whilst aircraft can deliver precision weapons against targets beyond the range of direct fire weapons they lack persistence and are generally not responsive; they have to be pre-planned or booked and can only stay on the station for a short period.

A.5 Associated Projects

A.6 Procurement Strategy

Pre-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Procurement Route**			**Approval Status**
Guided Shell	Not yet known			Pre-Main Gate
Guided Multiple Launch Rocket System	Non-competitive as already in-service therefore off the shelf buy			Pre-Main Gate
Post-Main Investment Decision Projects / Increments only				
Project/Increment Title	**Contractor**	**Contract Scope**	**Contract Type**	**Procurement Route**
Loitering Munition	MBDA	Demonstration to Manufacture	Prime Contractor	Non-Competitive - UK

A.7 Support Strategy

Description
Ballistic Sensor Fuzed Munition - Support funding was in place but cancellation of the programme was approved by the Investment Approsals Board in December 2009.

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
-	-	-	-	-

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Indirect Fire Precision Attack (Assessment Phase 1)	24	45	-5	-	-
Indirect Fire Precision Attack (Assessment Phase 2)	26			-	-
Loitering Munition (Approval 1)	39 [1]	92	-5	-	-
Loitering Munition (Approval 2)	58 [2]			-	-
Guided Shell	-	-	-	-	-
Guided Multiple Launch Rocket System	-	-	-	-	-
Loitering Munition Capability Demonstration	23	0	-23	-	-
Total (£m)	**170**	**137**	**-33**	**-**	**-**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Indirect Fire Precision Attack	-	-	-
Loitering Munition	107	107	-
Guided Shell	-	-	-
Guided Multiple Launch Rocket	-		-
Loitering Munition Capability Demonstration	-	-	-

B.3 Cost of the Demonstration and Manufacture Phase

Project/Increment Title	Budgeted For Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	In-Year Variation (£m)
Loitering Munition	107	107	0	0
Total (£m)	**107**	**107**	**0**	**0**

B.3.1 Cost Variation against approved Cost of the Demonstration & Manufacture Phase

B.3.1.1 Loitering Munition

B.3.2 Operational Impact of Cost Variations of Demonstration & Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	154	-18	136
Demonstration & Manufacture Phase	0	58	58
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**154**	**40**	**194**

[1] The approved cost figure is allocated from the Initial Gate Approval dated 3 June 2008 for the Complex Weapons programme

[2] The approved cost figure is allocated from the Review Note Approval dated 23 December 2009 for the Complex weapons programme

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Indirect Fire Precision Attack (Assessment Phase 1)	May 2001	July 2006 [3]	62
Indirect Fire Precision Attack (Assessment Phase 2)	July 2006		Ongoing
Loitering Munition (Approval 1)	June 2008	April 2010	22
Loitering Munition (Approval 2)	-	-	-
Guided Shell	-	-	-
Guided Multiple Launch Rocket System	-	-	-
Loitering Munition Capability Demonstration	July 2006	-	-

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved (£m)
Indirect Fire Precision Attack (Assessment Phase 1)	-	-	-
Indirect Fire Precision Attack (Assessment Phase 2)	-	-	-
Loitering Munition (Approval 1)	-	-	-
Loitering Munition (Approval 2)	-	March 2012	-
Guided Shell	-	-	-
Guided Multiple Launch Rocket System	-	-	-
Loitering Munition Capability Demonstration	-	-	-

C.3 In-Service Date/Initial Operating Capability

C.3.1 Definition

Project/Increment Title	In-Service Date/Initial Operating Capability
Loitering Munition	The project will deliver 25 safe and useful munitions in March 2012 (50%). These will form a start-up capability for current operations.

C.3.2 Progress against approved Dates

Project/Increment Title	Approved Date	Actual / Forecast Date	Variation (+/- months)	In-Year Variation (+/- months)
Loitering Munition	March 2012	March 2012	0	0

C.3.3 Timescale variation

C.3.3.1 Loitering Munition

C.3.4 Other costs / savings resulting from Timescale variation

C.3.5 Operational Impact of In-Service Date/Initial Operating Capability variation

C.4. Full Operating Capability

C.5. Support / Service / PFI Contract

[3] Date is Assessment Phase 2 approval, not Main Gate

Project Title	
Marshall	
Team Responsible	
Air Command and Control Systems	
Senior Responsible Owner	
Head of Capability - Command, Control, Information and Infrastructure	

Project/Increment Name	Current Status of Projects / Increments
Assessment Phase 1	Pre-Main Investment Decision
Assessment Phase 2	Pre-Main Investment Decision
Marshall	Pre-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

The Joint Military Air Traffic Services, now known as Marshall project seeks to sustain the provision of Air Traffic Management at MOD Airfields and Air Weapons Ranges through the provision of new capability to meet new regulatory airspace management requirements set by the Civil Aviation Authority, addressing equipment obsolescence in the air traffic inventory and through the more efficient delivery of support services. The project will provide air traffic services to military and civilian aircraft arriving at, departing from and operating within the immediate vicinity or confines of, MOD aerodromes (United Kingdom, overseas permanent and deployed) and at air weapons ranges.

A.2 The Assessment Phase

The Assessment Phase of Marshall is being conducted in two parts. The first part (Assessment Phase 1) was approved on the 17th January 2008. The purpose was to both express the military air traffic services in output terms through the development of an output-based specification and to determine the most appropriate and cost-effective delivery solution for this service. In addition, the project has captured data on the condition of the existing air traffic control infrastructure (control towers, radar towers, radio masts etc) as well as the number of people employed in supporting the service. Part 1 of the Assessment Phase completed in October 2009 with the submission of a Review Note seeking approval for Part 2.

Part 2 of the Assessment Phase enables formal industry engagement. The intention is to use the competitive dialogue process to determine the preferred bidder and delivery solution for Marshall within the delivery framework developed during Assessment Phase Part 1.

A.3 Progress

A Review Note Industry Engagement was issued in December 2009 seeking approval to initiate formal industry engagement and release of an additional £6M to provide specialist technical support and external assistance to the competitive dialogue process. Although approval for Part 2 of the Assessment Phase was given on 22 February 2010, it was caveated with a requirement for further work to be undertaken to demonstrate commercial maturity before the contract notice, (launching the formal procurement process) could be published. This work was largely completed late 2010, and a second Review Note was approved in February 2011. This too was caveated with the need to gain Treasury approval of key project documents, before the contract notice could be published. This final approval was received on 25 March 2011. In addition, the change of government introduced a 'freeze' on consultancy expenditure. Although the case to re-engage consultants on the project was approved in August 2010, formal approval by the Efficiency Reform Group was not achieved until 23 February 2011.

A.4 Capability Risks

Much of the equipment that currently provides air traffic services to MOD airfields and ranges is in excess of 20 years old and is obsolete. Increasing regulation of United Kingdom airspace requires the implementation of new radar surveillance capability. Failure to invest in this capability will ultimately reduce the level of air traffic service provision to these locations. This will reduce the ability of all three Services to train and fly and hence the ability to project air power wherever and whenever it is required.

A.5 Associated Projects

A.6 Procurement Strategy

Pre-Main Investment Decision Projects / Increments only		
Project/Increment Title	**Procurement Route**	**Approval Status**
Marshall	Public Private Partnership such as Strategic Partnering. Delivery Partner and solution to be sought through competitive dialogue.	Pre-Main Gate

A.7 Support Strategy

Description
The current planning assumption is for a full Air Traffic Management Service Provision where the provider determines and is responsible for the composition and delivery of the support element required to maintain the service, with an embedded military core to support deployed operations

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
-	-	-	-	-

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Assessment Phase 1	3	3	0	-	-
Assessment Phase 2	6	6	0	-	-
Total (£m)	**9**	**9**	**0**	**-**	**-**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Marshall	***		***

B.3 Cost of the Demonstration and Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	3	1	4
Demonstration & Manufacture Phase	0	0	0
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	3	1	4

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Marshall	January 2008	October 2013	69

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Marshall	***		

C.3 In-Service Date/Initial Operating Capability

C.4. Full Operating Capability

C.5. Support / Service / PFI Contract

Project Title	
Military Afloat Reach and Sustainability	
Team Responsible	
Afloat Support	
Senior Responsible Owner	
Head of Capability Expeditionary Logistics Support	

Project/Increment Name	Current Status of Projects / Increments
Military Afloat Reach and Sustainability	Pre-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

The Military Afloat Reach and Sustainability programme will provide afloat logistic support to UK and allied maritime task groups at sea and their amphibious components operating ashore. Although not strictly a one-for-one replacement programme, new vessels will incrementally replace much of the existing Royal Fleet Auxiliary flotilla, as ships enter and leave service respectively.

The Military Afloat Reach and Sustainability capability is designed to support three distinct types of maritime task group: Carrier Strike, Littoral Manoeuvre and Maritime Security. The demands of each differ significantly, but are all composed of three common elements:

Bulk Consumables - fuel and potable water which are transferred by hose.

Non-bulk consumables - Food, ammunition and general stores. Solid cargo which is transferred in unit loads, either ship to ship or ship to shore.

Forward Aviation Support - The provision of helicopter basing and operating facilities to accommodate some of the task group's aircraft or to provide operational flexibility during a campaign.

The Military Afloat Reach and Sustainability capability will be in service until circa 2054 and as such the solution will be designed to accommodate the requirements of current and known future force structures, including Type 45, the Queen Elizabeth Class aircraft carriers, Joint Combat Aircraft and Type 26 Global Combat Ship. Tankers will provide bulk consumables and forward aviation support to the maritime task group. Solid Support Ships, previously referred to as Fleet Solid Support and Amphibious Combat Stores ship, will provide non bulk consumables and forward aviation support to the maritime task group.

The capability to be provided is essential to the evolving logistic support needs of the Royal Navy. The proposed procurement profile of Military Afloat Reach and Sustainability ships has been matched to this need, the initial focus being on the double-hulled Tankers which are required in order to comply with International Maritime environmental standards.

A.2 The Assessment Phase

The Military Afloat Reach and Sustainability programme received formal approval to enter its Assessment Phase in July 2005 based on an Alliance strategy. Following a review of the Procurement Strategy in 2007, the Alliance Strategy was terminated. A new strategy, based on a 'Competitive and Adaptive' approach, was approved and reflected the need to procure the Tanker element of the programme separately in order to comply with International Maritime legislation. In addition approval was granted for the designation and delegation of the Heavy Replenishment at Sea project as a separate Category D project. Solid Support ships will now form a separate strategy to be considered with wider UK industrial interests. An open international competition was launched for the design and build of up to six Fleet Tankers but was cancelled following the Department's examination of its equipment programme in 2008. A review of the requirements and procurement strategy was undertaken which concluded that a more open procurement strategy to consider a range of possible solutions and which take account of current market conditions is more likely to secure best value for money for the MOD. On this basis a new competition for up to six Military Afloat Reach and Sustainability Tankers was launched in October 2009.

The current approved budget for the Military Afloat Reach and Sustainability Assessment Phase is £44m and the current forecast for the Assessment Phase, including early design and requirement work for Solid Support Ships is *** (Tanker***, Solid Support Ships, ***).

Due to the planned phased nature of the project, support and oversight for Military Afloat Reach and Sustainability Tankers and further design work on subsequent classes will take place after the Military Afloat Reach and Sustainability Tanker main investment decision, and the current total forecast for this later work is ***, (*** for Military Afloat Reach and Sustainability Tankers, *** for Solid Support Ships) bringing the total expected cost of Assessment work and later design for future classes to ***.

A.3 Progress

A new competition was launched in October 2009. Following assessment of initial Pre Qualification Questionnaires six companies were invited to proceed to the next stage of the competition which is being conducted over three stages using Competitive Dialogue process. Stage 1 - Invitation to Submit Outline Solutions took place over March to September 2010. Stage 2 - Invitation to Submit Detailed Solutions commenced in October 2010 and is expected to continue through to Invitation to Submit Final Bids. At the 31st March 2011, there were five companies included in the process following the withdrawal from the competiton in 2010 of one company, Flensburger Schiffbau-Gesellschaft (Germany); the five bidders are: A&P Group Limited (UK), Daewoo Shipbuilding and Marine Engineering (Republic of Korea), Fincantieri (Italy), Hyundai Heavy Industries (Republic of Korea) and Knutsen OAS(UK) Limited.

Since the 31st March two of these companies, Knutsen OAS Ltd in June 2011 and A&P Group Ltd in August 2011 have withdrawn, meaning that the competition is now reduced from five to three bidders. This will be examined in MPR 2012.

A.4 Capability Risks

The Military Afloat Reach and Sustainability programme will deliver future Royal Fleet Auxiliary ships, replacing the current capability, to support the future Royal Navy. Without the support of these ships, the ability of the Royal Navy to carry out global operations will be severely restricted. Double hulled naval tankers are required as soon as is practicable to comply with international maritime legislation; the Royal Fleet Auxiliary currently operates two double hulled tankers and four single hulled tankers under exemption from legislation. The number of ships with single hulled tanks has reduced from six to four in the last year as a result of Strategic Defence and Securty Review. All Royal Fleet Auxiliary ships are maintained to UK regulatory and classifications standards; should this certification and classification be withdrawn for single hulled tankers, their operation would cease immediately leading to severe operational limitations on the ability of the Royal Navy to operate worldwide and in anything but the most benign environments. Foreign nations have already begun to deny port access for single hulled tankers and this situation will be exacerbated as a consequence of any environmental incident, MOD shipping related or not. Programming for operations takes account of environmental restrictions as well as limitations on ships due to their material state; for example some of the older ships are unable to operate in colder climates due to the steel in their ageing hulls becoming brittle. These ships will be replaced as the double hulled tanker element of the Military Afloat Reach and Sustainability Programme is delivered.

A.5 Associated Projects

A.6 Procurement Strategy

Pre-Main Investment Decision Projects / Increments only		
Project/Increment Title	**Procurement Route**	**Approval Status**
Military Afloat Reach and Sustainability Tanker	International Competition, Competitive Dialogue	Pre-Main Gate

A.7 Support Strategy

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Military Afloat Reach and Sustainability	44	***,[4]	***	-	-
Total (£m)	**44**	**0**	***	**-**	**-**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Military Afloat Reach and Sustainability	***	-	***

B.3 Cost of the Demonstration and Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	15	0	15
Demonstration & Manufacture Phase	0	0	0
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**15**	**0**	**15**

4 Includes forecasted *** for post Main Gate Assessment work that is not yet approved. The actual Military Afloat Reach and Sustainability Assessment Phase expenditure is within approved budget

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Military Afloat Reach and Sustainability	July 2005	***	***

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Military Afloat Reach and Sustainability	***		***

C.3 In-Service Date/Initial Operating Capability

C.4. Full Operating Capability

C.5. Support / Service / PFI Contract

Project Title	
Operational Utility Vehicle System	
Team Responsible	
Specialist and Logistics Vehicles Project Team	
Senior Responsible Owner	
Jon Cook	
Project/Increment Name	**Current Status of Projects / Increments**
Operational Utility Vehicle System	Assessment phase

OPERATIONAL UTILITY VEHICLE SYSTEM

A. Section A: The Project

A.1 The Requirement

The requirement for Operational Utility Vehicle System was reviewed in 2007 by the Army, as lead user, when the need for vehicles with enhanced protection, capacity and mobility was identified. The Single Statement of User Need stated that 'Operational Utility Vehicle System would provide a robust, easily supported system, comprising operational utility vehicles that are able to carry light cargo (up to six tonnes) or small groups of personnel, integrate as many special-to-role systems as possible and which can operate in diverse climatic and topographical conditions worldwide, in order to support and contribute to land (including land air) and littoral manoeuvre operations'. This capability would be a key supporting enabler for offensive combat operations providing the following roles; unit level logistic cargo vehicle, systems carrier, mobile command, liaison and personnel transport.

A.2 The Assessment Phase

Initial Gate was approved 1 July 2008. The Assessment Phase was split into three stages and considered the benefits of mixed fleets and procuring Fitted For But Not With capabilities against the full requirement. Value for Money was demonstrated in the Combined Operational Effectiveness Investment Appraisal.

Assessment Phase 1- Stage one concentrated on fully understanding the User's requirement and developing and demonstrating technologies, systems and system interactions, to mitigate identified risks. The focus of this work was capacity and protection to assist in identifying performance boundaries used to inform the scaling (roles and variants) of the fleet size. In tandem, further analysis was conducted to identify the optimum support solution, whilst cross programme coherence was monitored and maintained. The output from Assessment Phase 1 was to inform the decision as to the scaling of the new Operational Utility Vehicle fleet, and whether any in-service vehicles were needed beyond their current Out of Service Date.

As the Operational Utility Vehicle System project is no longer being taken forward there will not be any further Assessment Phases, however had it continued all vehicles would have built on the Research and Development in Assessment Phase 1 by using Technology Demonstrators to develop the overall capability, in order to mature the System Requirement Document.

(New vehicles) Invitation(s) to Tender would have been run for the 'new' Operational Utility Vehicles System capability (vehicle acquisition and support solution) in mid Assessment Phase 2 to enable initial capability demonstration and assurance testing of reliability and durability, to have been conducted in the remainder of Assessment Phase 2 and Assessment Phase 3.

(Update in-service vehicles). If required, the Design Authorities (DAs) would have been tasked to develop an upgraded design solution for aspects of the in-service fleet in consultation with subject matter experts. The work to upgrade the fleet would have been completed towards the end of Assessment Phase 2 to identify a preferred bidder so that Main Gate (A) approval could have been sought to commence manufacture in parallel with Assessment Phase 3.

Assessment Phase 3- Stage 3 would have concentrated on demonstration capability and assurance testing to identify a preferred bidder for Main Gate (B).

A.3 Progress

The Operational Utility Vehicle System programme was deferred for two years as part of the Department's 2010 financial planning round with the previous assumption to restart the project during Financial Year 2011/2012.

The Operational Utility Vehicle System project has been removed from the programme during 2011. A Review Note has been prepared to reflect this, which states that the requirement will be re-scoped, and the outcome of this work will form the basis for the Multi Role Vehicle- Protected Programme. It is currently planned for Multi Role Vehicle- Protected to commence Concept stage during Financial Year 2015/2016. Multi Role Vehicle-Protected will have its own Initial Gate and Main Gate approvals.

A.4 Capability Risks

Any deployed force operating in the land environment now requires a range of characteristics to operate successfully. Analysis concluded that the current in-service utility vehicle fleet cannot provide the required level of capability in terms of quantity or effectiveness in terms of protection, power and capacity. Changes in legislation regarding emissions and vibration have also led to elements of the utility fleet (Reynolds Boughton 44 and Land Rover Defender vehicles) becoming non-compliant, necessitating modernisation or replacement.

The risk of not procuring the Operational Utility Vehicle System capability is:
Insufficient capacity (overloaded vehicles)
Inadequate protection
Not all the current vehicle fleet can be fitted with communications systems
Mobility limitations
Obsolescence and alignment with other vehicle platforms

Capability Risk mitigation:

The Operational Utility Vehicle System project has now been cancelled. The risk remains extant and will be considered further under the requirement for Multi Role Vehicle-Protected. Our Armed Forces on operations will use the protected Tactical Support Vehicles ordered under the Urgent Operational Requirement process in the interim.

A.5 Associated Projects

A.6 Procurement Strategy

Pre-Main Investment Decision Projects / Increments only		
Project/Increment Title	**Procurement Route**	**Approval Status**
Operational Utility Vehicle System	Competitive Tender	Pre-Main Gate

A.7 Support Strategy

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Operational Utility Vehicle System	13	5	-8		
Total (£m)	**13**	**5**	**-8**		

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Operational Utility Vehicle	***		***

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	5	0	5
Demonstration & Manufacture Phase	0	0	0
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**5**	**0**	**5**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Operational Utility Vehicle System	July 2008		

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Operational Utility Vehicle System	***		***

Project Title	
Search and Rescue - Helicopter	
Team Responsible	
Search and Rescue - Helicopter Project Team	
Senior Responsible Owner	
Head of Search and Rescue Helicopters Division, Department for Transport	

Project/Increment Name	Current Status of Projects / Increments
Assessment Phase 1	Pre-Main Investment Decision
Assessment Phase 2	Pre-Main Investment Decision
Search and Rescue - Helicopter	Pre-Main Investment Decision

SEARCH AND RESCUE HELICOPTER

A. Section A: The Project

A.1 The Requirement

Search and Rescue – Helicopter is a joint MOD and Maritime & Coastguard Agency (an Agency of the Department for Transport) programme. It seeks to replace the current Search and Rescue capability, provided around the UK by the Royal Navy and the Royal Air Force, using Sea King Helicopters, and through the Maritime & Coastguard Agency service contract.

A.2 The Assessment Phase

The Search and Rescue – Helicopter Assessment Phase was approved in 2 Phases – Assessment Phase 1 and Assessment Phase 2. Assessment Phase 1 considered the range of procurement options as outlined in the Search and Rescue – Helicopter Initial Gate approval, resulting in a recommendation for a joint MOD/Maritime and Coastguard Agency competitive PFI procurement strategy. MOD Ministerial approval for Assessment Phase 2 to implement the joint MOD/Maritime & Coastguard Agency competitive PFI procurement strategy was gained via the Future Rotorcraft Capability Initial Gate Business Case and followed by Department for Transport Ministerial approval of a parallel Business Case. A joint Ministerial announcement of the PFI Procurement Strategy was made in May 2006 and the competition was launched through the Official Journal of the European Union.

Four consortia were short-listed following Assessment of their Pre Qualification Questionnaires (PQQ) in November 2006: Augusta Westland; CHC Scotia Ltd/Thales UK Ltd (now known as "Soteria"); AirKnight (Lockheed Martin UK Ltd/VT Group Ltd/British International Helicopters Ltd); and UK Air Rescue (Bristow Helicopters Ltd/FBH Ltd/Serco Ltd). The Competitive Dialogue with industry formally commenced in February 2007. In October 2007 Augusta Westland withdrew as an independent participant from the competition. Westland Helicopters Ltd was subsequently admitted to the UK Air Rescue consortium in January 2008 following the submission of a Pre Qualification Questionnaire addendum. Industry's costed solutions for the first round of bidding were submitted in January 2008, and, following the withdrawal, for commercial reasons, of the UK Air Rescue consortia in September 2008, the two remaining consortia submitted their second round bids, against a refined requirement to utilise 12 bases around the UK, in November 2008.

In February 2009, the two consortia issued respective press releases proposing their Search and Rescue – Helicopter aircraft solutions: The Airknight consortia selected a single fleet of Eurocopter EC225s; the Soteria consortia selected a single fleet of Sikorsky S-92s. Both bidders submitted their final proposals in December 2009. The Assessment Phase concluded with evaluation of the final round of bids in January 2010, and the Soteria consortium was announced as preferred bidder in February 2010. Assessment Phase costs were split in the ratio MOD 2/3 and MCA 1/3. All costs in this Project Summary Sheet relate only to the MOD's cost.

A.3 Progress

Main Gate approval was achieved in February 2010. The project was suspended in June 2010, as part of a review of all spending decisions taken since January 2010 and the review concluded with Treasury agreement in December 2010 that the project should continue on the basis of the proposed solution. In December 2010, just prior to the planned public announcement of the continuation, the Soteria Consortium informed the MOD of a possible issue in connection with its bid, and in February 2011 the two Departments announced that irregularities had been identified such that it would not be appropriate to proceed with the preferred bid, or the current procurement process. The two Departments are currently considering potential procurement options to meet future requirements for search and rescue helicopters in the United Kingdom, including options to maintain continuity of search and rescue helicopter cover until new longer-term arrangements can be put in place. Costs incurred since Main Gate total £1.1M and relate to accrued expenditure for legal, financial and technical advice.

A.4 Capability Risks

The UK Search and Rescue organisation is derived from the UK Governments adherence to various National and International maritime conventions dating from 1944 to 1979. Failure to replace the current service would risk contravening this established legal and moral duty. Consequently, the two organisations are combining their aviation acquisition expertise and are considering options to meet the requirement for a replacement for the current service .

A.5 Associated Projects

A.6 Procurement Strategy

Pre-Main Investment Decision Projects / Increments only		
Project/Increment Title	**Procurement Route**	**Approval Status**
Assessment Phase 1	Assessment of five procurement strategy options	Pre-Main Gate
Assessment Phase 2	Competitive PFI	Pre-Main Gate

A.7 Support Strategy

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Assessment Phase 1	1.3	0.4	-0.9		
Assessment Phase 2	9.9	6.8	-3.1		
Total (£m)	**11.2**	**7.2**	**-4.0**		

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Search and Rescue - Helicopter	***		***

B.3 Cost of the Demonstration and Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	7.2	0.0	7.2
Demonstration & Manufacture Phase	0.0	1.1	1.1
Support Phase / Service / PFI Cost	0.0	0.0	0.0
Total Expenditure	**7.2**	**1.1**	**8.3**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Assessment Phase 1	May 2003	August 2005	27
Assessment Phase 2	August 2005	February 2010	54

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Search and Rescue - Helicopter	***		***

C.3 In-Service Date/Initial Operating Capability

C.4. Full Operating Capability

C.5. Support / Service / PFI Contract

Project Title	
Solomon Programme	
Team Responsible	
Intelligence Surveillance Target Acquisition and Receonnaissance Programme Support Function 1	
Senior Responsible Owner	
Head of Capability Intelligence Surveillance Target Acquisition and Reconnaissance	

Project/Increment Name	Current Status of Projects / Increments
Solomon	Pre-Main Investment Decision
Intelligence Surveillance Target Acquisition and Reconnaissance Information Integration & Management Project	Pre-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

The Department requires an effective and efficient end-to-end Intelligence, Surveillance, Target Acquisition and Reconnaissance service. This will provide actionable information and intelligence to inform decision makers through a capability that is interoperable in a joint, inter-agency, and multi-national environment, in support of an agreed range of Military Tasks out to 2035. The Department identified capability gaps in two areas: Direct, Process and Disseminate relating to the integrated delivery of Intelligence; and Deep and Persistent relating to collection of intelligence. The Solomon (at the time known as Dabinett) Programme was established in order to address these capability gaps and in doing so to significantly improve the efficiency, effectiveness, quality and timeliness of intelligence delivered to the commander primarily by making better use of legacy systems but also through the introduction of new capability across all the Defence Lines of Development.

Background
Solomon was originally scoped as a replacement to the Canberra PR9 aircraft used for tactical reconnaissance and photographic mapping. In 2005 the Acquisition for Network Enabled Capability and Dabinett Programme Integrated Project Team was formed to deliver the project. Lessons identified from theatre at this time continued to focus on the inefficient use of the Intelligence, Surveillance, Target Acquisition and Reconnaissance inventory. Furthermore, analysis from operations in Iraq indicated that information was already available to answer 80- 90% of the collection requirements raised. This led to more emphasis being placed on Solomon to improve the Intelligence, Surveillance, Target Acquisition and Reconnaissance process, Direct, Collect, Process and Disseminate rather than merely replacing a tactical reconnaissance and photographic mapping aircraft.

In March 2010 Dabinett was renamed Solomon.

A.2 The Assessment Phase

The Programme is in a continuous Assessment Phase that will initiate a number of projects, with their own lifecycles, over several phases to deliver over time the full capability identified for Solomon.

The first of these projects is the Intelligence, Surveillance, Target Acquisition and Reconnaissance Information Integration & Management project which is currently in its Assessment Phase.

A Through Life Capability Management approach is being used to manage the Solomon Programme.

Programme Support

The £8M over four years allocated to the Solomon Programme continuous Assessment Phase element has been used to provide technical support to the programme such as:

a. Undertaking benefits analysis of the programme.
b. Undertaking effectiveness modelling to support the programme.
c. Supporting Programme Planning/Optimisation through Capability and Programme Investigations.

Parallel Activities

In addition to the Programme Support activities a number of programme-level activities with separate approvals which contribute to, and are funded by, the Solomon Programme. These are:

Project Abime is a 2-year development of the Electronic Surveillance Mission Support Environment to de-risk and inform the Joint Electronic Surveillance Centre and Single Signals Intelligence Battlespace via an Operational Capability Demonstrator (approval £1.835m).

Project Diamond is an Operational Concept Demonstrator to support sharing of tactical reconnaissance imagery between the UK and another nation, (approval £4.369m).

Multi-Sensor Aerospace-Ground Joint Interoperable Intelligence Surveillance and Reconnaissance Coalition – Co-ordination of UK participation in a 9-nation led system to better share tactical imagery intelligence, (approval £1.852m).

Empire Challenge – Co-ordination of UK participation in a US-led annual trial to test the integration of intelligence systems to share information and inform Phase 2 Projects, (approval £0.508m).

Intelligence Surveillance Target Acquisition and Reconnaissance Defence Lines of Development Co-ordination Project which is de-risking non Equipment lines of development for the programme, (approval £1.930m).

Geospatial Intelligence Information Service, a Capability Concept Demonstrator (approval £0.542m). Geospatial Intelligence Information Service demonstrates the web-based dissemination of products produced by Defence Geographic Centre and the United Kingdom Hydrographic Office.

A.3 Progress

Solomon is currently planned to deliver over a number of phases.

Phase 1

The Intelligence Information Integration & Management project is the only project in Phase 1 of the Programme. It passed Initial Gate in April 2009. In February 2010 two competitive Assessment Phase contracts were placed with preferred bidder selected in late 2010. The Main Gate planned for December 2010 has been re-scheduled for May 2011.

Phase 2 onwards

During 2010/11 Defence Intelligence provided a Single Intelligence Environment requirements definition paper which aligned the provision of capability to the desired MOD military requirement in 2015 and 2020 .The Strategic Defence and Security Review took these changes forward which revised the funding profile.

An option to reduce funding on Direct Process and Disseminate Projects in years 1 to 10 has been taken. A further option to defer £25 million from year 5 to 6 has also been taken. The current forecast for Solomon aligns to the outcome of these options.

A.4 Capability Risks

The focus of the Solomon Programme is on improving the efficiency and effectiveness of the Intelligence, Surveillance, Target Acquisition and Reconnaissance processes and capabilities. Without Solomon, assets that collect intelligence will continue to be tasked to answer requests for Information and Intelligence that already exist within the intelligence community. Solomon will meet the de-confliction and prioritisation shortfalls of the current UK Intelligence, Surveillance, Target Acquisition and Reconnaissance capability.

The delivery of an enhanced End-to-End UK Intelligence Surveillance Target Acquisition and Reconnaissance capability is fundamental to the success of future military operations. Information and intelligence is essential in all aspects of modern operations and thus provides the bedrock for decision making. Solomon will ensure that information and intelligence is effectively and efficiently available for exploitation at all levels of command.

A.5 Associated Projects

Title of Associated Project	Forecast In Service Date/ Initial Operating Capability	Approval Status
Defence Information Infrastructure (Future) Increment 2c	***	Demonstration and Manufacture

A.6 Procurement Strategy

Pre-Main Investment Decision Projects / Increments only		
Project/Increment Title	**Procurement Route**	**Approval Status**
Solomon	Tasks competed through Framework Agreement for Technical Support, a pan-Government arrangement to enable fast and efficient procurement of technical support, Non-competitive through DSTL and Niteworks.	Pre-Main Gate
Intelligence Surveillance Target Acquisition and Reconnaissance Information Integration & Management Project	Competitive Procurement	Pre-Main Gate

A.7 Support Strategy

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Solomon	8	7	-1	-	-
Intelligence Surveillance Target Acquisition and Reconnaissance Information Integration & Management Project	4	3	-1	-	-
Total (£m)	**12**	**10**	**-2**	**-**	**-**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Solomon	***		
Intelligence Surveillance Target Acquisition and Reconnaissance Information Integration & Management Project	***		***

B.3 Cost of the Demonstration and Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	4	4	8
Demonstration & Manufacture Phase	0	0	0
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**4**	**4**	**8**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Solomon	March 2008	Continuous	
Intelligence Surveillance Target Acquisition and Reconnaissance Information Integration & Management Project	April 2009	May 2011	25

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Solomon	-	-	-
Intelligence Surveillance Target Acquisition and Reconnaissance Information Integration & Management Project	***	-	-

C.3 In-Service Date/Initial Operating Capability

C.4. Full Operating Capability

C.5. Support / Service / PFI Contract

Project Title	
Type 26 Global Combat Ship	
Team Responsible	
Type 26 Global Combat Ship	
Senior Responsible Owner	
Capability Above Water Head	
Project/Increment Name	**Current Status of Projects / Increments**
Type 26 Global Combat Ship	Pre-Main Investment Decision

A. Section A: The Project

A.1 The Requirement

There is a need to replace the 13 Type 23 surface combatant capability before the safe operating standard for legacy ships is withdrawn and the platforms become obsolete. This enduring requirement will be delivered by the Type 26 Global Combat Ship, which emerged from the Strategic Defence and Security Review.

The Type 26 Global Combat Ship is a globally deployable and sustainable warship that will form the spine of the Royal Navy's future fleet. It is a task group enabled Anti-Submarine Warfare warship and will combine the capabilities necessary to protect maritime task groups, the strategic deterrent and land forces, with the flexibility to conduct a wide range of other tasks. The Type 26 Global Combat Ship retains the combat power that had been provisioned for the Type 26 (C1) originally, whilst enhancing endurance and intelligence gathering attributes.

Legacy Ships were designed for an 18 year life but this has been extended to almost twice the original design life. The current planning assumption is to replace the ships under the Type 26 Global Combat Ship programme, currently based on one class of up to 13 ships delivered in two variants; anti-submarine warfare and general purpose vessels.

A.2 The Assessment Phase

The Sustained Surface Combatant Capability pathfinder project recommended a two-class solution for Future Surface Combatant. The first class, Type 26 (C1), is a task-group enabled anti-submarine warfare frigate. The second, C2, is a general purpose frigate. Sustained Surface Combatant Capability Pathfinder highlighted a need for up to ten Type 26 (C1) and eight C2s. Type 26 (C1) was to be built first at a rate of one per year, followed by C2. This approach met the needs of industrial sustainability whilst fulfilling the Royal Navy requirement.

It was on this basis that the Concept Phase progressed and formed the basis of the Initial Gate approval for Type 26 (C1) on 18 March 2010. It was anticipated that Main Gate would be in Quarter 4 2013 and estimated that for a ten ship class the procurement cost would be *** (inclusive of VAT and inflation), with a whole life cost of *** (inclusive of VAT and inflation), assuming a ship life of 25 years. It was also recognised that there would be a Strategic Defence and Security Review following the General Election. Subsequently as part of the approval, it was planned that there would be a mid-phase review point to assess the impact of any changes in policy driven by that Review.

The Approved budgetary level (VAT inc) for the non-competitive procurement of the assessment work at 50% confidence, consisted of £158.4M total direct resource consumption. The approval from the Investment Approvals Board capped the "not to exceed" value of the Assessment Phase at this 50% level. All non-UK new design and build options were discounted at the Initial Gate, as recorded in the Investment Appraisal, noting the over-arching agreement with BAE Systems in the BAE Systems Surface Ships Terms of Business Agreement (dated 21 July 2009). This was questioned in the initial Investment Appraisal Board note and examined in the Information Note.

Type 26 (C1) is expected to be procured without competition from BAE Systems Surface Ships under the terms of the BAE Systems Surface Ships Terms of Business Agreement (Dated 21 July 2009). A joint team is now in place and working at a number of BAE sites, primarily in Glasgow and Filton (where the MOD members of the joint team are based). As part of this, it is intended that approval for a commitment to the support solution, including costs from the supply chain, will be sought at the Main Gate approval in Quarter 4 2013.

A.3 Progress

Following the General Election the Strategic Defence and Security Review has had a profound effect on Type 26 Global Combat Ship. The result of the Strategic Defence and Security Review was a change to a Type 26 Global Combat Ship design that is smaller, less capable and more exportable whilst still maintaining the needs of industrial sustainability. The Strategic Defence and Security Review reduced the total surface fleet to 19 frigates and destroyers which will include six Type 45 destroyers and the current Type 23 frigates which will be replaced by Type 26 Global Combat Ship after 2020. This has reduced the overall procurement cost of the programme from *** to ***.

The alignment of renamed Type 26 Global Combat Ship against the goals of the Strategic Defence and Security Review has been confirmed in an Information Note submitted to the Investment Approval Board in January 2011. This Information Note stated that:

a. Approval will be split into two parts. Approval (Main Gate 1) will seek endorsement of the requirements to be delivered by Type 26 GCS, with Main Gate 2, the main investment decision following in Quarter 4 2013. This will allow detailed costing and design work to proceed against a defined requirement so that the project will be ready for approval at Main Gate 2 and subsequent contract signing;
b. The remaining programme key milestones remain unchanged, with planned service entry as soon as possible after 2020;
c. Type 26 Global Combat Ship is considered to be a highly exportable surface combatant with considerable effort being expended to encourage overseas partner interest.

In order to maximise Type 26 Global Combat Ship export potential to realise wider benefits to the MOD, industry and the UK, engagement has begun with several countries to determine their requirements and how these can be matched with Type 26 Global Combat Ship. The design is being developed in close partnership with industry to improve the opportunities for these requirements to be realised in the design.

A.4 Capability Risks

Strategic Defence and Security Review confirmed the need for Future Force 2020 to provide maritime defence of the UK and its South Atlantic Overseas Territories. Capabilities should include a surface fleet of 19 frigates and destroyers providing military flexibility across a variety of operations, including six Type 45 destroyers and the current Type 23 frigates. However there is a need to replace the Type 22 and Type 23 surface combatant capability before the safe operating standard for legacy ships is withdrawn and the platforms become obsolete.

Legacy ships were designed for an 18 year life but this has been extended to almost twice the original design life. There is no scope to extend the current platforms further without extensive unaffordable modifications. There is no scope to extend these concessions without unaffordable modification. If further extension was required the hull strength, stability and legislative safety compliance must be addressed by work that removes capability, does not reduce the risk to the generation of forces at readiness and costs more than a new build option. The Strategic Defence and Security Review. The Strategic Defence and Security Review confirmed that as soon as possible after 2020 the Type 23 will be replaced by the Type 26 Global Combat Ship which will be designed to be easily adapted to change roles and capabilities depending on the strategic circumstances.

A.5 Associated Projects

A.6 Procurement Strategy

Pre-Main Investment Decision Projects / Increments only		
Project/Increment Title	**Procurement Route**	**Approval Status**
Type 26 Global Combat Ship	Single Source	Pre-Main Gate

A.7 Support Strategy

Description
Currently there are seven options being considered that will provide the support for Type 26 Global Combat Ship, the preferred solution being the Surface Ship Support Agreement. As detailed in the Foundation Milestone Review in March 2011, the Assessment Phase approval covers funding for Concept and Assessment Phase Support activities. The Assessment Phase contract was placed non-competitively under the BAE Systems Surface Ships Terms of Business Agreement. An approval will be sought (termed Main Gate 1) after the initial Analysis of Options period of the Assessment Phase. In addition to this and at the same time, approval will be sought for the Support Solution. Main Gate 1 approval will provide an agreed position for the detailed design and cost model to mature and develop for the full approval to commit to Design and Manufacture and In Service Support at Main Gate 2. Under the Terms of Business Agreement BAE Systems will lead a team consisting of Babcock Marine amongst others to provide the through-life maintenance and support under the Surface Ship Support Agreement.

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
In-Service Support Contract for Type 26 Global Combat Ship	BAE Systems	Support	Prime Contractor	Single Source

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Type 26 Global Combat Ship	158	156	-2	-	-
Total (£m)	**158**	**156**	**-2**	**-**	**-**

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
Type 26 Global Combat Ship	***	-	***

B.3 Cost of the Demonstration and Manufacture Phase

B.4 Unit production cost/Quantities required

B.5 Progress against approved Support / Service / PFI Cost

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	0	15	15
Demonstration & Manufacture Phase	0	0	0
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**0**	**15**	**15**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
Type 26 Global Combat Ship	March 2010	***	***

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Type 26 Global Combat Ship	***		

C.3 In-Service Date/Initial Operating Capability

C.4. Full Operating Capability

C.5. Support / Service / PFI Contract

Project Title	
United Kingdom Co-Operative Engagement Capability Frigate and Destroyers Programme	
Team Responsible	
Joint Sensor and Engagement Networks (JSENS)	
Senior Responsible Owner	
Head of Above Water Capability	
Project/Increment Name	**Current Status of Projects / Increments**
United Kingdom Co-Operative Engagement Capability Frigate and Destroyers Programme	Pre-Main Investment Decision

UNITED KINGDOM CO-OPERATIVE ENGAGEMENT CAPABILITY FRIGATES AND DESTROYERS PROGRAMME

A. Section A: The Project

A.1 The Requirement

The Co-operative Engagement Capability is a United States Naval System fitted to an increasing number of United States assets including ships, aircraft, and Army and Marine Corps land systems. Co-operative Engagement Capability does not replace any single system; rather it optimises war-fighting capabilities inherent in existing and future combat systems.

UK Co-operative Engagement Capability is a UK Network-Enabled Capability project which provides an advanced air and missile defence capability by sharing and fusing engagement quality data from suitably equipped platforms to deliver a single, coherent, stable air picture. It will fill the capability gap originally identified in Commander-in-Chief Fleet's Military Capability reports and re-affirmed in the Above Water Effects capability audit in 2007, updated in 2009, to detect, monitor, and counter Air-Warfare threats. It will also reduce a gap in interoperability with the United States.

UK Co-operative Engagement Capability enhances the ability of fitted platforms to work together in detection, tracking and engagement of air targets. This capability represents a major advance in both air and missile defence.

A.2 The Assessment Phase

Operational Analysis conducted during the Concept Phase assessed seven options; Co-operative Engagement Capability was identified as the only solution capable of meeting capability requirements.

The objective of the Assessment Phase is to establish the most cost-effective solution to the requirement for a Co-operative Engagement Capability for maritime platforms. It is a proven United States-developed programme which the UK is considering purchasing via the Foreign Military Sales process. The UK, with United States assistance, is developing and testing the platform architecture and support and integration aspects, to reduce risk prior to Main Gate.

Assessment Phase 1. Approval for Assessment Phase 1 was received in May 2000 and, following a competition, contracts were placed with Lockheed Martin UK (Integrated Systems) and Raytheon UK, with down-selection to Lockheed Martin (UK) for Assessment Phase 2. This was for the Type 23 Frigate only. Also during this phase a study contract was undertaken by BAE Systems to investigate a Co-operative Engagement Capability fit on the Type 45 destroyer.

Assessment Phase 2. In May 2003 approval was received to accelerate the risk reduction work on Type 45 Destroyer by two years, at no additional procurement cost. In July 2003, this work was placed on contract by means of an amendment to the Type 45 Destroyer prime contract with BAE Systems, the Prime Contracting Office for the Type 45 Destroyer. Costed proposals for the Demonstration and Manufacture Phase for both Type23 and Type45 were delivered by Lockheed Martin (UK) and BAE Systems respectively in 2005. However, an Option was taken as part of the Equipment Plan 2005 planning round extending the Assessment Phase by five years, enabling further de-risking of the project.

Assessment Phase 2b. De-risking study contracts were placed with Lockheed Martin (UK) and BAE Systems to investigate the options for integrating the UK Co-operative Engagement Capability into the two platforms and their existing/planned systems and to produce recommendations for design solutions. This work was successfully completed in March 2008.

Assessment Phase 3. Approval was obtained in September 2008 to proceed with the remaining Assessment Phase work. This covers detailed design and delivery of the Assessment Phase 2b study recommendations for UK Co-operative Engagement Capability system installation and interface on both platforms. The Planning Round in 2010 delayed the planned In-Service Date to ***, extending the Assessment Phase. Planning Round 2011 has changed the platform fit from Type 23 Frigates to Type 26 Global Combat Ships and brought forward the In-Service Date to ***. The outputs from the extended Assessment Phase activities will support the main investment decision currently forecast for ***. Further Operational Analysis, a review of technology assumptions since the Initial Gate approval in 2000, and a revised Investment Appraisal have also been commissioned.

A.3 Progress

A contract was placed on BVT Surface Fleet (now BAES Surface Ships Ltd) in January 2009, amended in 2010, to complete the design and installation aspects of Assessment Phase 3. Activity during 2010 and up to 31 March 2011 has focused on de-risking equipment interfaces, developing programme and technical project plans, updating the Operational Analysis, and drafting a Statement of Work to deliver the next phase following the main investment decision.

A.4 Capability Risks

Co-operative Engagement Capability is a force multiplier in that it will enable effective Anti-Air Warfare and missile defence capabilities with a reduced number of platforms by providing a single, coherent and stable networked air picture. A UK Co-operative Engagement Capability partly mitigates the decision to delete hulls seven and eight of the Type 45 Fleet. The effectiveness of such platforms would be significantly diminished if the Co-operative Engagement Capability is not provided.

A.5 Associated Projects

Title of Associated Project	Forecast In Service Date/ Initial Operating Capability	Approval Status
Type 45 Destroyers	July 2010	In Service

A.6 Procurement Strategy

Pre-Main Investment Decision Projects / Increments only		
Project/Increment Title	**Procurement Route**	**Approval Status**
United Kingdom Co-Operative Engagement Capability Frigate and Destroyers Programme	A revised procurement strategy was approved as part of the Review Note in September 2008. The key elements comprise a single contract on BAE Systems Surface Ships Ltd for the design and installation aspects with a Foreign Military Sales Case for Co-operative Engagement Capability equipment buy and support. The updated procurement strategy is in draft prior to the Main Investment decision.	Pre-Main Gate

A.7 Support Strategy

Description
The planned support strategy forms part of the procurement strategy which will be endorsed at the Main Investment decision. The support strategy assumes two main elements: the United States core Cooperative Engagement Capability to be supported via a Foreign Military Sales case; the UK element to be supported by a Contractor Logistic Support contract with UK Industry.

Support Title	Contractor	Contract Scope	Contract Type	Procurement Route
-	-	-	-	-

B Section B: Cost

B.1 Cost of the Assessment Phase

Project/ Increment Title	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
United Kingdom Co-Operative Engagement Capability Frigate and Destroyers Programme	25	53	+28		
Total (£m)	**25**	**53**	**+28**		

B.2 Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase / PFI

Project/Increment Title	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only) (£m)	Highest Forecast / Approved (£m)
United Kingdom Co-Operative Engagement Capability Frigate and Destroyers Programme	***		

B.6 Expenditure to date

Description	Previous expenditure to 31 March 2010 (£m)	In-year expenditure (£m)	Total expenditure to 31 March 2011 (£m)
Assessment Phase	52	1	53
Demonstration & Manufacture Phase	0	0	0
Support Phase / Service / PFI Cost	0	0	0
Total Expenditure	**52**	**1**	**53**

C Section C: Timescale

C.1 Duration of the Assessment Phase

Project/Increment Title	Date of Initial Investment Decision Approval	Forecast / Actual Date of Main Investment Decision Approval	Length of Assessment Phase (+/- months)
United Kingdom Co-Operative Engagement Capability Frigate and Destroyers Programme	May 2000	***	***

C.2 Planned / Actual Boundaries for In Service Date or Initial Operating Capability

Project/Increment Title	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
United Kingdom Co-Operative Engagement Capability Frigate and Destroyers Programme	***		

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