



National Audit Office

MINISTRY OF DEFENCE

Major Projects Report 2005 Project Summary Sheets



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Project Summary Sheets

This volume has been published alongside a first volume
containing the Comptroller and Auditor General's report –

Ministry of Defence: Major Projects Report 2005, HC 595-I, Session 2005-2006

LONDON: The Stationery Office
£18.75

Ordered by the
House of Commons
to be printed on 21 November 2005

This report has been prepared under Section 6 of the National Audit Act 1983 for presentation to the House of Commons in accordance with Section 9 of the Act.

John Bourn
Comptroller and Auditor General
National Audit Office

15 November 2005

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POST MAIN GATE PROJECT SUMMARY SHEET



A400M

Integrated Project Team Responsible:

A400M

Single Point of Accountability for project capability:

Director Equipment Capability (Expeditionary Logistics and Support)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

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 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 this decade, by Future Transport Aircraft, and the A400M was selected to meet this requirement. It will replace the remaining Hercules C-130K fleet.

Ministers announced their decision on 16 May 2000 to make a commitment to procure 25 A400M aircraft. A400M is a collaborative programme involving seven European nations (Germany, France, Turkey, Spain, Belgium, Luxembourg and United Kingdom). After some delays, a contract with Airbus Military Sociedad Limitada (AMSL) was signed on 27 May 2003. A total of 180 aircraft are now being procured through this contract. The first UK aircraft is due to be delivered to the RAF in June 2010.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Airbus Military Sociedad Limitada (AMSL)	Development, Production and Initial in-service support	Fixed Price, subject to Variation of Price (VOP)	International Competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	2644
Approved Cost at Main Gate	2744
Variation	-100
In-year changes in 2004/2005	+25

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2005	+1	Accounting Adjustment	Correction of previous years treatment of deliveries (+£1m).
March 2005	-6	Technical Factors	Costing realism in line with better programme understanding including adjustment for actual sunk costs (-£6m).
March 2005	-1	Changed Requirement	Option to reprofile Training Facilities for realism (-£1m).
June 2004	+39	Exchange Rate	Variation in 2004/2005 (+£39m).
April 2004	-2	Changed Requirement	Programme measure to move deferred configuration items back into aircraft delivery profile (-£2m).
April 2004	+8	Inflation	An increase in 2004/2005 (+£8m).
April 2004	-14	Technical Factors	Costing re-adjusted with understanding of future programme: Certification (-£15m), Government Furnished Equipment (+£4m), Support (+£4m). Reprofilng deliveries for realism Build Facilities (-£1m), Initial Provision Spares (-£5m), Deployment Kits (-£1m).
Historic	+13	Technical Factors	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).
Historic	-310	Changed Requirement	Reduction in number of aircraft to be equipped with Defensive Aids Sub-System (DASS) 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 DASS forward onto aircraft 1-9 (+£9m).
Historic	-67	Changed Budgetary Priorities	Changed delivery profile from that in the Business Case (-£61m). Minor realism adjustments, includes UK share of OCCAR Programme

Date	Variation (£m)	Factor	Explanation
			Division costs (+£5m), QinetiQ Support costs increased (+£1m), unidentified variance (+£1m). Equipment Programme Measure deleting one Simulator (-£20m). Minor realism changes includes Certification, Special To Type equipment and Training Facilities (+£7m).
Historic	-10	Inflation	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	-10	Exchange Rate	Variation in exchange rate assumptions used in the Business Case, 2000/2001, 2001/2002 and 2002/2003 (-£232m). Variation in 2003/2004 (+£222m).
Historic	+353	Contracting Process	Realism to reflect 3 month delay in 2000/2001 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 (CED) slipped from November 2001 - October 2002 (+£149m). CED slipped from October 2002 - April 2003 (-£59m). Adjustments in line with increased knowledge of Programme (+£66m). CED slipped from April 2003 - May 2003, includes redefinition of Asset Deliveries to align with aircraft delivery schedule (-£30m).
Historic	+65	Procurement Strategy	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 offtake (+£130m).
Historic	-43	Accounting Adjustments and Re-definitions	Transfer from RDEL to CDEL (-£1m). Difference in variation figures due to revision of Cost of Capital Charge (-£42m).
Historic	-116	Risk Differential	Difference between the most likely and highest acceptable cost at Main Gate (-£119m). Variation due to revised approval figure (+3m).
Total Variation	-100		

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	105
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2d. Years of peak procurement expenditure

2009/2010	2010/2011
-----------	-----------

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
***	***	25	25

SECTION 3: PROJECT TIMESCALE**3a. Definition of in-service date**

ISD Definition:	Delivery of 7th aircraft with Strategic Military Aircraft Release and support arrangements.
------------------------	---

3b. Performance against approved in-service date

	Date
Current Forecast ISD	March 2011
Approved ISD at Main Gate	December 2009
Variation (Months)	+15
In-year changes in 2004/2005	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	+16	Changed Budgetary Priorities	Change in the customers requirement flowing from changed budgetary priorities (+16 months).
Historic	+9	Procurement Strategy	Delay in bringing contract into effect as a result of delayed approvals in Germany (+9 months).
Historic	-10	Risk Differential	Difference between the most likely and highest acceptable dates at Main Gate (-10 months).
Net Variation	+15		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
Short Term Plan	26		Life extension of 14 C-130K aircraft

3e. Operational impact of ISD variation

An Option has been approved by Secretary of State to delay the Out of Service Date (OSD) of 14 C-130K aircraft to match the delivery profile and capability build up of A400M. The OSD of this life extended C-130K aircraft is now 2012.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Deployment Capability	Yes	-	-
02	Payload	Yes	-	-
03	Environmental Operating Envelope	Yes	-	-
04	Tactical Operations	Yes	-	-
05	Navigation Performance	Yes	-	-
06	Communication System	Yes	-	-
07	Defensive Aids Suite	Yes	-	-
08	Aerial Delivery	Yes	-	-
09	Crew Composition	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of 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 (FLA) programme (now known as A400M). The FLA '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 FLA. A Request For Proposals (RFP) was issued to Airbus in September 1997 on behalf of the seven FLA nations (UK, France, Germany, Italy, Spain, Belgium, Turkey). Subsequently, in July 1998, four nations (UK, France, Spain, Belgium) issued a 'competitive RFP' for a Future Transport Aircraft to Airbus Military Company (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 and industrial dimensions. This work also led to parallel negotiations and clarification with the three bidders. At the direction of the Equipment Approvals Committee (EAC) in December 1999, additional work was undertaken to inform the Main Gate submission. On 16 May 2000 the Government announced their decision to procure 25 A400M aircraft to meet the FTA requirement.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	1	0.04%
Approved Cost at Initial Gate	2	0.08%
Variation	-1	

5c. Duration of Assessment Phase

Date of Main Gate Approval	May 2000
Target Date for Main Gate Approval at Initial Gate	June 1999
Variation (Months)	+11

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	-	2628	2744
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	-	February 2009	December 2009
Forecast ISD at Initial Gate	-	December 2007	-

POST MAIN GATE PROJECT SUMMARY SHEET

AIRBORNE STAND-OFF RADAR (ASTOR)



Integrated Project Team Responsible:

AIRBORNE STAND-OFF RADAR (ASTOR)

Single Point of Accountability for project capability:

Director Equipment Capability (Intelligence, Surveillance, Target Acquisition & Reconnaissance)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

ASTOR is a new capability, which will provide a long-range all-weather theatre surveillance and target acquisition system, capable of detecting moving, fixed and static targets. It is designed to meet a joint Army and RAF requirement. The system comprises a fleet of air platforms, each with a radar sensor, and a number of ground stations.

The Prime Contract was awarded to Raytheon Systems Limited (RSL) in December 99, and is for the full development and production of five aircraft and eight mobile and transportable ground stations. The contract also covers the provision of 10 years contractor logistic support, the costs of which are not reported below but amount to around £140m. Bombardier is the major sub-contractor providing the five Global Express aircraft.

Many aspects of the ASTOR programme have progressed as planned. The aircraft performance and handling work is complete and all five Global Express aircraft have been delivered to RSL: two have been converted to the Sentinel standard and two more are in work. The facilities at the Main Operating Base have been delivered, including the Operational Training System, and the first course was due to complete in May 2005. Regrettably, technical problems with integration of the dual-mode radar system in August 2004 have led to programme delays. Fixes for the problems have been found, but as delivery of the first radar is on the critical path to the In Service Date (ISD), this has had a direct impact on the ISD forecast.

Aircraft and ground station deliveries are now due to commence in 2006, with final deliveries in early 2007.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Raytheon Systems Limited (Prime Contractor)	Full Development and Production	Firm Price	International Competition
Bombardier Aerospace (Sub Contractor)	Production	Firm Price	International Competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	954
Approved Cost at Main Gate	914
Variation	+40
In-year changes in 2004/2005	-14

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2005	+23	Technical Factors	Programme delays affecting deliveries resulting in change to the Cost of Capital (+£23m).
March 2005	-8	Accounting Adjustment and Re-Definition	Reduction due to identification of Contracted Out Services VAT element.
March 2005	-11	Exchange Rate	Changes in £/\$ exchange rate due to programme delays.
August 2004	-18	Exchange Rate	Changes in £/\$ exchange rate within the Equipment Plan.
Historic	+8	Technical Factors	Early delivery of facilities and one aircraft and two ground stations (-£4m). Late delivery of intangibles, one aircraft and two ground stations (+£12m).
Historic	-5	Changed Requirement	Deletion of requirement to be fitted 'for but not with' Air-to-Air refuelling (-£12m), reduction in costs for Government Furnished Equipment (-£5m), incorporation of a number of improvements primarily for improved biological chemical protection (+£8m), Bowman de-risk (+£1m), UHF Satcom (+£3m), additional provision for trials (+£4m) and reduction in requirement for project support (-£4m).
Historic	+60	Exchange Rate	Changes in £/\$ exchange rates (+£60m).
Historic	-6	Contracting Process	Delay in contract award and reduced costs during Best and Final offers and contract negotiation (-£16m), reassessment of project support costs (-£2m), requirement for additional Technical Documentation (+£9m), additional costs associated with satellite communication and ground stations (+£2m) and additional costs for Bowman/Mission Support System (+£1m).
Historic	-3	Accounting Adjustments and Re-definitions	Derivation of the approved cost on a resource basis (-£2m), difference in variation figures due to revision of Cost of Capital Charge (-£1m).
Net Variation	+40		

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	744
-----------------------------------	-----

2d. Years of peak procurement expenditure

2001/2002	2002/2003
-----------	-----------

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
-	68.6	5 Aircraft	5 Aircraft
-	13.7	8 Ground Stations	8 Ground Stations

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	<p>Original ISD: two aircraft and two ground stations accepted into service and support by the provision of an adequate logistic and training support.</p> <p>Current ISD definition: The availability in service of two air platforms and two ground stations, together with a corresponding support capability and provision of sufficient trained manpower.</p> <p>Reason for Change: Resulting from clarification discussions with Customer 1 and 2 relating to operational availability (compared with acceptance) and provision of trained manpower (compared with training support).</p>
------------------------	--

3b. Performance against approved in-service date

	Date
Current Forecast ISD	November 2006
Approved ISD at Main Gate	September 2005
Variation (Months)	+14
In-year changes in 2004/2005	+12

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
February 2005	+4	Technical Factors	Further refinement of the schedule in preparation for the Review Note submission has shown the ISD forecast needs further revisions.
January 2005	+8	Technical Factors	Schedule analysis has confirmed that the baseline forecast for ISD cannot be achieved following problems with radar build.
Historic	+2	Technical Factors	Technical difficulties with the Radar have delayed deliveries and the start of flight trials for the first ASTOR aircraft
Net Variation	+14		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

ASTOR is a new capability and as such does not currently impact on operations. The build up of manpower in the ASTOR squadron has been halted and some personnel may have to be posted for career development reasons before they commence their training. Although the first ASTOR training course commenced in January 2005, this is focusing on familiarisation with the current software.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Endurance maximum of <i>x hrs</i> , within which <i>x hrs</i> at best endurance speed above <i>x ft</i> above mean sea level. <i>x hrs</i> at best cruise height and speed	Yes		
02	Altitude and Range : <i>x ft</i> and <i>xkm³</i>	Yes		
03	Ground Station Transportability – C-130J	Yes		
04	Ground Station responsiveness : Pre-planned tasks within <i>x hrs</i> of sortie	Yes		
05	Radar Range : Radar Range Bracket <i>xkm</i> (min far range - <i>xkm</i> (max near radar range)	Yes		
06	Air Platform Reaction Time : Turnaround < <i>x hrs</i>	Yes		
07	Air Segment Battlefield Mission : Moving target indicator scan rate <i>x per minute</i>	Yes		
08	Air Segment Battlefield Mission (1): <i>x Synthetic Aperture Radar Spot xkms⁴</i>	Yes		
09	Air Segment Battlefiled Mission (2): <i>x swathe images</i> per mission	Yes		
10	Ground Segment Battlefield Mission : <i>x days ctisis</i> and <i>x days war</i>	Yes		
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

In 1989 a Technology Demonstration Programme (TDP) worth £12m (at 1999/2000) prices was agreed with MOD Research Establishments which are now incorporated in QinetiQ (formerly Defence Evaluation Research Agency). This intramural work ran for two years and demonstrated that the concepts used in ASTOR were practicable. A move into Project Definition (PD) was approved in September 1993. This is now deemed to be the equivalent of Initial Gate.

Following open competition, two parallel contracts for an 18 month PD programme were let in February 1995. After assessment of the PD proposals it was considered that the optimum solution would be to invite the two PD consortia to submit Best and Final Offers (BAFOs) for the Development, Production and In-Service Support. This revised procurement strategy was approved by the then Minister for Defence Procurement in March 1997.

During the preparation of invitations to the two PD consortia to submit BAFOs in September 1997 programming decisions were taken which delayed the availability of funding, particularly in the early years, and the In Service Date for the ASTOR capability was delayed by 15 months. During the BAFO phase, a decision was taken to consider a third bid based upon the US Joint Surveillance Target Attack radar system (JSTARS) upgrade programme, the Radar Technology Insertion Programme (RTIP). As a result various unsolicited revisions to the bids were received during the assessment process, further delaying the In Service Date by 14 months. Approval for the implementation phase was given after down selection in June 1999.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	13	1.3%
Approved Cost at Initial Gate	12	1.2%
Variation	+1	

5c. Duration of Assessment Phase

Date of Main Gate Approval	June 1999
Target Date for Main Gate Approval at Initial Gate	March 1998
Variation (Months)	+15

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	-	914	-
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	-	June 2005	September 2005
Forecast ISD at Initial Gate	-	April 2003	-

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POST MAIN GATE PROJECT SUMMARY SHEET

ASTUTE CLASS SUBMARINE



Integrated Project Team Responsible:

ATTACK SUBMARINES (ASM)

Single Point of Accountability for project capability:

Director Equipment Capability (Under Water Effect)

Senior Responsible Owner for broader capability:

Director General Nuclear

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events.

The Astute Class of Attack Submarines is the replacement for the existing Swiftsure and Trafalgar Classes of nuclear attack submarine. The required capability places greater emphasis on land attack, intelligence gathering and special forces operations. GEC-Marconi (now BAE Systems Electronics Ltd -Astute Class Project) was identified as MOD's preferred bidder in December 1995. A Prime Contract was placed on 17 March 1997 for the design, build and in-service support of the first three of the Class.

Following BAE Systems' disclosure during 2002 of significant delay and projected cost overrun on the Astute programme, the Department entered into discussions with the company about arrangements to address those difficulties. An Agreement between the Department and BAE Systems was reached on 19 February 2003 which reduces risk (eg by separating the design, development, build and acceptance of the First of Class from the production of the second and third submarines), and places new incentives on the company to perform. The Department agreed to increase its cash funding for Astute by around £430m, against an increased contribution by the company of £250m. The Department's contribution is primarily in recognition of the greater than expected difficulty in applying Computer Aided Design (CAD) techniques to UK submarines. An amendment to the Astute contract to enact the Agreement was signed on 17 December 2003. Since the Agreement, all the programme's anchor milestones have been met and new project management disciplines have been implemented to achieve better planning and performance monitoring.

Three-point estimating predicts a most likely ISD of January 2009 however, BAE Systems are determined to bring forward this date to August 2008 and are exploiting all opportunities to achieve this. The early completion of major build modules is already giving encouragement, however the quality of key sub contracted items remains a concern. An Independent Project Review by an expert team was commissioned by the company in December 2004 providing reassurance on many aspects of the project while highlighting areas needing greater attention (such as supply chain management). BAE Systems are adhering to the recommendations that arose from the review. All three submarines are now in build following the keel laying of HMS ARTFUL, 11 March 2005. Joint work with BAE Systems to secure a price for the second and third submarines is also underway.

1b. Associated projects

Critical to Achievement of ISD		Critical to Meet Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
Astute Class Training Service (ACTS)	2007	-	-
S&T Update Final Phase	2004	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
BAE Systems Electronics Ltd- Astute Class Project (formerly BAE Sytems Astute Class Ltd (BACL))	<ul style="list-style-type: none"> Design/Development & production of First of Class (DD/FOC) Production of Boats two and three 	<ul style="list-style-type: none"> DD/FOC: Target Cost Incentive Fee Boats two and three to be priced 	UK Competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	3492
Approved Cost at Main Gate	2578
Variation	+914
In-year changes in 2004/2005	+8

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2005	-11	Accounting Adjustments and Re-definitions	Removal of items wrongly attributed to Astute Approval in previous years.
March 2005	+19	Technical Factors	Prime Contract pricing assumptions and changes to costing.
Historic	+820	Technical Factors	Reassessment of risk (+£51m). Reduction in risk on Sonar 2076 programme (-£16m). Re-costing of land attack missile interface & integration (+£5m). Re-costing of external communications (+£5m). Increase in overall BAES 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)
Historic	+257	Changed Requirement	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 1 st Buy (+£225m).
Historic	+40	Inflation	Variation between anticipated rates for GDP and VOP on contract (sunk costs only) (+£14m). Correction in previous VOP calculation – incorrect split between labour and materials (+£26m).
Historic	+55	Contracting Process	Planned Contract Amendments (+£55m).

Date	Variation (£m)	Factor	Explanation
Historic	-266	Accounting Adjustments and Re-definitions	Decrease reflects difference between anticipated resource profile at approval and current profile (EP2001) (-£74m), removal of ACTS costs that have been incorrectly included in previous MPRs – training not part of original Astute Main Gate approval (-£62m). Difference in variation figures due to revision of Cost of Capital Charge (-£89m). Removal of items wrongly attributed to Astute Approval in previous years (-£41m)
Net Variation	+914		

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	1846
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2d. Years of peak procurement expenditure

2001/2002	2006/2007
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
-	-	3	3

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Contract Acceptance Schedule Stage 1 (safe operation and start of operational work up).
------------------------	---

3b. Performance against approved in-service date

Current forecast ISD	January 2009
Approved ISD at Main Gate	June 2005
Variation (Months)	+43
In-year changes in 2004/2005	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	+43	Technical Factors	Exceptional difficulties arose with the introduction of a computer aided design (CAD) system, the availability of trained staff and project management.
Net total	+43		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
Support costs of 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	-	-	

3e. Operational impact of ISD variation

The Astute delay will result in delayed introduction of improved capability over current classes; such as improved detection and counter-detection, greater weapon load and increased availability. Since these delays the department has fully considered the plans for SSN capability in the light of this and many other factors.
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SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be met (Yes or No)	At Risk	Not to be Met
1	Weapon system effectiveness	Yes	-	-
2	Sonar performance	Yes	-	-
3	Hull strength (survivability)	Yes	-	-
4	Top speed	Yes	-	-
5	Endurance	Yes	-	-
6	Acoustic signature	Yes	-	-
7	Complement	Yes	-	-
8	Land attack capability	Yes	-	-
9	Special forces capability	Yes	-	-
	Percentage currently forecast to be met	100%		
	In Year Change	0		

4b. Reasons for variation against approved key requirements

Key Requirement	Factor	Explanation
-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

The Astute Class of submarines is the planned replacement for the Swiftsure & Trafalgar Class SSNs. 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 SSNs 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 £23.5m (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 work were awarded to both bidders, GEC Marconi and Vickers Shipbuilding and Engineering Ltd. The successful outcome of these studies led to EAC approval (the equivalent of Main Gate) in March 1997 to place a contract for the design, build and initial support of 3 Astute Class submarines with GEC Marconi, now BAE SYSTEMS.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	29	1%
Approved Cost at Initial Gate	33	1%
Variation	-4	

5c. Duration of Assessment Phase

Date of Main Gate Approval	March 1997
Target Date for Main Gate Approval at Initial Gate	-
Variation (Months)	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	2431	2578	2730
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	-	June 2005	-
Forecast ISD at Initial Gate	-	Dec 2001	-

POST MAIN GATE PROJECT SUMMARY SHEET

BOWMAN



Integrated Project Team Responsible:

BOWMAN AND TACTICAL COMMUNICATIONS & INFORMATION SYSTEMS (BATCIS)

Single Point of Accountability for project capability:

Director Equipment Capability (Command, Control & Information Infrastructure)

Senior Responsible Owner for broader capability:

Assistant Chief of the General Staff

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

Bowman will provide a secure tactical voice and data communications system for all three Services in support of land, littoral and air manoeuvre operations. It will replace the increasingly obsolete Clansman combat radio system and the Headquarters infrastructure element of the Ptarmigan trunk system.

In September 2001, following international competition, General Dynamics UK Ltd was awarded the Bowman Supply and Support contract as prime contractor, and conducted its own competition amongst sub-contractors. Bowman is being fielded in the following capability increments: Initial Operating Capability in November 2003 and In Service Date (ISD) capability in March 2004, to be followed by a Land Operational Readiness Date (ORD). Following the decision to deploy the first brigade converted to Bowman on Operation TELIC (Iraq), previous plans for the brigade to enter its high readiness year coincident with delivery of Bowman Land ORD have had to be revised. No formal date has been set. Planning continues to deliver Littoral (amphibious) ORD and Air Manoeuvre ORDs in 2005 and 2006 respectively.

Following the decision in December 2002 to commit the Army to convert to Bowman, progress against the programme has been assessed at successive Acceptance and Release Points against all eight lines of development (including equipment and technology led by the Defence Procurement Agency). These assessments aim to ensure that all relevant elements contributing to the delivery of capability and sustainability in service are formally reviewed.

On the basis of Brigade scaled operational field trials, Bowman achieved its ISD on 26 March 2004. Subsequent uplifts in military capability have been extensively tested in a programme of demanding and complex laboratory and technical field trials. In December 2004, a Brigade level operational field trial was completed and permitted the first Bowman converted Brigade to deploy on Operation TELIC with core Bowman capability alongside its residual Clansman capability. Platform issues remain, principally surrounding armoured fighting vehicles and these are being accorded high priority.

Lessons learnt from the delivery of the latest uplift in military capability have resulted in the Land ORD being split into incremental deliveries in order to reduce the risks associated with converting military vehicles. Planning is underway and will be supported by further operational field trials to confirm the acceptability of the delivered capability in the hands of its users.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
General Dynamics UK Ltd (formerly Computing Devices Canada Ltd)	Demonstration and Manufacture (D&M)	Firm Price	International Competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	2007
Approved Cost at Main Gate	2041
Variation	-34
In-year changes in 2004/2005	+16

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2005	+28	Accounting Adjustments and Re- definitions	COSVAT adjustment (+£5m). Reprofile of funding and asset balances resulted in increased Cost Of Capital Charge (COCC) (+£23m).
March 2005	-12	Changed Requirement	Estimated impact of Total Fleet requirements (-£17m). Additional Technical requirements not covered under terms of Supply and Support contract (+£5m).
Historic	+87	Changed Requirement	Additional Technical requirements not scoped as part of the original supply and support contract (+£61m). Technical support requirements not originally included in Main Gate approval (+£10m). Additional Technical requirements not covered under terms of Supply and Support contract (+£16m).
Historic	+15	Contracting Process	Revised prices for Global Positioning System Modules (+£3m). Difference between approved D&M cost at Main Gate and Contract Price (+£12m).
Historic	+8	Procurement Strategy	Contract Incentivisation for achieving key events leading to ISD (+£8m).
Historic	-12	Accounting Adjustments and Re- definitions	COCC reduced due to accounting for deliveries ahead of programmed profile (-£17m). Difference in variation due to revision to COCC (+£5M).
Historic	-148	Risk Differential	Difference between the risk allowed

Date	Variation (£m)	Factor	Explanation
			for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (-£148m).
Net Variation	-34		

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	1230
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2d. Years of peak procurement expenditure

2004/2005	2005/2006
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	At Main Gate	Current
-	-	48000 radios of varying type	47000 radios of varying type

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	A Brigade Headquarters, two mechanized battalions and support troops capable of engaging in Operations Other Than War.
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3b. Performance against approved in-service date

	Date
Current Forecast ISD	March 2004
Approved ISD at Main Gate	December 2004
Variation (Months)	-9
In-year changes in 2004/2005	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	-9	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (-9months)
Net Variation	-9		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

-

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01.	Secure Voice.	Yes	-	-
02	Secure Data.	Yes	-	-
03	Automatic Position Location, Navigation and Reporting service.	Yes	-	-
04	Security.	Yes	-	-
05	Ease of Use.	Yes	-	-
06.	Provide automated system management enabling support to the full spectrum of operations.	Yes	-	-
07.	Data Communications Infrastructure.	Yes	-	-
08	Support the Common Infrastructure for Battlefield Information Systems concept and provide a common operating environment for Digitization Stage 2.	Yes	-	-
09	Allow the free-flow of data and voice within and between vehicles, groups of stationary vehicles, and other systems.	Yes	-	-
10	Provide a secure and robust tactical internet service making efficient use of limited bandwidth.	Yes	Yes	-
11	BOWMAN is to support current operational C2 doctrine, practice, deployment and battle procedure.	Yes	-	-
12	BOWMAN is to provide interfaces to other key battlefield communication systems used at the tactical level	Yes	-	-
13	BOWMAN equipment is to meet a level of survivability consistent with its physical environment and mission criticality for 95% of users in 95% of likely climatic conditions.	Yes	-	-
14	Make effective, robust use of the Electro-Magnetic Spectrum without degrading other systems.	Yes	-	-
15	BOWMAN is to provide working installations in all platforms designated as containing BOWMAN equipment, except for ships, WAH-64 and Lynx aircraft for which equipment is to be provided but not installed.	Yes	-	-
16	Health and Safety.	Yes	-	-
17	Supportability.	Yes	-	-
18	Training.	Yes	-	-
19	BOWMAN is to supply sufficient scales of equipment and services to meet the needs of those forces taking part in or supporting land operations, as structures at end of supply (EOS).	Yes	-	-
Percentage currently forecast to be met		100%		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

Bowman was first approved in 1988, when it was expected to have the equivalent of Main Gate in 1993 and ISD in 1995. After Feasibility Stage 1 in 1993, contracts were placed with two competing consortia for Feasibility Stage 2 (FS2) and Project Definition Stage 1.

FS2 indicated that the risk of procuring and integrating the Local Area Sub-system (LAS) would be best managed by placing the responsibility with the Bowman contractor. This change in procurement strategy was approved in 1997, along with Bowman Core Risk Reduction work.

In November 1996, the previous two consortia formed a joint venture company, Archer Communications Systems Ltd (ACSL) to submit a joint bid for Bowman. The Department approved a single source strategy for Bowman following a review of procurement options. A risk reduction contract was placed with ACSL in August 1997. ACSL received a further package of work in October 1998 worth £182M prior to production commitment at Main Gate, then planned for November 2000.

The Department rejected ACSL's bid in July 2000, removed their preferred supplier status and re-launched the competition, as it was not convinced ACSL could meet an early ISD. TRW Ltd, Computing Devices Canada Ltd (CDC), now General Dynamics UK Ltd, and Thales Defence Ltd competed for the contract, which was won by CDC in July 2001. EAC gave Main Gate approval in August 2001 and the Bowman Supply and Support contract was signed on 13 September 2001.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	397	16.5%
Approved Cost at Initial Gate	130	6.1%
Variation	+267	

5c. Duration of Assessment Phase

Date of Main Gate Approval	August 2001
Target Date for Main Gate Approval at Initial Gate	December 1993
Variation (Months)	+92

5d. Cost boundaries at Initial Gate and Main Gate Approvals

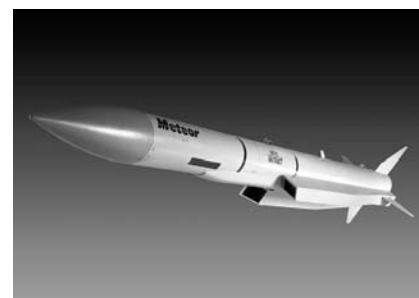
£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	1874	1898	2041
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	February 2004	March 2004	December 2004
Forecast ISD at Initial Gate	-	December 1995	-

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***BEYOND VISUAL RANGE
AIR-TO-AIR MISSILE (BVRAAM)***



Integrated Project Team Responsible:

BVRAAM

Single Point of Accountability for project capability:

Director Equipment Capability (Theatre Airspace)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Beyond Visual Range Air-to-Air Missile (BVRAAM) (also known as Meteor) will provide Typhoon with the capability to combat projected air-to-air threats and sustain air superiority throughout the life of the aircraft. The weapon is required to operate in all weather conditions and will complement Typhoon's Advanced Short Range Air-to-Air Missile (ASRAAM). Until Meteor enters service, Typhoon will be armed with the Advanced Medium Range Air-to-Air Missile (AMRAAM), contracted to Raytheon Missile Systems.

The key features of the requirement include stealthy launch, enhanced kinematics (giving increased stand-off and disengagement ranges, a better ability to chase and destroy highly agile manoeuvring targets) and robust performance against countermeasures.

This is a collaborative programme with five other partner nations; Germany, Spain and Italy (for Typhoon), Sweden (for JAS 39 Gripen) and France (for Rafale). The contract for the demonstration, manufacture and support of Meteor was placed with MBDA UK Ltd on 23 December 2002, on behalf of the six nations. Only the UK has committed to production; the contract includes production options that can be exercised by partner nations during the demonstration programme. The first air-launched firing of Meteor is scheduled to commence in late 2005/early 2006, and supports the demonstration of Key Technical Milestones 1 (Demonstration of Ramjet propulsion System) and 2 (Demonstration of Guidance and Control of the asymmetric airframe).

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
Typhoon	2003	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
MBDA UK Ltd (Meteor)	Demonstration (all six nations) and Manufacture (UK only at present)	Firm Price up to June 2007 (Demonstration), Firm Price up to June 2006 (Manufacture), Fixed Price thereafter	International Competition
Raytheon Missile Systems (AMRAAM)	Manufacture to In-Service	Firm Price	Non-Competitive Contract

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	1204
Approved Cost at Main Gate	1362
Variation	-158
In-year changes in 2004/2005	-151

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2005	-120	Changed Budgetary Priorities	Effect of EP05 Options; reduce Meteor numbers (-£55m), decision taken not to upgrade AMRAAM 120Bs (-£65m).
March 2005	+9	Exchange Rate	Revaluation of foreign currency assumptions on current and future AMRAAM contracts (+£9m).
March 2005	-20	Procurement Strategy	Revaluation of UK's share of Government Furnished Equipment/Government Furnished Facilities requirements (-£20m).
March 2005	+2	Changed Budgetary Priorities	Re-costing of UK Technical Support requirements in addition to MOU commitments (+£3m), re-costing of Meteor Integration (-£1m).
March 2005	-22	Contracting Process	Revalidation to reflect prices within AMRAAM contract (-£14m), and effect of revalidation on Cost of Capital Charge (-£8m).
Historic	+18	Exchange Rate	Change in € exchange rate on Meteor prime (+£29m). Change in \$ exchange rate on AMRAAM (-£11m).
Historic	-6	Change Requirement	UK share of additional common requirements (+£2m), additional requirement for Dual Data Link (+£6m), additional containers required for Meteor (+£2m) Refurbishment of existing AMRAAMs (-£16m).
Historic	+82	Changed Budgetary Priorities	Increases for Insensitive Munitions (+£9m), Missiles & Ancillary Equipment in support of Typhoon integration (+£6m), Surveillance & Life Extension (+£5m), initial spares (+£3m), 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 Ranges (+£11m), increase in UPC for AMRAAM missiles (MPR03 +£25m);

Date	Variation (£m)	Factor	Explanation
			MPR04 +£15m), surveillance spares for AMRAAM (+£1m), UK share of GFE (+£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), minor miscellaneous Meteor items (-£1m).
Historic	-6	Accounting Adjustments and Re-definitions	Change in assumption in regard to recovery of VAT (+£9m), derivation of approved cost on resource basis (-£4m), difference in variation due to revision of Cost of Capital Charge (-£11m).
Historic	-122	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptance (90%) estimates at Main Gate (-£129m), Variation due to revised approval figures (+£7m).
Historic	+6	Contracting Process	UK's share of MBDA revalidation of prices caused by delay in contract placement (+£6m).
Historic	+21	Procurement Strategy	Additional funding required for integration of AMRAAM AIM 120C onto Typhoon (+£82m), Gripen Trial (+£2m), Realism measure on funding for integration of AMRAAM AIM 120C onto Typhoon (-£65m), Decrease in UK's share of Development (-£30m), Increase of UK's share of development through transfer of work share from Germany (+£31m), and UK share of GFE (+£1m).
Net Variation	-158		

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	215
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2d. Years of peak procurement expenditure

2009/2010	2012/2013
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2e. Unit production cost*

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
1.0	1.0	***	***

* UPC covers Meteor missile only.

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Achievement of an operational capability with *** missiles and supporting infrastructure.
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3b. Performance against approved in-service date*

	Date
Current Forecast ISD	August 2012
Approved ISD at Main Gate	August 2012
Variation (Months)	0
In-year changes in 2004/2005	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	11	Contracting Process	Slippage caused by delays in placing contract (+11 months)
Historic	-11	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest (90%) estimates at Main Gate (-11 months)
Net Variation	0		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

-

* ISD shown is for Meteor only.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements*

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
1	Multiple Target Capability	Yes	-	-
2	Kill Probability	Yes	-	-
3	Enhanced Typhoon Survivability	Yes	-	-
4	Typhoon Compatibility	Yes	-	-
5	Minimum Air Carriage Life	Yes	-	-
6	Reliability	Yes	-	-
7	Support	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

* KURs are for Meteor only.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

On 2 October 1995, Minister (Defence Procurement) gave approval for the issue of an Invitation to Tender (ITT) for BVRAAM. The ITT was issued on 5 December 1995. Two bids were received; one from a consortium led by Matra BAe Dynamics (MBD) 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 (PDRR) phase was approved and contracts were placed on both bidders for a period of one year with the results to be technically and operationally assessed before a final decision was made. Both PDRR contracts were let in August 1997 and revised bids were received in May 1998.

Due to the complexity of the BVRAAM assessment, the need to accommodate the requirements of the Prospective Partner Nations and the need to go for Best And Final Offers (BAFOs) primarily as a result of the 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, Secretary of State announced that MBD's Meteor missile had been selected.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	20	2%
Approved Cost at Initial Gate	14	1%
Variation	+6	

5c. Duration of Assessment Phase

Date of Main Gate Approval	May 2000
Target Date for Main Gate Approval at Initial Gate	March 1997
Variation (Months)	+38

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	1198	1240	1362
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	1226	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	June 2010	September 2011	August 2012
Forecast ISD at Initial Gate	-	March 2005	-

POST MAIN GATE PROJECT SUMMARY SHEET

C VEHICLE CAPABILITY – PFI



Integrated Project Team Responsible:

ENGINEER VEHICLES & PLANT

Single Point of Accountability for project capability:

Director Equipment Capability (Ground Manoeuvre)

Senior Responsible Owner for broader capability:

Capability Manager (Battlespace Manoeuvre)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The ‘C’ class vehicle fleet comprises of over 4000 items of 100 major types such as rough terrain earthmoving equipment, specialist engineer construction plant as well as field material handling equipment. These are held at varying degrees of military readiness and capable of undertaking a wide range of combat support, logistic and construction tasks. The drive for the project has been to deliver the capability through a PFI service because of the commercial nature of the fleet.

The Assessment Phase was completed between Initial Gate in November 2000 and Main Gate in December 2003. The Investment Approvals Board (IAB) endorsed the Amey Lex Consortium (ALC) as the preferred bidder. Through the contract negotiation the IPT with ALC addressed affordability constraints reducing the bid price through modifying the service with trade-offs. HM Treasury (HMT) played a crucial role in agreeing a funding transfer of resource expenditure in order to pay for the PFI service, as well as supporting Operations through the use of contingency funding. The contract meets all of HMT’s Standardisation of PFI Contract (SoPC) requirements. Contract Award is due in May 2005 with Full Service Commencement planned for April 2006.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Amey Lex Consortium	Competitive - International	Firm Price for five years then Fixed Price subject to Variation of Price	PFI

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	710
Approved Cost at Main Gate	714
Variation	-4
In-year changes in 2004/2005	+36

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2005	+23	Contracting Process	Realism to reflect delay in contract award (+£5m), re-scoping of project specific items (+£4m) and review of fixed price risk (+£2m). Adjustments in line with improved identification of MoD requirements during January – March 2005 in support of the PFI Service Provider including set-up costs for the Management Information System (+£2m), estates provision (+£1m) and initial service support (+£9m).
September 2004	+58	Accounting Adjustments and Re-definitions	External assistance (+£2m). Transfer of resource expenditure following change in policy for PFI programmes (+£56m).
July 2004	-45	Accounting Adjustments and Re-definitions	Change to treatment for transfer of existing fleet from MoD to Service Provider (-£40m). Bid process re-definition (-£5m).
Historic	-40	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-4		

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	2
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2d. Years of peak procurement expenditure

PFI Service with Unitary Charge	2006 to 2021
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	At Main Gate	Current
-	-	-	-

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Full Service Commencement
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3b. Performance against approved in-service date

	Date
Current Forecast ISD	March 2006
Approved ISD at Main Gate	April 2006
Variation (Months)	-1
In-year changes in 2004/2005	+3

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
February 2005	1	Contracting Process	Extended negotiations surrounding the final project issues.
October 2004	2	Contracting Process	Effect of SoPC review and extended re-negotiations.
Historic	2	Changed Budgetary Priorities	Delay caused by the HMT constraint on the transfer of resource expenditure for the PFI service. Directors of the Equipment Capability agreed to proceed until completion of the internal funding process in September 2004.
Historic	-6	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-1		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
Support costs of current equipment	-	-	-
Other	-	-	
Total	-	-	

3e. Operational impact of ISD variation

As the capability exists and will not change when the PFI service begins, there was no operational impact because of the variations.
--

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be met	At Risk	Not to be met
1	Deployment and recovery of the capability using current in-service and planned transport systems.	Yes	-	-
2	Mobility for: Obstacle breaching, route clearance, support to bridging operation, road construction and maintenance, snow & ice clearance, beach opening and bomb disposal.	Yes	-	-
3	Survivability to utilise C Vehicles to: dig in armour, infantry, artillery and HQs, harden buildings, construct deception and concealment earthworks.	Yes	-	-
4	Sustainability Operations to: handle stores, out-load to stockpiles, operate quarries, construct BFIs, clear derelict buildings, construct water points.	Yes	-	-
5	Air support to provide and repair aircraft operating surfaces and essential air support facilities.	Yes	-	-
6	The C Vehicle capability must meet the readiness criteria of units and formations.	Yes	-	-
7	The asset delivery availability of 100%, with an asset intrinsic availability of at least 90%.	Yes	-	-
8	A scheduled and unscheduled maintenance regime to support the capability as far forward as is operationally practical.	Yes	-	-
9	Spares provision and delivery must be compatible with in-service systems.	Yes	-	-
10	Training to ensure that military manpower is appropriately trained to operate and maintain the supplied equipment on operations and in peacetime.	Yes	-	-
Percentage currently forecast to be met		100%		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

Initial Gate approval was granted in November 2000 based on Pre-Qualification Questionnaire documentation from six consortia. Three short-listed contenders were chosen to receive the Invitation to Negotiate (ITN), released in March 2001. Throughout this period a process called 'convergence' was used to acquaint industry with the requirement and also to gain feedback on alternative solutions. The ITN responses were assessed against specified criteria. At this time, the three contenders reduced to two, as two bidders combined teams to propose a consolidated bid. A further round of Revise and Confirm offers were requested in May 2002, with responses from the two consortia (Amey Lex Consortia; FastEx) in June 2002.

The evaluation of the two bids (ALC and FastEx) against the Public Sector Comparator was completed in early 2003 before final submission of the Main Gate Business Case to the IAB in March 2003. Whilst awaiting the IAB and Ministerial decision, no interaction could take place with the bidders, however, specific elements of the requirement were reviewed to address any inconsistencies and implement additional risk reduction measures. This process led to the revised Preferred Bidder documentation published in December 2003. At the time of announcing the Main Gate decision to proceed with ALC, it was also recognised that a funding gap had been created by the constraint placed on the use of Indirect RDEL (non-cash) by HM Treasury. The funding requirements were addressed with ALC as the initial part of the contract negotiations and with the Directors Equipment Capability (Ground Manoeuvre) and (Expeditionary Logistics and Support) in EP05 Phase 1.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	3	0.4%
Approved Cost at Initial Gate	4	0.6%
Variation	+1	

5c. Duration of Assessment Phase

Date of Main Gate Approval	December 2003
Target Date for Main Gate Approval at Initial Gate	March 2003
Variation (Months)	+9

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	669	674	714
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	July 2005	October 2005	April 2006
Forecast ISD at Initial Gate	-	September 2003	November 2003

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POST MAIN GATE PROJECT SUMMARY SHEET

CIP - COMBAT, DBL INFRASTRUCTURE, PLATFORM BISA



Integrated Project Team Responsible:

BOWMAN AND TACTICAL COMMUNICATIONS & INFORMATION SYSTEMS (BATCIS)

Single Point of Accountability for project capability:

Director Equipment Capability (Command, Control & Information Infrastructure)

Senior Responsible Owner for broader capability:

Assistant Chief of the General Staff

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

CIP comprises three closely interrelated projects procured as a single entity via the Bowman prime contractor: Common Battlefield Application Toolset (ComBAT) is a set of common software tools delivering a battle management system to aid operational planning and control and enhancing situational awareness.

Digitization of the Battlespace Land (DBL) Infrastructure builds on the Bowman communications and information system providing hardware and software in support of Headquarters to optimise the use of information and enable interoperability with national and international systems.

Platform Battlefield Information Systems Application (PBISA) integrates ComBAT with other systems and sensors to optimise the effectiveness of key armoured fighting vehicles (such as the Challenger 2 Main Battle Tank). It includes a set of common software tools delivering a battle management system, integrated to optimise the fightability of key armoured platforms, and enabling the concurrent operation of other software applications.

The Assessment Phase contract was let to General Dynamics UK, the Bowman preferred supplier, in August 2001, to manage the technical risk of integrating CIP with Bowman and achieve value for money. Following Main Gate approval in October 2002 the Supply and Support of CIP was added to the Bowman contract, 15 months after the award of the Bowman contract, in December 2002.

The Main Gate approval recognised that CIP would be fielded in three capability increments between 2004 and 2006 to manage the inherent risks attached to the fielding of a large and complex programme in a single stage. Although the approved In Service Date (ISD) was December 2004, a demanding target of March 2004 was set to introduce the initial capability increment coincident with the delivery of Bowman. Extensive testing involving ComBAT and DBL Infrastructure (culminating in the Bowman operational field trials in March 2004) indicated that more work was required to deliver the initial capability.

Following further operational field trials in November 2004, Initial System Acceptance was declared in December 2004. This reflected that sufficient capability was available for use on operations but noted that the system was not yet mature enough to declare full ISD and a progressive approach to the delivery of capability

will be taken. Subject to IAB approval in Spring 2005, work will continue on the next capability increment to be assessed during trials activities at the end 2005. ISD will be declared if sufficient evidence is available from these activities and the experience of using the current increment on operations and exercises such as Operation TELIC (Iraq).

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
Bowman	March 2004	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
General Dynamics (UK) Ltd	Demonstration and Manufacture	Firm Price	Single Source (NAPNOC)

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	338
Approved Cost at Main Gate	379
Variation	-41
In-year changes in 2004/2005	-2

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2005	-2	Technical Factors	Further reductions in Technical risk (-£2m).
Historic	-3	Technical Factors	Reduction in level of technical risk within programme (-£3m).
Historic	-36	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (-£36m).
Net Variation	-41		

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	123
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2d. Years of peak procurement expenditure

2005/2006	2006/2007
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
-	-	-	-

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	A Brigade Headquarters, two mechanized battalions and support troops capable of engaging in Operations Other Than War.
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3b. Performance against approved in-service date

	Date
Current Forecast ISD	December 2005
Approved ISD at Main Gate	December 2004
Variation (Months)	+12
In-year changes in 2004/2005	+17

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
January 2005	12	Technical Factors	In Service Acceptance Trial not sufficiently successful to declare ISD at CIP 90% approval - primarily due to system performance during trial(+12 months).
August 2004	5	Technical Factors	Acceptance trial in July 2004 failed to gather sufficient evidence to declare ISD. Further planned technical uplifts to Bowman and CIP systems expected to rectify problems by December 2004(+5months).
Historic	4	Technical Factors	Performance of ComBAT battle management systems during Bowman formation-level field trails in March 2004 resulted in additional time being necessary to develop and fully demonstrate effectiveness to deliver initial ('early') capability (+ 4 months).
Historic	-9	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (-9 months).
Net Variation	+12		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

CIP is a new capability and as such does not currently impact on operations.
--

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Situational Awareness	Yes	-	-
02	Planning	Yes	-	-
03	Co-operative Working	Yes	-	-
04	Interoperability	Yes	Yes	-
05	Hosting Battlefield Information Systems Applications	Yes	-	-
06	Latency	Yes	-	-
07	Common Information	Yes	Yes	-
08	Platform Fightability	Yes	-	-
09	Platform System Integration	Yes	-	-
10	Graceful Degradation	Yes	-	-
11	Sustainability	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

CIP started life as three separate projects.

The Assessment Phase was conducted in two stages: a Limited Initial Assessment Phase (LIAP) and a Main Assessment Phase (MAP).

LIAP was aimed at defining the technology gap between the Bowman system capability and the ComBAT and DBL Infrastructure capability requirements, and how CIP could be brought into alignment with the Bowman programme. It was also intended to confirm the procurement strategy for PBISA. Additional assessments of who should be responsible for developing and delivering the PBISA solution favoured the Bowman prime contractor over the Platform Design Authorities.

The MAP built upon the output of the LIAP with the aim of recommending a single solution for each of the CIP projects to satisfy customer requirements, whilst offering value for money at an acceptable risk. Through two stages, option analysis and system design, the MAP identified options to fill the gaps identified in the LIAP. This was achieved by the prime contractor undertaking a competitive sub-contract down selection process, the results of which were presented for MOD endorsement.

The Assessment Phase concluded that it was possible to align the CIP and Bowman projects with the optimal procurement strategy being to let the CIP Supply and Support contract as a non competitive amendment to the Bowman contract. Despite the significant risks of attempting to align CIP with Bowman fifteen months after the award of the Bowman contract, harmonisation of the Bowman and CIP in service dates was considered essential to meet time cost and performance requirements and avoid converting vehicles twice, for Bowman and then CIP, at nugatory cost. This strategy was endorsed at Main Gate. An extension of the Bowman contract for CIP was agreed with General Dynamics UK in December 2002.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	13	3.7%
Approved Cost at Initial Gate	13	3.7%
Variation	0	

5c. Duration of Assessment Phase

Date of Main Gate Approval	October 2002
Target Date for Main Gate Approval at Initial Gate	July 2002
Variation (Months)	+3

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	317	343	379
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	366	566

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	February 2004	March 2004	December 2004
Forecast ISD at Initial Gate	-	March 2004	December 2004

POST MAIN GATE PROJECT SUMMARY SHEET

GUIDED MULTIPLE LAUNCH ROCKET SYSTEM (GMLRS)



Integrated Project Team Responsible:

FUTURE ARTILLERY WEAPON SYSTEMS (FAWS)

Single Point of Accountability for project capability:

Director Equipment Capability (Deep Target Attack)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Guided Multiple Launch Rocket System (GMLRS) will start to replace unguided MLRS M26 rockets as they reach the end of their shelf life from 2004 onwards. GMLRS rockets will be fired from modified M270 MLRS launchers. The requirement is for a rocket that will increase MLRS's range from 30km to at least 60km, with a reduction in heat and smoke signature. The rocket will use the Global Positioning System and inertial guidance in order to achieve the required accuracy and significantly increase its effectiveness. The payload is initially planned to consist of bomblets fitted with self-destruct fuzes to address environmental concerns and to comply with extant and anticipated legislation. GMLRS is a modular design, to allow other payloads (such as unitary warhead and smart anti-armour sub-munitions) to be easily incorporated.

The increased precision of GMLRS will reduce the number of rockets required to defeat a target. This will allow stocks of GMLRS to be significantly lower than those for the M26 rocket, thus reducing the logistic burden and eventual disposal costs. At Main Gate the UK's requirement was for 6,500 GMLRS rockets. However, reviews during the Equipment Planning (EP) process have caused the quantity to fluctuate, due to changing Customer priorities and funding constraints, and the required quantity now stands at 6,204 rockets. The reduction in the forecast cost of the demonstration and manufacture phase mainly reflects the effect of exchange rate variations (£ vs \$), and the reduction in quantity of rockets.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
MLRS Future Fire Control System (FFCS)	2007	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Lockheed Martin Missiles and Fire Control, Dallas, USA	Collaborative Manufacture	Firm Price	Single source; contract placed by US Department of Defense

SECTION 2: PROJECT COSTS**2a. Performance against approved cost**

£m (outturn prices)	Procurement Cost
Current Forecast Cost	263
Approved Cost at Main Gate	360
Variation	-97
In-year changes in 2004/2005	-35

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
February 2005	+8	Changed budgetary priorities	Two savings measures deferred deliveries of rockets, causing an increase in price due to inflation (+£7m), and increased Cost of Capital due to changed delivery profile (+£1m).
September 2004	+4	Accounting Adjustments and Redefinitions	Correction of cost error in last year's Equipment Plan (+£4m).
August 2004	-47	Exchange Rate	Revaluation of programme cost to reflect revised exchange rates (-£47m).
Historic	-9	Changed requirement	Customer review reduced quantity of rockets from 6,500 to 6,204 (-£9m).
Historic	-17	Exchange Rate	Revaluation of programme cost to reflect revised exchange rates (-£17m).
Historic	+5	Changed budgetary priorities	Final version of Equipment Plan 2003 incorporated increased cost for Manufacture phase (+£5m).
Historic	-41	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimate at Main Gate (-£41m).
Net Variation	-97		

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	1
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2d. Years of peak procurement expenditure

2014/2015	2015/2016
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
0.049	0.042	6,500	6,204

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Original ISD definition: Provision of War Reserve quantities of rockets (1,000) to support one battery at Medium scale of effort.
	Current ISD definition: The ability to deploy a MLRS battery with a stockpile of 654 rockets in support of a medium scale war fighting operation.
	Reason for change: ISD redefined as a result of Customer 1 review, in January 2005.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	April 2007
Approved ISD at Main Gate	January 2008
Variation (Months)	-9
In-year changes in 2004/2005	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	+1	Changed budgetary priorities	A savings measure deferred funding, causing delay to ISD.
Historic	-10	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimate at Main Gate.
Net Variation	-9		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

-

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Maximum range of greater than 60km upon introduction into UK service.	Yes	-	-
02	Minimum range of less than 15km upon introduction into UK service.	Yes	-	-
03	Capable of being stored, and shall function correctly thereafter, in a range of climatic conditions.	Yes	-	-
04	Shall achieve specified destructive effect against the designated target arrays with the specified numbers of rockets.	Yes	-	-
05	In Global Positioning System mode the deflection and range error of the bomblets to be no worse than 150m from the point of aim for each rocket, at all ranges, and GMLRS to deliver bomblets predictably within the required target area.	Yes	-	-
06	To be compatible with current in-service and planned rocket launchers.	Yes	-	-
07	Shall incorporate a payload with a hazardous dud rate less than 1%.	Yes	-	-
08	Shall be interoperable amongst the five GMLRS partner nations.	Yes	-	-
09	Shall have reduced visual and Infra Red signature compared to the M26 rocket.	Yes	-	-
10	Shall have a probability of correctly functioning of at least 93% throughout a 10 year shelf life (basic reliability).	Yes	-	-
Percentage currently forecast to be met		100%		
In-Year Change		-		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

An approval equivalent to Initial Gate was obtained in July 1998 for the UK to participate in a collaborative GMLRS assessment phase with the other MLRS Partner Nations (France, Germany, Italy and the US). As part of this phase, and acting on behalf of the Partner Nations, the US Department of Defense (DOD) awarded a prime contract to Lockheed Martin Missiles and Fire Control (LMMFC) in November 1998 to develop a GMLRS carrier rocket. The UK contributed 12.5% of the cost of the Engineering and Manufacturing Development (EMD) contract. The EMD contract was completed in early 2003, having been extended by the DOD from its earlier planned end date of November 2002. This extension, together with protracted negotiations with the US regarding the arrangements for manufacture, caused the deferral of Main Gate approval from December 2002 to August 2003. The purpose of the EMD phase was to reduce costs and risk through the use of off-the-shelf components and sub-assemblies, and by maximising sub-contractor competition. All MLRS Partner Nations have equal rights to the design resulting from the EMD contract. To date only UK has formally entered into collaborative manufacture with the US.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	14	5%
Approved Cost at Initial Gate	19	7%
Variation	-5	

5c. Duration of Assessment Phase

Date of Main Gate Approval	August 2003
Target Date for Main Gate Approval at Initial Gate	December 2002
Variation (Months)	+8

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	291	319	360
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	399	419	503

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	March 2006	March 2007	January 2008
Forecast ISD at Initial Gate	December 2007	June 2009	December 2010

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POST MAIN GATE PROJECT SUMMARY SHEET

FUTURE JOINT COMBAT AIRCRAFT



Integrated Project Team Responsible:

JOINT COMBAT AIRCRAFT (JCA)

Single Point of Accountability for project capability:

Director Equipment Capability (Deep Target Attack)

Senior Responsible Owner for broader capability:

Carrier Strike Senior Responsible Owner

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Strategic Defence Review confirmed the requirement to provide the Joint Force 2000 (joint command for all Harrier forces) with a multi-role fighter/attack aircraft to replace the Royal Navy Sea Harrier and the Royal Airforce Harrier GR7. Following participation in the Concept Demonstration Phase of the programme, the US Joint Strike Fighter (JSF) was selected to meet the requirement. A tailored Main Gate Demonstration approval was obtained in January 2001 for participation in the System Development and Demonstration (SDD) phase, along with £600m for related non-SDD work, leading to signature that month of the associated Memorandum of Understanding (MOU). Of the eight non-US countries participating in SDD, the UK is the sole Level 1 partner, contributing \$2bn to this phase and obtaining key project roles within the JSF Joint Programme Office. The US placed the SDD contract with the Prime Contractor, Lockheed Martin (LM) in October 2001 with the UK playing a major role in the down selection process.

In September 2002 the UK selected the Short Take Off and Vertical Landing (STOVL) JSF variant to meet our requirement. Mounting concerns about weight growth led to a programme of weight reduction initiatives aimed at restoring confidence in the STOVL performance. KUR4 (Short Take Off) and KUR6 (logistics footprint) are currently at risk. The KUR4 is based on a no-longer valid requirement to operate JCA from Invincible class carriers. As part of an on-going review this KUR will be changed to reflect operations from the longer deck Future Aircraft Carrier (CVF). Current projections indicate robust Short Take Off performance from CVF. The logistics footprint is subject to further intensive programme action by Lockheed Martin. The Critical Design Review in early 2006 should provide the evidence needed to establish the likelihood of meeting the KURs.

STOVL first flight is planned for 2007. Participation in the SDD phase will deliver a Block 3 aircraft with Air-to-Air and Air-to-Ground capabilities as required by the Joint Operational Requirements Document. Future capability upgrades, including Block 4 will be determined as part of the multilateral negotiations which are underway to agree the Memorandum of Understanding for the Production and Sustainment phases of the programme.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
Future Aircraft Carrier (CVF)	***	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Lockheed Martin	System Development and Demonstration	Cost plus award fee, subject to a maximum price.	Competitive International collaboration procurement. UK participation through MOU agreement. (Note: the contract is placed by the US DoD with LM.)

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	1914
Approved Cost at Main Gate	2236
Variation	-322
In-year changes in 2004/2005	-659

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2005	-29	Technical Factors	Reduction of risk line as a result of programme delays. (-£29m).
March 2005	-428	Changed Requirement	Provision for Alternate Helmet Mounted Display System removed (-£40m). Reassessment of 2004/2005 forecast expenditure (-£12m). Review of misc requirement inc EoL 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) and associated increase Cost of Capital charge (+£44m).
March 2005	-25	Changed Budgetary Priorities	Reassessment of DSTL & QinetiQ tasking (-£10m). Correction of contingency estimates due to weight risks in MPR04 (-£15m).
March 2005	-181	Exchange Rate	Exchange rate adjustment (-£181m)
March 2005	+4	Accounting Adjustments and Re-definitions	Re profiling of UK specific tasks (+£3m). Adjustment of treatment of Cost of Capital Charges calculation (+£1m)
Historic	-71	Changed Requirement	Reviews of the external missile

Date	Variation (£m)	Factor	Explanation
			systems for JCA resulted in the removal of the requirement for integrating externally mounted Brimstone (-£41m) and ASRAAM (-£49m), and Paveway II and III (-£1m) capabilities. Further UK participation in the Joint Integrated Test Force to reflect UK acceptance into service strategy (+£20m).
Historic	+95	Exchange Rate	Change in \$/£ exchange rate (MPR02 +£189m; MPR03 -£9m; MPR04 -£85m).
Historic	+18	Accounting Adjustments and Re-definitions	Interest on capital correction (MPR02 +£46m; MPR03 -£12M). New DPA requirement to include Price Forecasting Group costs within the equipment plan (+£1m). Additional interest on capital from new DPA IT accrual methodology (+£1m). Accounting reclassification of feasibility studies (-£2m). Difference in variation figures due to revision of Cost of Capital Charge (-£16m).
Historic	+87	Technical Factors	Re-examination of risk within the overall programme. (+£87m MPR04).
Historic	+410	Changed Budgetary Priorities	Adjustment for realism in the cost of the UK non-SDD work resulting from a deeper review of the estimates originally provided by the US (+£43m). Fewer UK studies than originally planned (MPR02 -£1m; MPR03 -£6m). Costs benefits gained from use of existing ASRAAM stocks for JCA 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	-202	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the approved figures at Main Gate (-£213m). Variation due to revised approval figures (+£11m)
Net Variation	-322	-	-

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	347
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2d. Years of peak procurement expenditure*

2006/2007	2007/2008
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* These are peak years of SDD expenditure. These will change once the Production phase is approved in late 2006.

2e. Unit production cost*

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
-	-	-	-

SECTION 3: PROJECT TIMESCALE†

3a. Definition of in-service date

ISD Definition:	Eight embarked aircraft at Readiness 2 (two to five days notice to move)
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3b. Performance against approved in-service date

	Date
Current Forecast ISD	-
Approved ISD at Main Gate	The tailored Demonstration Main Gate noted but did not approve the ISD
Variation (Months)	-
In-year changes in 2004/2005	-

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
-	-	-	-

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

-

* The JCA Main Gate (MG) was tailored for Development only to match the US procurement cycle. Unit Production Cost approval will be sought as part of the MG Production Approval. This Approval will not be sought until at least December 2006 as part of the MG Production Approval.

† The In Service Date (ISD) approval will be sought as part of the MG Production Approval

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Survivability	Yes	-	-
02	Interoperability	Yes	-	-
03	Combat radius	Yes	-	-
04	Mission performance		Yes	-
05	Mission reliability	Yes	-	-
06	Logistic footprint: The equipment required to support a number of aircraft for a prescribed period of time.	-	Yes	-
07	Sortie generation rates: JCA will be required to contribute to a significant proportion of the total missions required in the early stages of future operations, demonstrating a high level of reliability. This requirement is to enable generation of a predetermined number of sorties without placing an unacceptable burden on the logistics system.	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
March 2005	KUR04	Technical	This KUR is based on a requirement to operate JCA from Invincible class carriers; as part of an on-going review this KUR will be updated to reflect operations from the longer deck CVF.
March 2005	KUR06	Technical	The logistics footprint is subject to further intensive programme action by the Prime Contractor. Design options that significantly reduce the risk of non-compliance have been identified and further changes will be considered in due course.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

Approval was obtained in November 1996 to enter the concept Demonstration Phase (CDP) on the JSF programme under an MOU signed in December 1995. The phase began in November 1996 with two competing US Prime Contractors (Boeing and Lockheed Martin) designing weapons systems and flying demonstration aircraft on which the selection of the preferred bidder was based. The phase completed in October 2001 with the announcement of Lockheed Martin as the successful bidder. Studies into alternative options to JSF to meet the requirement were also conducted but were rejected on cost effective ground. The options were US F/A18E, French Rafale M, a "navalised" Eurofighter and an advanced Harrier.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	144	7%
Approved Cost at Initial Gate	150	7%
Variation	-6	

5c. Duration of Assessment Phase

Date of Main Gate Approval	January 2001
Target Date for Main Gate Approval at Initial Gate	-
Variation (Months)	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals*

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	1971	2034	2236
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	90% Confidence Level
Forecast ISD at Main Gate	-	December 2012	April 2014
Forecast ISD at Initial Gate	-	December 2012	-

Note: For MG Development approval, ISD was noted, not approved

* Three point estimates for the Production phase have yet to be determined, as costs are dependant on the final aircraft numbers

POST MAIN GATE PROJECT SUMMARY SHEET

LIGHT FORCES ANTI-TANK GUIDED WEAPON



Integrated Project Team Responsible:

INFANTRY GUIDED WEAPONS (IGW)

Single Point of Accountability for project capability:

Director Equipment Capability (Ground Manoeuvre)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

In January 2003 the US Javelin system produced by the Raytheon/Lockheed Martin Joint Venture was selected to meet the Light Forces Anti-Tank Guided Weapon (LF ATGW) requirement for the manufacture, supply and support of a crew portable Medium Range Anti-Tank Guided Weapon for the Light Forces, including training equipment. This is a Military Off the Shelf (MOTS) procurement.

Javelin is man-portable by a crew of two, carrying two missiles. In order to meet the LFATGW requirement, the system will be provided to the Light Forces and Mechanised Infantry, replacing the ageing MILAN. The Command Launch Unit (CLU) is reusable and offers a surveillance capability. The missile will be effective against ground vehicles including modern and future battle tanks. Javelin will have a secondary capability against fixed defences and the ability to allow enclosed space firing.

To minimise live firings in training the emphasis is being placed on simulation. Equipment deliveries to the UK are underway and the programme is on track to meet its planned in-service date of November 2005.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Javelin Joint Venture (Raytheon & Lockheed Martin)	Demonstration & Manufacture	Firm Price Direct Commercial Sale and Foreign Military Sales Case	Competitive International

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	310
Approved Cost at Main Gate	345
Variation	-35
In-year changes in 2004/2005	-8

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 05	-6	Exchange Rate	Change in \$ to £ exchange rate.
March 05	-2	Changed Budgetary Priorities	Changes in timings of spend and asset deliveries leading to variations in Cost of Capital (-£2m).
Historic	+3	Changed Budgetary Priorities	Changes in timings of spend and asset deliveries leading to variations in Cost of Capital (+£3m).
Historic	-30	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) at Main Gate (-£31m).
Net Variation	-35	-	-

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	127
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2d. Years of peak procurement expenditure

2004/2005	2006/2007
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
0.1	0.1	378 (CLUs)	378 (CLUs)

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	One Brigade trained and equipped.
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3b. Performance against approved in-service date

	Date
Current Forecast ISD	November 2005
Approved ISD at Main Gate	August 2006
Variation (Months)	-9
In-year changes in 2004/2005	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	-9	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (90%) approved at Main Gate.
Net Variation	-9		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

-

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	The User shall be provided with a capability able to defeat T80U and T90 Main Battle Tanks (MBT).	Yes	-	-
02	The User shall be provided with an engagement capability with a Single Shot Kill Probability (SSKP) of at least x for T80 PIP1 and T90 targets.	Yes	-	-
03	The User shall be provided with a surveillance capability which has a 50% probability of recognising a NATO standard MBT target at 2500m under 0.2 extinction coefficient.	Yes	-	-
04	The User shall be provided with a surveillance capability which has a 50% probability of identifying a NATO standard MBT target at 1900m under 0.2 extinction coefficient.	Yes	-	-
05	The User shall be provided with an engagement capability for targets at a maximum range of 2500m	Yes	-	-
06	The User shall be provided with an engagement capability for targets at a minimum range of 200m	Yes	-	-
07	The User shall be provided with an engagement capability, which can engage a target from any direction.	Yes	-	-
08	The User shall be provided with a capability that has the same mobility as a Light Forces soldier.	Yes	-	-
09	The User shall be provided with a capability that can operate following field storage for up to one year in different climatic environments.	Yes	-	-
10	The User shall be provided with a LF ATGW capability with an operational availability of not less than 95% over 30 days warfighting of which seven days will be high intensity.	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

The Assessment Phase evaluated available MOTS systems, established through competition the best value for money solution to meet the requirement and produced a recommended option.

Initial Gate Approval was secured in July 2000 and in July 2001 a Review Note was approved to incorporate the Mechanised Infantry requirement. Following the issue of a Request for Proposals in September 2000, a contract was placed with Rafael to enable evaluation of the SPIKE system, and two Foreign Military Sales (FMS) Cases were implemented with the US DoD to acquire the JAVELIN system and to obtain the services of the Javelin Joint Venture. These were the only weapons systems deemed likely to meet the requirements in the necessary timescale.

The Main Gate approval in January 2003 authorised the procurement of the JAVELIN system. A contract was placed with the JAVELIN Joint Venture (Raytheon and Lockheed Martin) in February 2003, supported by an FMS Case, for Demonstration, Manufacture and Support.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	9	3%
Approved Cost at Initial Gate	11	3%
Variation	-2	

5c. Duration of Assessment Phase

Date of Main Gate Approval	January 2003
Target Date for Main Gate Approval at Initial Gate	September 2002
Variation (Months)	+4

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	304	315	345
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	467	522	582

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	July 2005	November 2005	August 2006
Forecast ISD at Initial Gate	December 2004	April 2005	June 2005

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POST MAIN GATE PROJECT SUMMARY SHEET

NEXT GENERATION LIGHT ANTI-ARMOUR WEAPON (NLAW)



Integrated Project Team Responsible:

INFANTRY GUIDED WEAPON (IGW)

Single Point of Accountability for project capability:

Director Equipment Capability (Ground Manoeuvre)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

Next Generation Light Anti-Armour Weapon (NLAW) is a man-portable short-range anti-armour weapon to be carried and used by all Arms and Services and replaces the LAW 80 capability. NLAW will provide a predictive line-of-sight capability out to a range of 600m, against main battle tanks and light armoured vehicles, when both stationary and manoeuvring, and have the ability to be fired from enclosed spaces and defensive positions. It will have a secondary role as a means of attacking structures. The project is an enhanced off-the-shelf procurement, and includes the provision of training systems and support. The weapon system is being developed in conjunction with the Swedish Defence Material Administration. The NLAW prime contractor is SAAB Bofors Dynamics of Sweden, with Thales Air Defence Ltd as the main UK sub-contractor.

NLAW will be used by the infantry and Royal Marines in conjunction with medium range weapons (up to 2000-3000m), but will be the only individual anti-armour weapon for the Royal Air Force Regiment.

The design process for NLAW is nearing completion and low rate production is planned to begin in the third quarter of 2005. NLAW is on track to meet its planned in-service date of November 2006.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Saab Bofors Dynamics, Sweden	Full Development and Production	Firm Price for development, then Fixed Price for production	International Competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	356
Approved Cost at Main Gate	415
Variation	-59
In-year changes in 2004/2005	+1

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 05	0	Technical Factors	Re-assessment of Training equipment requirements resulting in need to increase procurement of training aids (+£7m). Reduction in scope of Development Phase work, including decisions made to reduce some of the development contract options to reduce costs (-£7m).
March 05	+1	Changed Budgetary Priorities	Changes in timing of spend and Asset Deliveries leading to variations in cost of Capital (+£1m).
Historical	-5	Technical Factors	Contractual Options added to increase the scope of Development (+£1m). Reduced training equipment quantities needed to meet training capability (-£3m); reduced levels of project support (-£3m).
Historical	+3	Changed Budgetary Priorities	Changes in timing of spend and Asset Deliveries leading to variations in cost of Capital (+£3m).
Historical	-1	Contracting Process	Prices for Trainer Spares (+£2m), price for Vehicle Kits (+£1m), Price for Combat Weapons (+£1m), Price for Core Development Contract (-£5m).
Historical	-19	Procurement Strategy	Reduction in cost of development attributable to collaboration with Sweden (-£9m), VAT saving on Development associated with collaborative approach (-£10m).
Historical	-38	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) approved at Main Gate (-£38m)
Net Variation	-59	-	-

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	76
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2d. Years of peak procurement expenditure

2006/2007	2007/2008
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
0.02	0.02	14002	14002

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	A Brigade trained and equipped.
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3b. Performance against approved in-service date

	Date
Current Forecast ISD	November 2006
Approved ISD at Main Gate	July 2007
Variation (Months)	-8
In-year changes in 2004/2005	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	-8	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) approved at Main Gate (-£8m)
Net Variation	-8		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

-

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	NLAW shall be made ready in 10 secs.	Yes	-	-
02	The time to fire for NLAW shall be less than 10 secs	Yes	-	-
03	The system configured for tactical carriage shall have a mass of not more than 12.5kg	Yes	-	-
04 & 05	Against a moving target MBT Target, defined as x shall achieve a Single Shot Kill Probability (SSKP) of x between 20 and 400m	Yes	-	-
06 & 07	Against a moving LAFV Target, defined as x NLAW shall achieve an SSKP of x between 20 and 400m.	Yes	-	-
8	NLAW shall be capable of being fired safely from within a room through a window opening. The dimensions of the room shall be 4m x 2.5m x 2.5m (high), the window shall be 1m x 1m located in either the long or short wall and 1m above ground level and the door shall be 0.75m x 2m (high). The firer shall be wearing appropriate in service hearing protection.	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

Following approval to issue an Invitation To Tender to conduct Project Definition studies in September 1997, competitive firm price contracts were awarded in October 1999 to Matra BAe Dynamics in the UK and Celsius in Sweden. The delay between approval and contract award was caused by uncertainty over the future of the Medium Range TRIGAT anti-armour programme, and resulted in slippage to the forecast ISD. Each contract lasted 22 months and bids for the Demonstration, Manufacture and Support phases were received in January 2001. The contractors were required to confirm the performance of their baseline system, developing weapon enhancements and prototype training systems needed to meet NLAW requirements.

Risk reduction and trade-off studies were undertaken and detailed management, milestone and trials plans produced. The opportunities for collaboration with other countries were explored and an MOU with Sweden, facilitating joint development, was signed in June 2002.

Main Gate Approval to proceed to the Demonstration, Manufacture and Support phases, together with downselection to Saab Bofors Dynamics (formerly part of Celsius), was achieved in May 2002. Contract placement followed in June 2002.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	17	5%
Approved Cost at Initial Gate	18	5%
Variation	-1	

5c. Duration of Assessment Phase

Date of Main Gate Approval	May 2002
Target Date for Main Gate Approval at Initial Gate	April 2000
Variation (Months)	+25

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	359	377	415
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	453	468	588

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	August 2006	November 2006	July 2007
Forecast ISD at Initial Gate	May 2004	June 2005	August 2006

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POST MAIN GATE PROJECT SUMMARY SHEET

NIMROD MRA4



Integrated Project Team Responsible:

NIMROD MRA4

Single Point of Accountability for project capability:

Director Equipment Capability (Under Water Effect)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Nimrod Maritime Reconnaissance and Attack MK 4 (MRA4) will replace the current Nimrod MR2 as the new maritime patrol aircraft. MRA4 will provide significantly enhanced Anti-Submarine and Anti-Surface Unit Warfare capability through improved aircraft and sensor performance, a greater degree of system integration, better Human Machine Interface design and a substantial improvement in availability and supportability.

The MRA4 contract for the design, development and production of 21 aircraft was placed with BAE SYSTEMS (then BAe) in 1996, following an international competition. The contract was re-negotiated in mid 1999 and again in early 2002 - when the Department reduced the number of aircraft from 21 to 18. Continued technical and resource problems led to a further review of the programme and in February 2003 the Department reached an agreement with BAE SYSTEMS to change the fixed price contract to a Target Cost Incentive Fee (TCIF) contract for Design and Development, which included manufacture of three trials aircraft, and an option for a further fifteen production aircraft. Pending definition of a satisfactory design standard, series production activities were suspended with the exception of those activities essential to the preservation of skill sets within BAES and its supply chain. Flight trials are underway with the first two aircraft and the first flight of the third aircraft is planned for Summer 2005.

In July 2004, studies determined that the capability of the MRA4 would enable the maritime reconnaissance requirement to be met with a fleet of about 12 aircraft and the number to be procured has been reduced accordingly. A further review of the programme identified increased production costs and that the In Service Date for the capability would need to be delayed in order to make the programme affordable within Departmental funding constraints. A Business Case seeking authorisation of commitment to full production is expected to be submitted in Autumn 2005, subject to the achievement of acceptable design maturity, agreement of an acceptable price and satisfactory overall progress across the programme. The In Service Date definition is subject to further review at the time of the Production approval decision.

The project is subject to Key User Requirements set prior to the introduction of SMART Acquisition and these will be reset where appropriate at the time the approval for full Production is sought. An Initial Gate Business Case for the Assessment Phase of Future Support to the project has been submitted and approval is awaited.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
BAE Systems, Warton	Design and Development	Target Cost Incentive Fee *	Prime Contractor International competition
Boeing Defence and Aerospace Group, USA	Tactical Command System and Sensors	Fixed Price	Sub-contractor to BAE Systems

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	3808
Approved Cost at Main Gate	2813
Variation	+995
In-year changes in 2004/2005	+215

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
January 2005	+412	Technical Factors	Increased Production cost (+£229m) and increased Cost of Capital Charge (COCC) linked to cost change and delay in delivery programme (+£183m).
January 2005	-32	Accounting Adjustment and Re-definitions	An adjustment of the historical calculation of the COCC (-£32m).
January 2005	-165	Changed Requirement	Reduction from 18 aircraft to 12 (-£155m) and associated reduction in COCC (£-10m).
Historic	+703	Technical Factors	Increase in DERA estimate (+£13m); reduction in study requirements (-£6m); slower technical progress than originally envisaged, particularly with wing mass, leading to reduced COCC (-£9m). Reduced COCC linked to reduction in aircraft numbers (-£2m); additional costs relating to the Agreement of February 2003 (+£359m). Increased Programme costs (+£348m).

* Originally let as Fixed Price Contract

Date	Variation (£m)	Factor	Explanation
Historic	+85	Changed Requirement	Reduction from 21 to 18 aircraft (MPR02 saving of £114m less estimated termination costs of £70m; MPR03 further savings identified in 2003 planning process (-£16m). Additional commitments as part of the Heads of Agreement (+£35m). Additional costs for assessment of enhanced capability as part of the Agreement announced on 19 Feb 2003 (+£10m). As a consequence of the Agreement, QinetiQ requirement extended (+£40m). Reduction in cost of assessment of enhanced capability (-£5m). Contract change requirements (+£70m). Reduction in Government Furnished Equipment requirement (-£5m.)
Historic	-34	Changed Budgetary Priorities	Reduction in Risk provision (MPR00 -£17m; MPR02 -£17m)
Historic	+41	Inflation	Variation in Inflation assumptions (+£41m), difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) approved at Main Gate.
Historic	-7	Receipts	Forecast recovery of Liquidated Damages (-£46m) less those to be foregone as part of the Agreement announced on 29 February 2003 (+£39m).
Historic	+29	Contracting Process	Reduction in Risk provision (-£56m); and reductions following the re-negotiation of contract (-£26m); reduction in programme costs between Main Gate approval and original contract placement (-£37m); original contract was let at provisional indices that were below actual indices (+£16m). Additional costs relating to the agreement announced on 19 Feb 2003 for Design and Development Target Cost Fee (+£132m).
Historic	-37	Accounting Adjustments and Re-definitions	Increase in costs owing to the creation of a trading fund for the Communications Electronic Security Group (CESG) after original approval had been granted (+£1m); derivation of the approved cost on a resource basis (-£19m). Change to take account of an adjustment to the current forecast for MPR01, reflecting the availability of more accurate data (+£29m). Changes caused by the conversion of internal accounting system to full resource basis (-£26m). Difference in variation figures due to revision of Cost of Capital Charge

Date	Variation (£m)	Factor	Explanation
			(-£22M).
Net Variation	+995		

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	2221
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2d. Years of peak procurement expenditure

2003/2004	2004/2005
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
Development and Production Package	Production element not yet contractually committed.	21	12

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	<p>Original ISD definition: Delivery of seventh production standard aircraft to Royal Air Force.</p> <p>MPR04 Definition : (Part of the 19th February 2003 Agreement with the Company): Delivery of the sixth production standard aircraft to Royal Air Force.</p> <p>Reason for Change: To reflect the reduction in the fleet from 21 to 18 agreed in 2002; six aircraft represents one squadron.</p>
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3b. Performance against approved in-service date

	Date
Current Forecast ISD	September 2010
Approved ISD at Main Gate	April 2003
Variation (Months)	89
In-year changes in 2004/2005	+12

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
January 2005	+12	Technical Factors	To make overall programme affordable within Departmental funding constraints (MPR05 +12 months).
Historic	+77	Technical Factors	Resource and Technical factors at BAE Systems leading to programme slippage: MPR00 +23 months MPR02 +11 months MPR03 +40 months MPR04 +6 months Difference between forecast date reported in MPR99 based on 1999 re-approval at 90% confidence and forecast date reported in MPR00 based on then current plan at 50% confidence (-3 months)
Net Variation	+89		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
	0 (January 2005)	0 (January 2005)	Variation in-year to ISD did not impact support budgets for Nimrod MR2 or MRA4. The support requirements to meet the revised ISD will be assessed when the approval for production is received, with the target of containing costs within existing provision.
Support costs of current equipment	344 (Historic)		Additional costs of running on Nimrod MR2.
Other		-150 (Historic)	Reduction in MRA4 support costs in same period

3e. Operational impact of ISD variation

The consequence of the Nimrod MRA4 ISD slip is that the Nimrod MR2 could remain in service beyond the current out-of-service date of March 2011 (or a capability gap will be endured). This slip will delay introduction of the improved capability of the Nimrod MRA4 and could require the ageing Nimrod MR2 fleet to be maintained in service longer than expected. The operational impact of this slippage will be partly mitigated by measures already in hand to introduce upgrades to some Nimrod MR2 systems, notably the Acoustic Suite (AQS 971), navigation systems, data links and other communications to address interoperability issues. The AQS 971 programme has benefited by making use of acoustic processors procured for Nimrod MRA4 AQS 970 programme.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Anti-Submarine Warfare (ASW) Barrier Search-Probability of Detection (PD).	Yes	-	-
02	ASW Area Search - PD.	Yes	-	-
03	ASW Passive Localisation & Attack - Weapon Splashpoint Error Range (WSER).	Yes	-	-
04	ASW PL&A - probability of Localisation (PL).	Yes	-	-
05	ASW Active Localisation & Attack -WSER.	Yes	-	-
06	ASW Time on Station (ToS).	-	Yes	-
07	Anti-Surface Warfare (ASuW)-ToS.	-	Yes	-
08	AsuW Area Search - Probability of detecting operational targets within a specified area.	Yes	-	-
09	ASuW 3rd Party Targeting-Determination of target position, course and speed for third party targeting.	Yes	-	-
10	Airfield Performance - achieving defined take off performance.	Yes	-	-
Percentage currently forecast to be met		100%		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
2004/2005	KUR06	Technical Factors	Time on Station endurance is expected to be achieved for the required sortie profiles and aircraft configurations but weighing of trials aircraft indicates specified mass growth margin will be eroded.
2004/2005	KUR07	Technical Factors	As above

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

In November 1992, the Equipment Approvals Committee (EAC) approved a Request for Information exercise whereby 17 companies were invited to provide responses to the draft Replacement Maritime Patrol Aircraft (RMPA) Staff Requirement. Following analysis of the industry responses, the EAC endorsed the requirement and approved an Invitation to Tender phase whereby four companies (BAe, Lockheed Martin, Loral and Dassault) were invited to provide detailed technical and commercial proposals for an aircraft to meet the endorsed Staff Requirement. Dassault withdrew from the competition in January 1996, and whilst Lockheed Martin and Loral merged in May 1996, they maintained the two separate proposals until the competition concluded. Following assessment of these responses, selection of BAe's Nimrod 2000 (later to be re-designated Nimrod MRA4) offer was approved by EAC and Ministers in July 1996. This was the equivalent of Main Gate approval.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	5	0.1%
Approved Cost at Initial Gate	4	0.1%
Variation	+1	

5c. Duration of Assessment Phase

Date of Main Gate Approval	July 1996
Target Date for Main Gate Approval at Initial Gate	-
Variation (Months)	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	-	2813	-
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	-	April 2003	-
Forecast ISD at Initial Gate	-	December 2000	-

POST MAIN GATE PROJECT SUMMARY SHEET

PRECISION GUIDED BOMB



Integrated Project Team Responsible:

PRECISION GUIDED BOMB (PGB)

Single Point of Accountability for project capability:

Director Equipment Capability (Deep Target Attack)

Senior Responsible Owner for broader capability:

Capability Manager (Precision Attack)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

An all-weather, 24 hours, general-purpose bombing requirement which offered increased accuracy to reduce collateral damage was identified during the 1991 Gulf War and re-emphasised in subsequent operations. The Precision Guided Bomb (PGB) programme was established to meet this requirement and Raytheon Systems Limited (RSL), who offered the Paveway IV weapon, was selected as the Prime Contractor following international competition. Investment Appraisals Board approval was given in June 2003 for the procurement of the Weapon System and integration onto Harrier, Tornado and Typhoon aircraft. Contract let was planned for September 2003. However, Departmental funding constraints delayed contract let and limited it to placement of the main Weapon, support and Harrier GR9 Integration Contracts. These contracts were let in December 2003. A Review Note will be submitted once the way forward for Tornado and Typhoon integration becomes clear.

Since contract let it has been decided to enhance the weapon through the addition of LASER capability. This enhancement is mutually beneficial to RSL and MoD and is being delivered at no extra cost to the MoD. Progress to date is satisfactory. Development hardware has been provided and so far all milestones, including the Design Review, have been achieved on time or ahead of schedule.

The delay to contract let is reflected in a pro-rata slip to the Main Gate ISD estimates although work is ongoing across the stakeholder community to recover this slip.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
Harrier GR9 Capability C Upgrade	June 2007	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Raytheon Systems Limited (Prime Contractor)	Demonstration to Manufacture	Firm Price	International Competition
BAE Systems, Warton	Demonstration to In- Service	Firm Price	Non-Competitive

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	352
Approved Cost at Main Gate	363
Variation	-11
In-year changes in 2004/2005	+13

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
December 2004	+10	Changed Budgetary Priorities	Increase in Tornado integration cost due to Director Equipment Capability (DEC) Option to delay integration by a further 2 years (+£10m).
May 2004	+8	Changed Budgetary Priorities	Increase in Tornado integration cost due to DEC Option to delay integration by 1 year (+£8m).
April 2004	-2	Changed Budgetary Priorities	Customer 1(DEC(Deep Target Attack)) reduction in Equipment Plan 05 (EP05) (-£2m).
April 2004	-3	Changed Budgetary Priorities	Reduction in forecast against the Control Total at the start of the Financial Year as a result of RSL risk reduction work. (-£3m).
Historic	-24	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (-£24m)
Net Variation	-11	-	-

2c. Expenditure to date

Expenditure 31 March 2005 (£m)	37
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2d. Years of peak procurement expenditure

2006/2007	2007/2008
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
0.03	0.03	2303	2303

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Delivery of 96 weapons, the modification of 12 aircraft of one aircraft type, sufficient trained air and ground crew, all necessary support equipment and a cleared Operational Flight Programme.
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3b. Performance against approved in-service date

	Date
Current Forecast ISD	September 2007
Approved ISD at Main Gate	December 2007
Variation (Months)	-3
In-year changes in 2004/2005	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	+3	Contracting Process	Delay to Contract award due to the wider constraints on defence commitments, in particular restrictions on committing in-year funds.
Historic	-6	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-3		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

-

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	The Over The Target Requirement (OTR) shall be no greater than that which can be achieved using Mk 82 bombs delivered with 15m Circular Error Probable (CEP).	Yes	-	-
02	The user shall be able to achieve the OTR in all-weather.	Yes	-	-
03	The user shall be able to achieve the OTR 24-hours a day.	Yes	-	-
04	The user shall be able to programme the weapon with new target co-ordinates in the air prior to release.	Yes	-	-
05	The user shall be able to deliver PGBs from Tornado GR4/4A, Harrier GR9/9A and Typhoon.	Yes	-	-
06	The user shall be able to achieve the effect at the target without causing greater damage to collateral objects than would be created by an Mk 82 bomb delivered within a CEP of 15m.	Yes	-	-
07	The user shall be able to employ the weapon from Harrier GR9/9A on embarked operations from an Invincible Class Aircraft Carrier.	Yes	-	-
08	The weapon shall have a 75% probability of successfully completing a mission at any stage during its life.	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

The purpose of the Assessment Phase was to select the preferred bidder to take forward to Main Gate. Invitations to Tender were released to 6 companies in October 2001 and 3 formal tenders were received. A two-stage Assessment Phase resulted in MBDA and Raytheon Systems Limited being taken forward into the final phase of the competition. A Combined Operational Effectiveness and Investment Appraisal (COEIA) was undertaken by DSTL and a technical and commercial assessment of the tenders was undertaken by the PGB IPT and its specialist stakeholders (including QinetiQ and BAE Systems).

The Main Gate Business Case was approved in June 2003. Raytheon Systems Limited, who offered the Paveway IV weapon to meet the PGB requirement, was selected as the preferred contractor.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	5	1.4%
Approved Cost at Initial Gate	3	0.84%
Variation	+2	

5c. Duration of Assessment Phase

Date of Main Gate Approval	June 2003
Target Date for Main Gate Approval at Initial Gate	December 2002
Variation (Months)	+ 6

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	318	339	363
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-*	218†	230

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	September 2006	June 2007	December 2007
Forecast ISD at Initial Gate	-‡	June 2006	December 2007

* No requirement to provide a 10% estimate when Business Case constructed.

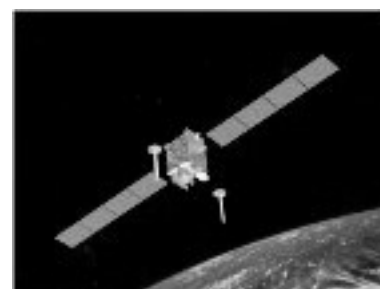
† Cost at Outturn Prices (excluding Cost of Capital).

‡ No requirement to provide a 10% estimate at Initial Gate

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POST MAIN GATE PROJECT SUMMARY SHEET

SKYNET 5



Integrated Project Team Responsible:

SATELLITE ACQUISITION TEAM

Single Point of Accountability for project capability:

Director Equipment Capability (Command, Control & Information Infrastructure)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Skynet 5 PFI programme will provide the next generation of flexible and survivable satellite communications services for military use and will replace the Skynet 4 constellation at the end of its predicted life.

Robust military satellite communications services are essential to support the inter and intra-theatre information exchange requirements and ensure that the deployed and mobile forces are not constrained by the need to remain within the range of terrestrial communications.

Following Main Gate and Ministerial approval, Paradigm was announced as the preferred service provider in February 2002. The Skynet 5 contract was awarded to Paradigm Secure Communications Limited on 24 October 2003. The Skynet 5 In Service Date (ISD) was declared achieved on 23 February 2005, in advance of the approved ISD (March 2005) at Main Gate.

Future milestones include:

Interim Operational Service (INOS) - March 2007

Full Operational Service - March 2008

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Paradigm Secure Communications Limited	Competitive - International	Firm for 5 years; Fixed thereafter	PFI

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	2775
Approved Cost at Main Gate	2920
Variation	-145
In-year changes in 2004/2005	0

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
Historic	96	Contracting Process	Increase in cost during contract negotiation (+£96m).
Historic	-241	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (90%) estimates at Main Gate (-£241m)
Total	-145	-	-

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	71
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2d. Years of peak procurement expenditure

2015/2016	2016/2017
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
-	-	-	-

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	SKYNET 5 Services over the SKYNET 4 constellation of satellites
------------------------	---

3b. Performance against approved in-service date

	Date
Current Forecast ISD	February 2005
Approved ISD at Main Gate	March 2005
Variation (Months)	-1
In-year changes in 2004/2005	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	-1	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate
Net Variation	-1		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

-

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Availability	Yes	-	-
02	User Services	Yes	-	-
03	Continuity of Service	Yes	-	-
04	Capacity	Yes	-	-
05	Coverage	Yes	-	-
06	Support to Mobile Users	Yes	-	-
07	Flexibility and Growth	Yes	-	-
08	Interoperability	Yes	-	-
09	Survivability	Yes	-	-
10	Training	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

After Initial Gate in 1993 Assessment Phase work considered 3 options, TRIMILSATCOM, conventional procurement and PFI. Evaluation demonstrated that TRIMILSATCOM (a collaborative programme with France and Germany) would not meet the UK requirements in time and cost. The decision not to proceed with this option was made in August 1998. In March 1999 competitive PFI design study contracts were awarded to Matra-Marconi Space UK (now Astrium) and Lockheed Martin, who considered a range of SATCOM architectures. In July 2000 both companies were issued with an Invitation to Negotiate for the PFI service delivery. The PFI studies culminated in January 2001 with proposals from service delivery entities established by Astrium (Paradigm) and Lockheed Martin, BAE SYSTEMS and British Telecommunications (Rosetta). In July 2001 an extended Revise and Confirm was issued. Best and Final responses were received in November 2001

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	123	4.4%
Approved Cost at Initial Gate	113	4.0%
Variation	+10	

5c. Duration of Assessment Phase

Date of Main Gate Approval	January 2002
Target Date for Main Gate Approval at Initial Gate	-
Variation (Months)	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	2450	2679	2920
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	-	-

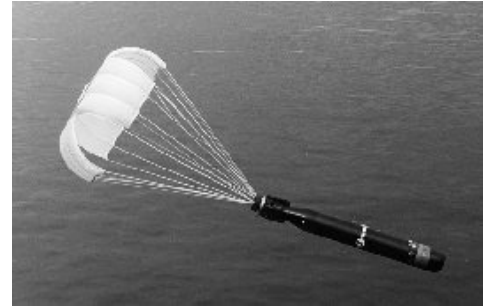
5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	January 2005	February 2005	March 2005
Forecast ISD at Initial Gate	-	May 2003	-

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POST MAIN GATE PROJECT SUMMARY SHEET

***STING RAY LIFE EXTENSION
& CAPABILITY UPGRADE
(SRLE)***



Integrated Project Team Responsible:

TORPEDOES

Single Point of Accountability for Project Capability

Director of Equipment Capability (Under Water Effect)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Sting Ray lightweight torpedo is the main anti-submarine weapon for ships and aircraft. It entered operational service in 1983 with a planned service-life of around 20 years. To provide an opportunity for international collaboration on a replacement, Sting Ray will remain in-service until around 2025 when it is envisaged that other nations will require replacement lightweight torpedoes. Accordingly the Sting Ray torpedo needs to be life-extended and its capability enhanced.

The Sting Ray Life Extension (SRLE) programme was approved in May 1995 and a contract for full development was awarded to GEC-Marconi Underwater Systems (now BAE SYSTEMS Electronics Ltd) on 10th July 1996. The design is progressing well with the development in water trials completed in 2002. Following approval for the SRLE manufacturing phase, a contract was awarded to BAE Systems on 30 January 2003.

In February 2001, as a result of a study into a less sensitive warhead for the life-extended Sting Ray, a new Insensitive Munition warhead was included in the SRLE programme to comply with new Departmental safety policy. This programme has since been deferred and will now be reported as a separate programme.

The first Production Qualification Trial (PQT) weapon was completed in March 2005 and PQT trials are due to commence in June 2005.

Future milestone: SRLE in-service date (ISD Initial Operating Capability) of May 2006.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
BAE Systems Electronics Ltd Farnborough (formerly GEC-Marconi Underwater Systems Group)	Full Development & Pre-Production	Fixed Price	Non-Competitive Contract with design authority of equipment. No sub-contract competition at first tier level.
BAE Systems Electronics Ltd	Manufacture & In Service Support	Firm Price	Non-Competitive, but with competition for manufacturing sub-contracts the value of which amounts to 44% of overall value of the manufacture contract.

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	599
Approved Cost at Main Gate	744
Variation	-145
In-year changes in 2004/2005	-195

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2005	-183	Changed Requirement	Reduction in weapon numbers (-£183m) following two Equipment Planning options.
March 2005	-12	Changed Budgetary Priorities	Separation of Insensitive Munition Warhead programme from the SRLE programme.
Historic	+10	Changed Requirement	Assessment work on a new Insensitive Munition Warhead, resulting from a change in Departmental munitions policy (+12m). Removal of warhead life extension funds (-£3m). Addition of safety case to comply with new Health & Safety regulations for warships (+£1m).
Historic	+37	Changed Budgetary Priorities	Increase in Cost of Capital due to 12 month delay to ISD (+£8m), earlier manufacture payments (+£19m) and rescheduling of test equipment deliveries (+£9m). Revised estimate for trials activities (+£2m). Reassessment of Demonstration estimate (-£1m).
Historic	-1	Inflation	Variation due to revised estimate for Development contract Variation of Price clauses (-£1m).
Historic	+4	Contracting Process	Development contract price exceeded estimate at approval (+£4m).
Historic	+17	Accounting Adjustments and Re definitions	Inclusion of DERA support previously treated as an intramural charge (+£11m). Reassessment of DERA support expenditure (+£5m).

Date	Variation (£m)	Factor	Explanation
			Derivation of the approved cost on a resource basis (+£4m). Difference in variation figures due to a revision of Cost of Capital Charge (-£3m).
Historic	-17	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (90%) estimate for the manufacture phase (-£18m). Difference in risk differential due to revision of Cost of Capital Charge (+£1m).
Net Variation	-145	-	-

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	270
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2d. Years of peak procurement expenditure

2005/2006	2007/2008
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	At Main Gate	Current
***	***	***	***

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	The date when the first 100 production standard weapons have been modified and are ready for issue to an operational unit.
------------------------	--

3b. Performance against approved in-service date

	Date
Current Forecast ISD	May 2006
Approved ISD at Main Gate	December 2002
Variation (Months)	+41
In-year changes in 2004/2005	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	+24	Changed Budgetary Priorities	The need to match the MoD programme to available resources in the overall pattern of MoD priorities (+24 months).
Historic	+17	Contracting Process	Delay due to contract negotiations taking longer than expected (+9 months) and reassessment of programme timescales following negotiations (+8 months).
Net Variation	+41		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
Support costs of current equipment	19	-	Additional In Service Support of present Sting Ray torpedo (+£19m).
Other	-	14	Reduced In Service Support for updated torpedo (-£14m).
Total	+5	-	-

3e Operational Impact of ISD variation

The ISD delay has enabled additional requirements to be incorporated into the weapon. However, the delay has the potential to cause a capability gap with the older and less effective Sting Ray weapon being retained in service with ongoing consequences for reliability. This capability gap should not be critical.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Overall Torpedo Effectiveness	Yes	-	-
02	Hit Probability	Yes	-	-
03	Automobile Performance	Yes	-	-
04	Torpedo Counter Countermeasure Capability	Yes	-	-
05	Operational Environment	Yes	-	-
06	Water Depth	Yes	-	-
07	Acoustic Environment Capability	Yes	-	-
08	Warhead and Firing Chain	Yes	-	-
09	Availability, Reliability and Maintainability	Yes	-	-
10	Maintenance & Transport Environment	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

The equivalent of the Assessment Phase occurred within a number of Definition Studies undertaken between 1993 and 1995 under Sting Ray Design services at a cost of £2.6m. These studies considered six options which formed part of the dossier submitted to the Equipment Approvals Committee for Full Development and Pre Production (FDPP) approval. Technical, engineering and environmental specifications together with FDPP, production and in-service support cost plans were also produced.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	-	-
Approved Cost at Initial Gate	-	-
Variation	-	-

5c. Duration of Assessment Phase

Date of Main Gate Approval	May 1995
Target Date for Main Gate Approval at Initial Gate	-
Variation (Months)	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	709	727	744
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	-	December 2002	-
Forecast ISD at Initial Gate	-	-	-

POST MAIN GATE PROJECT SUMMARY SHEET

SUPPORT VEHICLE (SV)



Integrated Project Team Responsible:

GENERAL SUPPORT VEHICLES (GSV)

Single Point of Accountability for project capability:

Director Equipment Capability (Expeditionary Logistics & Support)

Senior Responsible Owner for broader capability:

Capability Manager (Battlespace Manoeuvre)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Support Vehicle (SV) programme will procure the future tri-service cargo and recovery vehicles that will increase and sustain the military's materiel lift and distribution, and recovery capabilities. These vehicles will replace the in-service 4,8 and 14 tonne cargo vehicles and the three in-service recovery vehicles providing improved mobility, crew protection, load carrying capability & compliance with current & foreseeable UK/EU vehicle legislation.

The project passed Main Gate in September 2001 which approved an international competitive conventional procurement in place of an aborted PFI, by-passing the Assessment Phase and moving directly to the main investment decision. An invitation to tender for the demonstration, manufacture and through life support of the vehicles was issued in January 2002 and bids were received in June 2002. Responses to a second round of bidding were received in January 2003 and responses to the third round of bidding were received in September 2003. Evaluation of the final proposal was completed in December 2003 after which recommendations were made to the MOD Investment Appraisals Board (IAB). MAN ERF UK Ltd was declared preferred bidder in October 2004.

The IAB directed the Project Team to procure the minimum contracted number of vehicles; 4851 SV cargo vehicles, 314 SV recovery vehicles and 69 recovery trailers and conduct an Investment Appraisal to establish whether retaining elements of the existing fleet to 2034 offers better value for money, rather than procuring the additional 2077 SV Cargo vehicles. Approval has been given to procure the reduced number of 4851 vehicles, however funding for the additional 2077 vehicles has been retained until the results of the Investment Appraisal are known.

Negotiations with the preferred bidder commenced in October 2004 leading to a contract award in late March 2005.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
MAN ERF UK Ltd	Demonstration to In-Service	Firm Price for the first five years, then Fixed Price subject to Variation of Price.	International competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	1362
Approved Cost at Main Gate	1641
Variation	-279
In-year changes in 2004/2005	-25

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
September 2004	+3	Changed Requirement	Future Revenue spend increased to bring project support requirements into line with the revised programme (+£3m).
May 2004	-28	Changed Requirement	Reduction in SV(Cargo) requirement from the Main Gate approved Qty of 8231 to 6928 SV(Cargo), together with a reduction in, and reprofiling of, future Capital spend (-£28m).
Historic	+80	Changed Requirement	Addition of BOWMAN Installation Kits (+£70m). Additional Seating Kits (+£10m).
Historic	-69	Changed Budgetary Priorities	Removal of Bowman Installation Kits from the programme in 2002/2003 (-£33m). Change of vehicle mix (+£20m). Option taken in 2002/2003 to slip ISD & Compress delivery (+£40m). Reduced Milestone Payments (-£104m). Reduced consultancy costs (-£1m). Option taken to reduce Recovery Vehicles by quantity 75 (-£48m) and changed delivery profile (-£5m). Better estimates of industry costs (+£52m). Change in Cost of Capital Charge due to revised accruals profile (+£10m).
Historic	+9	Accounting Adjustments / Re-definitions	Derivation of approved cost on a resource basis (-£4m). Difference in variation figures due to revision of Cost of Capital Charge from 6 to 3.5% (+£13m).
Historic	-274	Risk Differential	Difference between the risk allowed in the most likely (50%) and highest acceptable (90%) estimate at Main gate (-£275m). Variation due to revised approval figures (+£1m).

Date	Variation (£m)	Factor	Explanation
Net Variation	-279	-	-

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	2
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2d. Years of peak procurement expenditure

2009/2010	2010/2011
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
***	***	8,231 Cargo	4,851 Cargo plus option to purchase further 2077
***	***	389 Recovery	314 Recovery
***	***	69 Trailers	69 Trailers

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Achievement of an operational capability with 161 cargo vehicles, 8 recovery vehicles and 2 recovery trailers with the appropriate supporting through life package.
------------------------	---

3b. Performance against approved in-service date

	Date
Current Forecast ISD	February 2008
Approved ISD at Main Gate	April 2006
Variation (Months)	+22
In-year changes in 2004/2005	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	+2	Technical Factors	Increased time given to all bidders to finalise their technical solution (+1 month). Time added to review the technical solutions and the need to revise the support strategy (+1 month).
Historic	+17	Contracting Process	Unanticipated second round of tendering required to address commercial risks, costs, performance & time efficiencies (+2 months). Additional time required by bidders to prepare, and the MOD to evaluate, the second round bids (+5 months). Time necessary to prepare and evaluate unanticipated third round of bidding and change to fielding plan / ISD (+5 months). Time necessary for approvals and contractual negotiations (+5 months).
Historic	+10	Changed Budgetary Priorities	Planning measure to reduce SV recovery vehicle quantities from 389 to 314 and delay first deliveries until February 2008.
Historic	-7	Risk differential	Change in risk (time) allowed between the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (-7 months).
Net variation	+22		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
Support costs of current equipment	29	-	The cost of running on the current Fleet.

3e. Operational impact of ISD variation

The delayed ISD will cause the life of the current equipment to be extended leading to additional support costs and a delay in fielding an increased operational capability: increased mobility, increased payload, improved protection and recovery capability.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
	Support Vehicle (Cargo & Recovery)			
01	The Support Vehicle Recovery and Support Vehicle Cargo shall be capable of meeting the Defence Planning Assumptions.	-	-	Yes
02	Capable of operating in world-wide climatic conditions.	-	-	Yes
03	Compatible with existing and planned replenishment systems.	Yes	-	-
04	Capable of completing a 48hr Battlefield Mission without replenishment.	Yes	-	-
05	Able to communicate with other units in their formation.	Yes	-	-
06	Capable of strategic deployment including by sea.	Yes	-	-
	Support Vehicles (Cargo only)			
07	Capable of completing required Battlefield Mission.	Yes	-	-
08	Deployable in its operation state by air.	Yes	-	-
09	Capable of operating within the same parameters as other vehicles classified as Medium Mobility.	Yes	-	-
	Support Vehicle (Recovery only)			
10	The Land, Littoral and Air components shall have the capability to recover bogged, damaged and broken down wheeled and light A vehicles and provide the lift capability to the repair process in order to return them to operational use.	Yes	-	-
11	Capable of recovering military vehicles in an operational environment (including tactical operations throughout day & night).	Yes	-	-
12	Capable of lifting engines and main assemblies as part of the operational repair process.	Yes	-	-
13	Capable of manoeuvring engines and main assemblies as part of the operational repair process.	Yes	-	-
14	Capable of moving solo over the same terrain, within the same timeframe, as the B vehicles it supports.	Yes	-	-
15	Capable of recovering casualty vehicles from point of failure to a place of repair.	Yes	-	-
Percentage currently forecast to be met*		92%		
In-Year Change		0		

* The percentage of KURs forecast to be met has changed because the calculation is now based on the full list of 26 KURs endorsed at Main Gate. The MPR contains an abbreviated list for simplicity.

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
Historic	01	Changed Budgetary Priorities	Relaxed requirement as a result of capability/cost trade off.
Historic	02	Changed Budgetary Priorities	Relaxed requirement as a result of capability/cost trade off.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

There was no Assessment Phase. The Support Vehicle programme has its origin as the Future Cargo Vehicles (FCV) and the Future Wheeled Recovery Vehicle (FWRV) projects. These were launched as potential Private Finance Initiative (PFI) programmes with advertisements in August 1998 and September 1999 respectively. The FCV project progressed through Pre-Qualification and Outline Proposal stages with 5 bidders short-listed. An Initial Gate Business Case was drafted in December 1999, but was not submitted for approval because it did not demonstrate value for money.

Further work was requested to identify areas for further innovation, and also to develop a 'smart' Public Sector Comparator (PSC). Work continued to produce a more robust case but it became clear that confidence in the PFI procurement was unlikely to improve. The decision was taken in March 2001 to replace the PFI procurement strategy with a conventional strategy and hold a fresh competition. Furthermore the FCV and FWRV programmes were merged into a single procurement and proceeded directly to the main investment decision, which was secured in September 2001. The project bypassed the Assessment Phase because it was concluded that the technologies were mature and as the department had, during the PFI phase of the project, acquired a detailed knowledge of the commercial vehicle sector, the risks were low. The time and cost boundaries were set at Main Gate and, following an advertisement placed in the MOD contracts Bulletin, a short-list of 6 potential prime contractors was drawn up.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	-	-
Approved Cost at Initial Gate	-	-
Variation	-	-

5c. Duration of Assessment Phase

Date of Main Gate Approval	September 2001
Target Date for Main Gate Approval at Initial Gate	-
Variation (Months)	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	1180	1367	1641
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	November 2004	September 2005	April 2006
Forecast ISD at Initial Gate	-	-	-

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POST MAIN GATE PROJECT SUMMARY SHEET

TERRIER



Integrated Project Team Responsible:

MOBILITY

Single Point of Accountability for project capability:

Director Equipment Capability (Ground Manoeuvre)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

TERRIER is designed to be a highly mobile, robust and reliable armoured earthmoving vehicle, which will support mobility, counter mobility and survivability throughout the spectrum of conflict. It will be optimised for battlefield preparation and used by Close Support (CS) Engineer units. TERRIER is being procured to replace the capability provided by the Combat Engineer Tractors (CET). The programme is currently mid way through its demonstration phase during which one prototype and four demonstrators will be built. These equipments will be used to progressively assure the IPT and customers that TERRIER will deliver the capability required. These activities will lead to a production release in 2007. Major milestones for the next 12 months include prototype complete ready for trials and completion of specific key requirement trials. Current issues include integration of BOWMAN into TERRIER and the capacity of the A400M floor. Only the A400M issue, however, could affect Terrier's Key User Requirements.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
BAE Land Systems (formally known as Royal Ordnance PLC)	Demonstration and Manufacture	Firm Price	UK Competition
BAE Land Systems (formally known as Royal Ordnance PLC)	Contractor Logistic Support (first 5 years)	Fixed Price	UK Competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	299
Approved Cost at Main Gate	304
Variation	-5
In-year changes in 2004/2005	+4

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2005	+4	Contracting Process	Cost of Capital - difference between the profile of the Asset Deliveries prior to contract placement and those included the current forecast cost (+£4m).
Historic	-9	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest (90%) approved figures at Main Gate (-£9m).
Net Variation	-5		

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	46
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2d. Years of peak procurement expenditure

2007/2008	2008/2009
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
3.1	3.1	65	65

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	A total of 20 equipments delivered (4 to Army Training and Recruiting Agency (ATRA) & 16 to LAND) and supportable (Logistic Support Date (LSD) achieved, training in place, 20 crews trained).
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3b. Performance against approved in-service date

	Date
Current Forecast ISD	September 2008
Approved ISD at Main Gate	December 2008
Variation (Months)	-3
In-year changes in 2004/2005	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	-3	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) approved figures at Main Gate.
Net Variation	-3		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

Current planning through the Capability Integration Working Group (CIWG) is based around planned ISD of December 2008 and so there will be no impact.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	User shall be able to dig vehicle slots	Yes	-	-
02	User shall be able to dig, carry and load spoil & rubble	Yes	-	-
03	User shall be able to dig trenches	Yes	-	-
04	User shall be able to grapple, grab and carry items weighing no more than 2 tonnes over short distances	Yes	-	-
05	At battleweight should not exceed 31.5 tonnes	Yes	-	-
06	User shall be able to deploy by air	-	Yes	-
07	User shall be afforded levels of indirect fire protection commensurate with its role	Yes	-	-
08	User shall be afforded levels of direct fire protection commensurate with its role	Yes	-	-
09	User shall have a 70% probability of completing a Battlefield Mission (BFM) without failure	Yes	-	-
10	User shall have a 13.5% probability of completing a BFM without basic failure	Yes	-	-
11	User should be able to maintain required capabilities while operating in varying climatic conditions	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
June 2004	KUR 06	Technical Factors	TERRIER must be air transportable. Verification criteria requires this to be demonstrated in A400M. This awaits the outcome of A400M cargo floor loading study.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

A funded feasibility study for TERRIER concluded that the most cost-effective way of meeting the requirement was to develop a new vehicle integrating, where possible, in-service sub-systems and commercial off-the-shelf equipment. Approval was given for a competitive Project Definition phase in August 1998 and Firm Price contracts were placed in August 1999 with BAE Systems (with the work undertaken by its subsidiary Royal Ordnance PLC) and Vickers Defence Systems. Both contractors developed detailed designs making extensive use of Computer Aided Design tools, virtual reality modelling, rigs and trials. The capabilities required and constraints imposed by physical limitations, such as rail and air transportability, resulted in very similar technical solutions. Both contractors offered tracked vehicles close in size weight and mobility to Warrior, having a crew of two and providing protection against small arms, high explosive fragments and mines. An Invitation to Tender (ITT) was issued in February 2001 to both companies which sought detailed proposals and prices for all later phases. The ITT also adopted Smart Acquisition initiatives such as Progressive Acceptance and innovative Contractor Logistic Support proposals. The Main Gate Business Case was approved on 17 July 2002. The contract for Demonstration, Manufacture and Phase 1 Contractor Logistic Support was placed with Royal Ordnance PLC on 19 July 2002.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	17	5%
Approved Cost at Initial Gate	17	5%
Variation	0	

5c. Duration of Assessment Phase

Date of Main Gate Approval	July 2002
Target Date for Main Gate Approval at Initial Gate	November 2001
Variation (Months)	+8

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	284	294	304
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	291	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	July 2008	September 2008	December 2008
Forecast ISD at Initial Gate	-	December 2007	December 2008

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POST MAIN GATE PROJECT SUMMARY SHEET

T45 DESTROYER



Integrated Project Team Responsible:

TYPE 45 DESTROYER

Single Point of Accountability for project capability

Director of Equipment Capability (Above Water Effect)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Type 45 is a new class of 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 (PAAMS) 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. PAAMS is being procured collaboratively with France and Italy. The Type 45 Integrated Project Team is responsible for providing PAAMS to the warship Prime Contractor.

BAE Systems Electronics was appointed Prime Contractor for the Type 45 in November 1999 and a contract for Demonstration and First of Class Manufacture (DFM) for the first three ships was placed in December 2000. A contract procurement of a further three Type 45s was placed with the Prime Contractor in February 2002. The ships are being built under sub-contract by BAE Systems Naval Ships and VT Shipbuilding.

The past year has seen significant progress in the manufacture of the first ship (HMS Daring) with the structure of three of the six blocks that will make up the ship being completed. Assembly of the other three blocks is expected to complete during 2005 in time for the launch of HMS Daring in early 2006. Production has also commenced on the second and third ships (HMS Dauntless and HMS Diamond). In addition, the PAAMS Multi-Function Radar has transmitted on full power for the first time and the Long Range Radar has been tested at the French shore integration facility for qualification prior to full integration.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
BAE Systems Electronics Ltd Prime Contractor	Full development and production.	Fixed Price incentive fee with a maximum price	Single Source
EUROPAAMS	Full scale engineering development and initial	Fixed Price	Collaborative with France and Italy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
	production including missiles for initial use.		
EUROPAAMS	Follow-on ships production.	Fixed price for five follow-on equipments.	Collaborative with France and Italy.
EUROSAM & UKAMS*	Production of missiles.	Fixed price	Collaborative with France and Italy through OCCAR.

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	5896
Approved Cost at Main Gate	5475
Variation	+421
In-year changes in 2004/2005	+68

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2005	+98	Accounting Adjustments and Re-definitions	Adjustment to previous years Cost of Capital figures due to system error (+£98m).
March 2005	+14	Changed Budgetary Priorities	Equipment Plan Options re-profiling costs for ships five and six (+£2m) and the associated Cost of Capital (+£12m).
August 2004	+26	Changed Budgetary Priorities	Correction to forecast: costs wrongly attributed to ships 7 & 8 (+£26m).
August 2004	+4	Changed Budgetary Priorities	PAAMS increased cost of Longbow mooring (+£4m).
August 2004	+54	Changed Budgetary Priorities	Cost of Capital associated with estimated cost growth of ship Batch 2 reported at MPR04 (+£54m).
August 2004	+10	Changed Budgetary Priorities	Cost of Capital relating to PAAMS increased cost (exchange rate) and re-profiling (+£10m).
August 2004	-145	Changed Budgetary Priorities	Savings in ships capability (performance) to bring costs back to EP05 baseline; Combat Systems risk provision (-£60m), Whole Life Support (support solution study) (-£21m) and Incremental Acquisition Programme (IAP) (-£64m).
August 2004	-1	Changed Budgetary Priorities	Revised estimate of WR21 engine concept/assessment phase (-£1m).
August 2004	+8	Exchange Rate	PAAMS exchange rate (impact of rate at EP05) (+£8m).
Historic	+36	Technical Factors	Issues arising from migrating from Skynet 4 to Skynet 5 and to implement system growth (+£3m). Increase in

* UKAMS is a wholly owned company of MBDA

Date	Variation (£m)	Factor	Explanation
			Cost of Capital resulting from ISD slippage (+£33m).
Historic	+30	Changed Budgetary Priorities	A combination of Equipment Plan Options plus internal adjustments, and Cost of Capital. 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 PAAMS missile buy and costs of shipbuilders' premium (+£91m). Increases to the PAAMS contract and additional funding and increases in delay and dislocation money (+£177m). IAP re-profiling and IAP upgrade deleted (-£238m).
Historic	+739	Contracting Process	Higher than expected costs for PAAMS 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). PAAMS missiles re-instated (+£173m). Increase in Cost of Capital due to corrections to PAAMS (+£82m).
Historic	+47	Exchange Rate	£ to € rate worse than originally forecast (+£47m).
Historic	-24	Accounting Adjustments and Re-definitions	Difference in variation figures due to revision of Cost of Capital Charge (-£24m).
Historic	-475	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (90%) estimates at Main Gate (-£506m). Increase in risk due to re-calculation of Cost of Capital (+£31m).
Net Variation	+421	-	-

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	2272
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2d. Years of peak procurement expenditure

2006/2007	2007/2008
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
582	561.6	6	6

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	The date to which the First of Class will meet the Customer's minimum operational requirement.
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3b. Performance against approved in-service date

	Date
Current Forecast ISD	May 2009
Approved ISD at Main Gate	November 2007
Variation (Months)	18
In-year changes in 2004/2005	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	+24	Procurement Strategy	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 ISD (MPR02 +6 months; MPR04 +18 months).
Historic	-6	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (90%) estimates at Main Gate (-6 months).
Net Variation	+18		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
Historical	+196	-	Additional Type 42 run-on costs due to Type 45 slippage (+£196m).

3e. Operational impact of ISD variation

Delay in ISD further extends the period before a capability to defeat multiple attack by sea-skimming missiles will be available, as well as the capability for Royal Navy escorts to provide tactical control of combat aircraft.
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SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	PAAMS. The Type 45 (T45) shall be able to protect with a Probability of Escaping Hit of {x}* , all units operating within a radius of 6.5km, against up to 8 supersonic sea skimming missiles arriving randomly within {y}† seconds.	Yes	-	-
02	Force Anti-Air Warfare Situational Awareness. The T45 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	-	-
03	Aircraft Control. The T45 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	-	-
04	Aircraft Operation. The T45 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	-	-
05	Embarked Military Force. The T45 shall be able to operate an Embarked Military Force of at least 30 deployable troops.	Yes	-	-
06	Naval Diplomacy. The T45 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	-	-
07	Range. The T45 shall be able to transit at least 3000 nautical miles to its assigned mission, operate for three days and return to point of origin, unsupported throughout, within 20 days.	Yes	-	-
08	Growth Potential. The T45 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	-	-
09	Availability. The T45 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	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

* Values are classified

† Values are classified

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of 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 UK) to proceed with PAAMS, but not to pursue a twin national warship programme, BAE Systems was appointed Prime Contractor for the Type 45 in November 1999. The contract for PAAMS 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.

5b. Cost of the Assessment Phase*

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	230	3.8%
Approved Cost at Initial Gate	213	3.5%
Variation	+17	

5c. Duration of Assessment Phase

Date of Main Gate Approval	July 2000
Target Date for Main Gate Approval at Initial Gate	-
Variation (Months)	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals†

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	-	5000	5475
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	7689	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	-	May 2007	November 2007
Forecast ISD at Initial Gate	-	December 2002	-

* The Assessment Phase Costs approved at Initial Gate did not take into account that all expenditure on the WR21 engine was to be treated as Assessment Costs rather than Manufacturing Costs.

† Cost of Demonstration and Manufacture at Initial Gate was based on twelve ships. Main Gate Approval is for six ships and the difference relates to this.

POST MAIN GATE PROJECT SUMMARY SHEET

TYPHOON



Integrated Project Team Responsible:

TYPHOON

Single Point of Accountability for project capability:

Director Equipment Capability (Theatre Airspace)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

Typhoon, formerly known as Eurofighter, is an agile multi-role aircraft. Originally designed for air superiority the aircraft will also be capable of delivering a precision ground attack capability. Typhoon will thus have the flexibility to respond to the uncertain demands of the current strategic environment and will enable the RAF to replace the Tornado F3 and Jaguar aircraft.

The aircraft is being developed in a collaborative project with Germany, Italy and Spain, and is managed on behalf of the nations by the NATO Eurofighter and Tornado Management Agency (NETMA). The contract for the first tranche of 148 aircraft, of which 55 valued at some £2.5bn are for the UK, was signed in September 1998. The second tranche comprising 236 aircraft, 89 of which are for the UK, was placed on contract in December 2004. The UK is further committed through a Memorandum Of Understanding with its partner nations to a third tranche of 88 aircraft.

The ISD of June 2003, forecast in MPR03, was achieved. Deliveries to the RAF are continuing and the aircraft is due to deploy to the first of two operational bases (RAF Coningsby) in July 2005. MPR05 reflects an increase to £64.8m in the unit production cost for the aircraft. This reflects the costs agreed for tranche one and two only. The cost of tranche three aircraft will be the subject of a separate negotiation and contract with industry.

Potential export customers have been identified and the Department (in conjunction with the partner nations and industry) is pursuing a number of export campaigns. A contract for 18 aircraft and their support was signed by Austria in the summer of 2003.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Eurofighter GmbH Airframe consortium comprising: Alenia BAE Systems EADS(CASA) 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 UK price element was converted to a Limit of Liability cost reimbursement without profit in December 2004	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.
Eurojet Turbo GmbH Engine consortium comprising: AVIO (formerly FIAT), ITP, MTU, Rolls Royce		Fixed Price.	Non-Competitive but with international sub-contract competitive elements, the value of which amounts to some 10% of overall value of the Prime Contract.
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 first and UK price subject to incentivised incremental pricing arrangement for the second 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.
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. Fixed Prices for tranche one and two 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.

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	***
Approved Cost at Main Gate	16671
Variation	***
In-year changes in 2004/2005	***

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
September 2004	***	Changed Requirement	Removal of provision for new weapons and tranche one to tranche two retrofit to create separate Typhoon future capability project (FCP), subject to approval by IAB***. Separation of tranche three ***.
Historic	+1506	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). Additional Cost of Capital Charge (COCC) plus further price variation due to slippage in the programme (+£610m). Reassessment of the cost of developing aircraft Enhanced Operational Capability and the production of tranches two & three aircraft (most notably the reduced scope for savings due to learning curve efficiency gains) (+£320m). Slower than expected technical progress reducing asset balances thereby reducing COCC (-£45m). Nine month deferral of beneficial use date (+£132m COCC).
Historic	+290	Changed Requirement	Provision for integration of new weapons and sensors not contained within original approval (includes Conventionally Armed Stand-Off Missile (CASOM), Advanced Anti-Armour Weapon (AAAW), Low-Level Laser Guided Bomb (LLLGB), thermal imaging airborne laser designator (+£239m) and the retrofit of tranche one aircraft to tranche two standard (+£117m). Deletion of requirements for gun (-£32m), 1500L fuel tank (-£16m), CRV7 Rocket (-£2m) & Air Launched Anti Radiation Missile (-£21m). CASOM integration assets (+£5m).

Date	Variation (£m)	Factor	Explanation
Historic	-13	Changed Budgetary Priorities	Reprofiling of expenditure, reducing asset balances and thereby reducing COCC (-£5m). Transfers to other budgets (-£8m).
Historic	-103	Inflation	Changes in inflation assumptions since approval: development (+£205m) and production (-£308m).
Historic	-114	Exchange Rate	Changes in exchange rate assumptions since approval (-£114m).
Historic	-52	Contracting Process	Reprofiling and adjustment of anticipated tranches two and three 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 Strategy	German withdrawal from certain equipments (+£106m). <u>Reorientation</u> Development Assurance Programme (DAP) to bridge gap between Development and Production Investment (+£28m); extension of Integrated Logistic Support (ILS) programme (+£45m); Eurofighter/Eurojet GmbH management costs (+£30m); contract price increases (+£87m); risk provision (+£117m).
Historic	+416	Accounting Adjustments & 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). Increases in IoC resulting from changes in accounting treatment of the delivery of assets (+£27m). A redefinition of Beneficial Use of Typhoon has resulted in the DPA incurring additional 1 years IoC on development expenditure (+£222m). Difference in variation figures due to revision of Interest on Capital (-£92m).
Net Variation	***		

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	9482
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2d. Years of peak procurement expenditure

2007/2008	2008/2009
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	At Main Gate	Current
-	64.8*	232	232

* The UPC is based on the costs for Tranche 1 and 2 aircraft only. Tranche 3 aircraft will be the subject of a separate negotiation and contract with industry.

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Date of delivery of first aircraft to the Royal Airforce
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3b. Performance against approved in-service date

	Date
Current Forecast ISD	June 2003
Approved ISD at Main Gate	December 1998
Variation (Months)	+54
In-year changes in 2004/2005	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
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 Strategy	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	+54		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
Support costs of current equipment	+1075	-	Cost of running on Tornado and Jaguar.
Other	-	-861	Estimated support costs for Typhoon not incurred.

3e. Operational impact of ISD variation

<p>Key improvements in capability not realised until revised ISD are:</p> <ul style="list-style-type: none"> 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 failure. <p>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 4 years.</p>

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Take off distance	Yes	-	-
02	Landing distance	-	-	Yes
03	Attributable failures per 1000 flying hours	Yes	--	-
04	Life (flying hours)	Yes	-	-
05	Sustained minimum turn radii at sea level, max reheat	Yes	-	-
06	Max speed at sea level	Yes	-	-
07	Max speed at 36,000ft	Yes	-	-
08	Acceleration time at sea level from 200 knots to mach 0.9	Yes	-	-
09	Instantaneous turn rate sea level, max reheat	Yes	-	-
10	Sustained turn rate at mach 0.9 at 5000ft, max dry	Yes	-	-
Percentage currently forecast to be met		90 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
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.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

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 (EAP), 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.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	78	0.4%
Approved Cost at Initial Gate	87	0.4 %
Variation	-9	

5c. Duration of Assessment Phase

Date of Main Gate Approval	November 1987
Target Date for Main Gate Approval at Initial Gate	-
Variation (Months)	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals

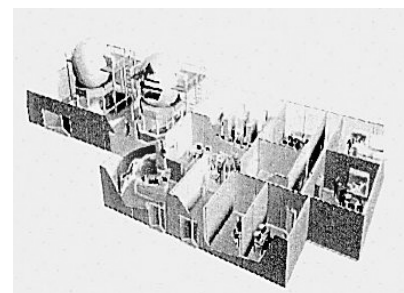
£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	-	16671	-
Cost of Demonstration and Manufacture Phase forecast at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	-	December 1998	-
Forecast ISD at Initial Gate	-	-	-

POST MAIN GATE PROJECT SUMMARY SHEET

TYPHOON ASTA



Integrated Project Team Responsible:

TYPHOON

Single Point of Accountability for project capability:

Director Equipment Capability (Theatre Airspace)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Typhoon Aircrew Synthetic Training Aids (ASTA) will provide a ground-based synthetic aircrew training capability that is essential to supplement aircraft based training for the Typhoon fleet. ASTA comprises three training devices: a Full Mission Simulator (FMS), a Cockpit Trainer (CT) and a deployable device. The FMS will provide pilot training in a high-resolution visual environment and replicate sensor performance against interactive threats. The CT will primarily be used to introduce pilots to the cockpit environment and associated procedures. It will be possible to network CTs to FMSs in order to provide trainees with essential distributed mission training. The deployable device will be capable of transportation away from the main operating base and will allow aircrew to maintain concurrency while on operations outside of the UK.

ASTA is being procured in collaboration with Germany, Italy and Spain. A single source contract was placed on behalf of the 4 Nations by NATO Eurofighter & Tornado Management Agency (NETMA) with Eurofighter GmbH who have subcontracted a joint venture company, Eurofighter Simulation Systems GmbH, which comprises suppliers from the four nations. For the UK, it is planned to procure ASTA in three tranches covering provision for RAF Coningsby, RAF Leeming and RAF Leuchars. Main Gate approval covers the first (Coningsby) tranche only. RAF Leeming and RAF Leuchars are expected to enter into service during the period 2008 to 2010. The programme is currently in the Demonstration and Manufacture stage. Construction of the first Typhoon Training Facility (TTF) at RAF Coningsby was completed, on schedule, in mid 2003. This will house the first ASTA training systems together with ground support equipment-training systems.

Technical difficulties have been experienced with the integration of some sub systems and with alignment with the main aircraft programme, which has resulted in a delay in delivering assets to the front line command. Mitigation action has been taken, including the early purchase of the deployable devices planned as part of the second tranche of ASTA at a cost of £3m, to minimise the effect of this delay.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
Typhoon	June 2003	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Eurofighter GmbH	Demonstration & Manufacture	Fixed Price	Collaborative

SECTION 2: PROJECT COSTS**2a. Performance against approved cost**

£m (outturn prices)	Procurement Cost
Current Forecast Cost	211
Approved Cost at Main Gate	208
Variation	+3
In-year changes in 2004/2005	+4

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
February 2005	+1	Technical Factors	Increase in Cost of Capital Charge (COCC) due to movement of deliveries and re-profiling resource consumption (+£1m).
January 2005	+3	Technical Factors	Cost of bringing forward the purchase of low order simulators from ASTA tranche two to mitigate the late delivery of cockpit trainers (+£3m).
Historic	+2	Technical Factors	Increase in COCC due to revised deliveries profile (+£2m).
Historic	+20	Contracting Process	Difference between contract milestones estimated at Main Gate and actual milestones resulting in an increase in development costs (+£25m) and a decrease in production costs (-£5m).
Historic	-23	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) approved at Main Gate (-£23m).
Net Variation	+3	-	-

2c. Expenditure to date

Expenditure to 31 March 2005 (£m)	192
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2d. Years of peak procurement expenditure

2001/2002	2002/2003
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2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
78.6	66.5	1	1

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Delivery of a cockpit trainer capable of providing initial training capability at RAF Coningsby
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3b. Performance against approved in-service date

	Date
Current Forecast ISD	June 2005
Approved ISD at Main Gate	September 2004
Variation (Months)	+9
In-year changes in 2004/2005	+1

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
January 2005	-2	Technical Factors	Early purchase of low order devices providing sufficient capability for experienced fast jet pilots.
December 2004	+3	Technical Factors	Better understanding of the impact of problems previously stated with sub system integration.
Historic	+11	Technical Factors	Problems encountered with sub system integration.
Historic	-3	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) approved figures at Main Gate.
Net Variation	+9		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
Support costs of current equipment	-	-	Delay of the ASTA ISD has not impacted operational training for Typhoon or other aircraft systems.

3e. Operational impact of ISD variation

ASTA is key to the training of pilots for operation of the Typhoon aircraft. Mitigation action has been taken to ensure pilot training capability is available at the first main operating base (RAF Coningsby) from June 05.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	ASTA shall be capable of supporting the full range of recognised Typhoon training.	Yes	-	-
02	ASTA shall permit efficient training to Typhoon pilots based at UK Main Operating Bases (MOBs)	Yes	-	-
03	ASTA shall facilitate Mission Rehearsal/Practice and enable aircrew to maintain currency of their flying skills whilst deployed on operations outside of the UK. This will ensure that aircrew do not have to regularly return to the UK for training.	Yes	-	-
04	ASTA is to be available to meet full synthetic training syllabus of each MOB.	Yes	-	-
05	ASTA is required to be subject to upgrade concurrent with upgrades to the Weapon System (WS) so that Typhoon and ASTA functionality remains harmonised.	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

Initial approval of the ASTA requirement, to fund preparation work and allow Industry to inform an Invitation to Tender (ITT), was obtained in January 1995 as part of the approval for the EF2000 development phase re-orientation. In May 1996, following a Combined Operational Effectiveness and Investment Appraisal (COEIA), the Department obtained Equipment Approvals Committee (EAC) approval to release the ITT to industry.

The Department initially sought to satisfy the full ASTA requirement through a collaborative programme based on a single contract placed by NATO Eurofighter & Tornado Management Agency (NETMA). Due to the complexities of the international collaborative proposal, the Department decided to investigate a national Private Finance Initiative (PFI) solution. After full consideration, a collaborative approach was deemed to represent the lowest risk option to the Typhoon programme as a whole. This approach was endorsed by the EAC in October 2000, when approval was granted for ASTA demonstration and first Tranche manufacture (Main Gate).

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	3.8	1.8 %
Approved Cost at Initial Gate	2.9	1.4 %
Variation	+0.9	

5c. Duration of Assessment Phase

Date of Main Gate Approval	October 2000
Target Date for Main Gate Approval at Initial Gate	December 1995
Variation (Months)	+58

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Most Likely	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate*	-	185	208
Cost of Demonstration and Manufacture Phase forecast at Initial Gate†	298	307	344

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Most Likely	Latest Acceptable
Forecast ISD at Main Gate	-	June 2004	September 2004
Forecast ISD at Initial Gate	-	September 2001	-

* Cost shown are the approved cost at Main Gate for procuring the first Tranche of the ASTA programme.

† Cost shown are the noted cost at Initial Gate for procuring all three Tranches or the ASTA programme.

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PRE-MAIN GATE PROJECT SUMMARY SHEET

ADVANCED JET TRAINER



Integrated Project Team:

UK MILITARY FLYING TRAINING SYSTEM (UKMFTS)

Single Point of Accountability for project capability:

Director Equipment Capability (Theatre Airspace)

Senior Responsible Owner for broader capability

Capability Manager (Precision Attack)

SECTION 1: ABOUT THE REQUIREMENT

The MoD requires an Advanced Jet Trainer (AJT) for pre-operational training of fast jet pilots. This role is currently fulfilled by the Hawk TMk1 aircraft, which has been in service since 1976. Life extension programmes have been able to extend the service of the Hawk TMk1 but it is now approaching the end of its operational life and will need to be replaced in the flying training role from 2010 onwards.

The qualitative training gap between the currently achievable output standard of the Hawk TMk1 and the skills required for entry into the current front-line fleet is already acknowledged to be large and increasing, requiring more training in Operational Conversion Units. The introduction of Typhoon and Future Joint Combat Aircraft exacerbates this qualitative training gap such that the required input standard for Typhoon is not achievable with Hawk TMk1.

The AJT is the Fast Jet element of the wider UKMFTS programme and will deliver a suite of capabilities including; a modern glass cockpit environment, a compliant avionics suite to meet UK airspace legislation, an embedded training system that simulates the sensors and weapons found on front-line aircraft, and a flexible modular avionics architecture that will enable future upgrades. Additionally it will provide the Ground Based Training Environment, Support and Infrastructure.

SECTION 2: THE ASSESSMENT PHASE

2a. Description of the Assessment Phase

At Initial Gate (IG) (December 2002) AJT was a component part of the UKMFTS Holistic programme. Total approval for Assessment activities was £39m of which £2m related to AJT based on PPP/PFI procurement. On 30 July 2003, the Secretary of State for Defence issued a Ministerial Direction for the conventional procurement of the BAE Systems Hawk 128. In December 2003 a £31m Risk Reduction Contract (RRC) was placed with BAE Systems to cover risk reduction activities undertaken to October 2003. In November 2004, approval was given to conduct Assessment and Demonstration activities and place a Design and Development Contract for the initial phase of development of the Hawk 128 aircraft. Assessment activities equate to around £75m, including the RRC and work on Human Engineering, Requirements Capture, the New Mission Computer, and initial work on embedded weapon system simulation.

Submission of the Main Gate Business Case is planned for between August 2005 and April 2006, at which time further capability development and Initial Operating Capability will be set and approval will be sought for Main Production, Support, Infrastructure and Ground Based Training Environment contracts.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost
Forecast Cost	£74m
Approved Cost at Initial Gate	£75m
Variation	-£1m

2c. Duration of Assessment Phase

Current forecast date of Main Gate Approval	October 2005
Target date for Main Gate Approval*	October 2005
Variation (Months)	0

2d. Boundaries of future Demonstration and Manufacture phase costs

	Lowest	Most Likely	Maximum	Range
Current forecast cost of Demonstration and Manufacture phase	£645m	£667m	£725m	£80m
Forecast cost of Demonstration and Manufacture phase at Initial Gate†	£609m	£624m	£647m	£38m
% Change	6	6	11	53

2e. Boundaries of current internal planning assumption for entry into service

	Earliest	Most Likely	Latest	Range
Current forecast ISD	July 2009	February 2010	December 2010	16 Months
Forecast ISD at Initial Gate‡	July 2009	February 2010	December 2010	16 Months
% Change	-	-	-	-

* The planned submission date of the Main Gate Business Case (specifically for AJT) was indicated for the first time in the IAB Review Note submitted in November 2004.

† Cost boundaries were noted for the first time in the IAB Review Note submitted in November 2004.

‡ In Service Date definition and dates will be set at Main Gate. The dates above represent internal planning assumptions for implementation of first training course referred to as Initial Operating Capability in the November 2004 IAB Review Note.

PRE-MAIN GATE PROJECT SUMMARY SHEET

FUTURE AIRCRAFT CARRIER (CVF)



Integrated Project Team Responsible:

CVF

Single Point of Accountability for project capability:

Director Equipment Capability (Above Water Effect)

Senior Responsible Owner for broader capability:

Carrier Strike Senior Responsible Owner

SECTION 1: ABOUT THE REQUIREMENT

The requirement for the Future Aircraft Carrier (CVF) was endorsed in the Strategic Defence Review (SDR) which identified a continuing need for rapidly deployable forces with the reach and self-sufficiency to act independently of host-nation support. The SDR 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. 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 UK requirements. It was therefore decided to replace the Invincible Class with two larger and more capable aircraft carriers. CVF's offensive air power will be provided primarily by the Future Joint Combat Aircraft (JCA). The Carrier Aircraft Group (CAG) will also operate the Maritime Airborne Surveillance and Control (MASC) system together with helicopters from all three services in a variety of roles that include anti-submarine/anti-surface warfare, attack and support.

SECTION 2: THE ASSESSMENT PHASE

2a. Description of the Assessment Phase

CVF 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 US Joint Strike Fighter (JSF) as the option with best potential to meet the JCA 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 (CA) 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 CVF. The innovative Alliance procurement strategy will enable 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 CVF. 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 is achieved. Alliancing principles have been agreed with BAE Systems and Thales UK and have been further developed with the selection in February 2005, of Kellogg, Brown & Root UK Ltd as the Physical Integrator and additional participant in the Alliance. The extension into Stage 4 has increased the cost of the Assessment Phase from MPR04.

At Initial Gate, the cost baseline for the CVF Demonstration and Manufacture Phase was based on a Short Take Off & Vertical Landing (STOVL) Carrier. As a result of Minister (DP)'s announcement on 30th September 2002, the baseline was changed to a Carrier Variant (CV) based Adaptable Carrier design for the operation of STOVL JSF and rotary wing aircraft for MASC.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	300
Approved Cost at Initial Gate	118
Variation	+182

2c. Duration of the Assessment Phase

Current forecast date of Main Gate Approval	TBA
Target date for Main Gate Approval	Dec 2003
Variation (Months)	+24

2d. Boundaries of future Demonstration and Manufacture phase costs

	Lowest	Most Likely	Maximum	Range
Current forecast cost of Demonstration and Manufacture phase	***	***	***	***
Forecast cost of Demonstration and Manufacture phase at Initial Gate	£2509m	£2877m	£3174m	£665m
% Change	***	***	***	***

2e. Boundaries of current internal planning assumption for entry into service

	Earliest	Most Likely	Latest	Range
Current forecast ISD	***	***	***	***
Forecast ISD at initial Gate	August 2012	August 2012	August 2012	0 Months
% Change	***	***	***	-

PRE-MAIN GATE PROJECT SUMMARY SHEET

FALCON



Integrated Project Team Responsible:

THEATRE AND FORMATION COMMUNICATIONS SYSTEMS (TFCS)

Single Point of Accountability for project capability:

Director Equipment Capability (Command, Control & Information Infrastructure)

SECTION 1: ABOUT THE REQUIREMENT

Falcon will provide a tactical formation level secure communication system for the UK and the Allied Command (Europe) Rapid Reaction Corps (ARRC) and will replace current communication systems Ptarmigan, Euromux RAF Transportable Telecommunications System and Deployed Local Area Network.

Falcon will enable the High Readiness Forces (Land) units to be deployed rapidly to areas of crisis to remain as a pivotal member of the ARRC. It will provide the comprehensive and effective communications systems that are required at all levels of command and will operate in conjunction with systems such as Bowman, Cormorant, Skynet 5 and other communications and information systems. It will not duplicate the capability of these systems, but will be the high capacity system that binds together tactical communications in a theatre of operation as an integral part of the plans for Networked Enabled Capability (NEC). The system will be modular and upgradeable incorporating many off the shelf technologies to ease the management of obsolescence.

Falcon will require significantly less manpower to operate and will help alleviate shortfalls in manning, particularly in the Royal Signals trade group.

SECTION 2: THE ASSESSMENT PHASE

2a. Description of the Assessment Phase

Increment A of the Falcon programme, providing equipment to the ARRC as reported in MPR04, gained Initial Gate approval in July 2002, following an extended Concept Phase that considered two key options:

1. Buy off the shelf technology (Bowman & Cormorant),
2. Buy a new capability.

It was concluded that a new capability was required. Marconi Selenia and BAE were selected for the 15 month Assessment Phase (AP) contract and to compete for the Demonstration and Manufacture (D&M) Phase prime contract.

The AP contracts concentrated on reducing the risk in the proposals for the D&M phase, including demonstration of components and subsystems to achieve an acceptable, affordable, low risk solution. In addition Whole Life Costs were refined during the AP. Bidders' proposals for the D&M phase were submitted on 31

March 2004.

The original Falcon incremental procurement strategy proposed three further increments:

- Increment B: providing to UK divisions and brigades under armour;
- Increment C: providing to RAF deployed operational bases;
- Increment D: providing for littoral warfare and deep support, including higher mobility, which remains an unfunded Falcon aspiration.

During 2004/2005 Falcon was re-scheduled to remove funding from the first two years of the programme, resulting in a review of the incremental procurement strategy, with the focus on equipment type rather than customers. Two alternative procurement strategies are being examined. The first alternative is for a single programme delivering three equipment types: soft skinned for all three customers, armoured for UK divisions and brigades, and palletised for RAF deployed operational bases. This would have the effect of taking Falcon back to pre-Initial Gate status due to the need to re-compete the new combined incremental procurement strategy and therefore re-run the Assessment Phase. This could delay the ISD of Falcon by four years. A programme to provide minor network enhancements to facilitate essential elements of NEC and existing system upgrades would be required in the interim. Support for Ptarmigan and the RAF Transportable Telecommunications System/Deployed Local Area Network (RTTS/DLAN) would also need to be extended. The MPR 2005 PSS reflects this alternative procurement strategy.

The second alternative being examined is for the delivery of 'early capability' that will provide one medium scale deployment by 2009, and would utilise the existing contractor bids for Falcon Increment A. A decision regarding the viability of both procurement options is scheduled to be made in November 2005.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost*	59
Approved Cost at Initial Gate	30
Variation	+29

2c. Duration of the Assessment Phase

Current forecast date of Main Gate Approval	May 2009
Target date for Main Gate Approval†	July 2004
Variation (Months)	+58

2d. Boundaries of future Demonstration and Manufacture phase costs

	Lowest	Most Likely	Maximum	Range
Current forecast cost of Demonstration and Manufacture phase	£367m	£387m	£443m	£+76m
Forecast cost of Demonstration and Manufacture phase at initial Gate‡	£205m	£212m	£255m	£+50m
% Change	79	83	74	52

* Approved costs are based on Falcon Increment A Assessment Phase only. Forecast cost reflects the revised procurement strategy.

† Target date for Main Gate approval is based on Falcon Increment A Assessment Phase only. Current Forecast date of Main Gate approval is based on the revised procurement strategy.

‡ Forecast D&M costs at Initial Gate are based on Falcon Increment A Assessment Phase outputs only. Current forecast costs reflect the revised procurement strategy.

2e. Boundaries of current internal planning assumption for entry into service

	Earliest	Most Likely	Latest	Range
Current forecast ISD*	September 2011	October 2011	November 2011	2 Months
Forecast ISD at initial Gate†	June 2006	December 2006	December 2007	18 months
% Change	274	200	115	-89

* Risk analysis has not yet been applied to these dates.

† Forecast ISD at Initial Gate is based on Falcon Increment A Assessment Phase outputs only. Current forecast ISD reflects the revised procurement strategy.

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PRE-MAIN GATE PROJECT SUMMARY SHEET

UKCEC FRIGATES AND DESTROYERS PROGRAMME

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Integrated Project Team Responsible:

UK CO-OPERATIVE ENGAGEMENT CAPABILITY (UKCEC)

Single Point of Accountability for project capability

Director Equipment Capability (Intelligence, Surveillance, Target Acquisition & Reconnaissance)

SECTION 1: ABOUT THE REQUIREMENT

Co-operative Engagement Capability (CEC) is a US Naval system that is fitted to an increasing number of US Naval assets. CEC does not replace any single system, rather it optimises war-fighting capabilities inherent in existing and future combat systems.

UKCEC is a Network Enabled Capability (NEC) project which will deliver improved situational awareness, interoperability and integration. It will fill the capability gap identified in the Commander In Chief Fleet (CINCFLEET)'s Military Capability (MILCAP) reports regarding the ability to detect, monitor, and counter Air Warfare threats. It will also reduce a gap in interoperability with the United States (US).

UKCEC 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. Through networking platforms, an air picture in real time can be achieved resulting in better situational awareness.

SECTION 2: THE ASSESSMENT PHASE

2a. Description of the Assessment Phase

Operational Analysis conducted during the concept phase assessed seven options, CEC was identified as the only solution capable of meeting Key User Requirements.

The objective of the assessment phase is to establish the most cost effective solution to the requirement for a CEC for Type 23 Frigate (T23) and Type 45 Destroyer (T45). CEC is a proven US developed programme which the UK are considering purchasing via the Foreign Military Sales (FMS) process. The UK, with US assistance, is developing and testing the platform architecture and support and integration aspects to reduce risk prior to Main Gate.

Assessment Phase 1 (AP1). Approval for UKCEC AP1 was received in May 2000 and, following a competition, a contract was placed with Lockheed Martin Integrated Systems UK. This contract was for the T23 only.

Assessment Phase 2 (AP2). In May 2003, approval was received to accelerate the risk reduction work on T45 by two years, at no additional procurement cost. In July 2003, a contract amendment to the T45 prime contract was placed with British Aerospace Engineering Systems (BAES), the Prime Contracting Office (PCO) for the T45.

The options for integrating CEC into the two platforms and their existing/planned systems are being

investigated as part of the Combined Operational Effectiveness Investment Appraisal (COEIA), which Defence Science & Technology Laboratories (DSTL) is due to deliver by the end of April 2005.

An Option was taken as part of the Equipment Plan 2005 planning round to extend the Assessment Phase of the programme for up to a further 5 years. This will allow additional de-risking of the programme by updating the Operational Analysis work and scoping the potential for a joint services capability. Also under consideration is the delivery of an Operational Capability Demonstrator. The Main Gate planned for 2005 may now be scheduled for 2010, though the revised procurement strategy and programme details are subject to further review.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	52
Approved Cost at Initial Gate	25
Variation	+27

2c. Duration of the Assessment Phase

Current forecast date of Main Gate Approval	July 2010
Target date for Main Gate Approval	December 2004
Variation (Months)	+67

2d. Boundaries of future Demonstration and Manufacture phase costs

	Lowest	Most Likely	Maximum	Range
Current forecast cost of Demonstration and Manufacture phase*	*	£248m	*	-
Forecast cost of Demonstration and Manufacture phase at Initial Gate	-	£206m	£230m	£24m
% Change	-	20.4	-	-

2e. Boundaries of current internal planning assumption for entry into service

	Earliest	Most Likely	Latest	Range
Current forecast ISD†	December 2011	April 2012	October 2012	10 Months
Forecast ISD at Initial Gate	-	December 2012	December 2012	0 Months
% Change	-	-8	-2	-

* 10 and 90 per cent confidence estimates were unavailable at the datum point due to ongoing programme planning after the decision to extend the Assessment Phase

† Current forecast ISDs are pre Option. Re-assessment of the ISD definition is currently being discussed with Customer 1.

PRE-MAIN GATE PROJECT SUMMARY SHEET

FIST - FUTURE INTEGRATED SOLDIER TECHNOLOGY



Integrated Project Team Responsible:

DISMOUNTED CLOSE COMBAT (DCC)

Single Point of Accountability for project capability:

Director Equipment Capability (Ground Manoeuvre)

SECTION 1: ABOUT THE REQUIREMENT

The Future Integrated Soldier Technology (FIST) programme will integrate both current and emerging key technologies that British dismounted soldiers require for them to maintain their place among the world's best. The programme will ensure the future soldier has equipment that maximises effectiveness, reduces physical and psychological load, and minimises the effects of combat stress and the risks of human error. Historically, soldiers have been equipped in a piecemeal manner. FIST will consider the dismounted soldier as a system, and the eight-man section as the platform. This system of systems approach, demonstrated successfully during the Concept Phase, will fundamentally improve the capabilities of troops engaged in dismounted close combat. FIST will deliver an integrated suite of equipment encompassing the NATO domains of C4I (Command, Control, Communications, Computers and Information), lethality, mobility, survivability, and sustainability.

SECTION 2: THE ASSESSMENT PHASE

2a. Description of the Assessment Phase

Initial Gate approval was achieved in August 2001. Four companies submitted tenders for the Assessment Phase (AP) prime contract, and a two-stage selection process was adopted (four to two and two to one). Two companies were de-selected in August 2002, leaving BAE Systems and Thales to take part in a competitive planning phase between August 2002 and January 2003. The selection of Thales Defence Ltd as the FIST AP prime contractor was announced on 12 March 2003. The AP was expected to take 32 months leading to a main investment decision in 2006. However, commitment of troops to operations overseas delayed critical trials planned for Summer 2004. As a result, Main Gate approval was slipped by three months with a commensurate cost increase of £2.5m. Since MPR04, the forecast cost of the AP has been increased by £5m (subject to further approval) in order to improve the maturity of the Main Gate submission, and the internal planning assumption for entry into service has been delayed by one year in order to improve the quality of the Demonstration and Manufacture Phase. The AP prime contract has to date proceeded generally according to plan.

The FIST programme now incorporates elements of the CRUSADER 21 project, covering the enhancement of head protection, body armour and load carriage.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	33
Approved Cost at Initial Gate	26
Variation	+7

2c. Duration of the Assessment Phase

Current forecast date of Main Gate Approval	November 2006
Target date for Main Gate Approval	September 2006
Variation (Months)	+2

2d. Boundaries of future Demonstration and Manufacture phase costs

	Lowest	Most Likely	Maximum	Range
Current forecast cost of Demonstration and Manufacture phase	£514m	£773m	£1079m	£565m
Forecast cost of Demonstration and Manufacture phase at initial Gate	£433m	£660m	£926m	£493m
% Change	18.7	17.1	16.5	14.6

2e. Boundaries of current internal planning assumption for entry into service

	Earliest	Most Likely	Latest	Range
Current forecast ISD	July 2010	September 2010	December 2011	17 Months
Forecast ISD at initial Gate	April 2009	July 2009	September 2009	5 Months
% Change	48	41	75	240

PRE-MAIN GATE PROJECT SUMMARY SHEET

FUTURE STRATEGIC TANKER AIRCRAFT



Integrated Project Team Responsible:

FUTURE STRATEGIC TANKER AIRCRAFT

Single Point of Accountability for project capability:

Director Equipment Capability (Expeditionary Logistics & Support)

SECTION 1: ABOUT THE REQUIREMENT

The Future Strategic Tanker Aircraft (FSTA) is planned to replace the air refuelling (AR) and some elements of air transport (AT) capability currently provided by the RAF's fleet of VC10 and TriStar aircraft. AR is a key military capability that provides force multiplication and operational range enhancement for front line aircraft across a range of defence roles and military tasks.

SECTION 2: THE ASSESSMENT PHASE

2a. Description of the Assessment Phase

FSTA was nominated as a potential Private Finance Initiative (PFI) project in 1997. Following Initial Gate approval in December 2000, the project launched a formal Assessment Phase designed to confirm whether PFI would offer best value for money. The Assessment Phase is intended to confirm industry's ability to meet the service requirement, programme timescales and costs, establish the optimum call-off times and readiness levels, determine whether the inclusion of Air Transport capability in the contract will provide value for money and clarify manning requirements and personnel implications.

After several years of solution development and a competition AirTanker Ltd, a consortium comprising EADS, Rolls Royce, Cobham and Thales was judged to offer the best prospective PFI solution. VT Group joined the consortium shortly after. Following subsequent resolution of key commercial terms, Secretary of State for Defence announced on 28 February 2005 that AirTanker Ltd had been selected as Preferred Bidder for FSTA. While the MoD, in consultation with the rest of Government, hopes to complete its assessment soon, further progress has to be made with AirTanker towards agreeing a fully developed contract covering all the commercial terms and service provision aspects. A final decision on whether to proceed with the PFI deal for the FSTA programme can be made following a Main Gate submission. This can only occur when negotiations are complete, the complete detailed contract is agreed, and the risks to the programme are fully understood.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	24
Approved Cost at Initial Gate	13
Variation	+11

2c. Duration of the Assessment Phase

Current forecast date of Main Gate Approval	September 2005
Target date for Main Gate Approval	January 2002
Variation (Months)	+44

2d. Boundaries of future PFI programme costs

	Lowest	Most Likely	Maximum	Range
Current forecast cost of PFI programme	***	***	***	***
Forecast cost of PFI programme at initial Gate	-	£12,400m	£13,900m	£1500m
% Change	--	***	***	-

2e. Boundaries of current internal planning assumption for entry into service

	Earliest	Most Likely	Latest	Range
Current forecast ISD	***	***	***	***
Forecast ISD at initial Gate	January 2007	-	January 2009	24 Months
% Change	***	-	***	***

PRE-MAIN GATE PROJECT SUMMARY SHEET

LAND ENVIRONMENT AIR PICTURE PROVISION (LEAPP) (FORMERLY GROUND BASED AIR DEFENCE)

Picture Not Available

Integrated Project Team Responsible:

GROUND BASED AIR DEFENCE (GBAD)

Single Point of Accountability for project capability

Director Equipment Capability (Theatre Airspace)

SECTION 1: ABOUT THE REQUIREMENT

The Command Paper on future capabilities, published in July 2004, announced a planned reduction in the overall investment in ground based air defence. The requirement for an Air Defence Command, Control, Communications, Computing and Information (ADC4I) capability will now focus on the provision of a near real time, correlated air picture to the land component. To reflect this change in emphasis, the title of the programme has been changed to Land Environment Air Picture Provision (LEAPP), although it remains within the original Phase 1 requirements boundaries. The LEAPP programme aims to increase situational awareness for the land component through the generation and distribution of a near real time, correlated air picture in both a joint and multi-national context as part of an integrated "system of systems". LEAPP will provide the means to achieve effective airspace management within the land component as part of the overarching battlespace management process and is a key enabler to Network Enabled Capability (NEC). Ground based sensors will provide air surveillance, target detection, identification and tracking information within the land component community of interest, imparting a significant contribution to force protection, fratricide reduction and battlespace management.

The forecast expenditure for the LEAPP programme has been reviewed following the decision to reduce the overall investment in ground based air defence. This has led to a significant reduction in the current forecast cost of the Demonstration and Manufacture Phase.

SECTION 2: THE ASSESSMENT PHASE

Under the title of GBAD Phase 1, the project received Ministerial Initial Gate approval in January 2002. The Assessment Phase will concentrate on enhancing the shared situational awareness within the command chain and thereby providing a better understanding of the Battlespace. LEAPP principally comprises the incremental acquisition of a Situational Awareness system through industrial competition, based largely upon a Military Off the Shelf solution. Competitive Assessment Phase contracts were placed in December 2003 with Lockheed Martin and EADS. In December 2004, the contracts were amended to reflect the changes in the programme. Lockheed Martin and EADS demonstrate their LEAPP solution in February 2006. The preferred solution will then be developed up to March 2007, with a further system demonstration taking place in February 2007, prior to the submission of the Main Gate business case.

Following the decision to reduce the overall investment in ground based air defence, the GBAD LEAPP Assessment Phase contracts and spend profile were re-negotiated leading to a reduction in the forecast cost and duration of the Assessment Phase.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	110
Approved Cost at Initial Gate	144
Variation	-34

2c. Duration of the Assessment Phase

Current forecast date of Main Gate Approval	August 2007
Target date for Main Gate Approval	March 2006
Variation (Months)	+17

2d. Boundaries of future Demonstration and Manufacture phase costs

	Lowest	Most Likely	Maximum	Range
Current forecast cost of Demonstration and Manufacture phase	£130m	£135m	£135m	£5m
Forecast cost of Demonstration and Manufacture phase at initial Gate	£872m	£1054m	£1271m	£399m
% Change	-	-	-	-

2e. Boundaries of current internal planning assumption for entry into service

	Earliest	Most Likely	Latest	Range
Current forecast ISD	September 2009	June 2010	October 2011	25 months
Forecast ISD at initial Gate	January 2009	December 2009	December 2010	23 months
% Change	24	16	18	9

PRE-MAIN GATE PROJECT SUMMARY SHEET

INDIRECT FIRE PRECISION ATTACK (IFPA)

Picture Not Available

Integrated Project Team Responsible:

FUTURE ARTILLERY WEAPONS SYSTEMS (FAWS)

Single Point of Accountability for project capability:

Director Equipment Capability (Deep Target Attack)

SECTION 1: ABOUT THE REQUIREMENT

Indirect Fire Precision Attack (IFPA) will provide a suite of munitions for indirect precision attack of static, mobile, and manoeuvring targets, by incremental acquisition, extending to ranges in excess of 150 kilometres by 2015.

The capability required under IFPA will be delivered through a structured programme of Assessment, Demonstration, and Manufacture phases, which will continue after the project's Main Gate, with incremental approvals being sought via a series of Review Notes. The mix of munitions procured under the programme will have a range of In Service Dates, commencing in 2008.

The Assessment Phase is indicating that the IFPA capability is likely to be achieved by a mixture of loitering munitions, guided rockets, and artillery shells, using a variety of different payloads, (loitering munitions are unmanned airborne vehicles with a warhead, designed to fly in a holding pattern after launching until deployed to a target selected by a ground based controller). IFPA munitions will be used by the Multiple Launch Rocket System (MLRS), the AS90 self-propelled howitzer, the future Lightweight Mobile Artillery Weapon System (LIMAWS) Rocket Launcher and Gun, and, in the case of Loitering Munition, possibly as a stand-alone platform.

During Equipment Plan reviews in 2002 and 2003, later years' funding for the programme was increased over that estimated at Initial Gate, reflecting the importance of the IFPA capability to the customer. The main change to the Demonstration and Manufacture phases of the programme since MPR 04 is a reduction in estimated cost, due to the effect of Options implemented as part of the 2005 Equipment Programme review.

SECTION 2: THE ASSESSMENT PHASE

2a. Description of the Assessment Phase

The Initial Gate Business Case for IFPA was approved in May 2001. Following competition using a capability based questionnaire, the Assessment Phase contract was awarded in May 2002 to a consortium of companies led by BAE Systems. The Assessment Phase is designed to provide a 'Route Map' to achieving the full IFPA capability, with recommendations about the type, quantities, and mix of munitions.

The increase in the forecast cost of this phase since MPR 2004 is mainly caused by the decision to run a Capability Demonstrator (CD) programme in respect of Loitering Munitions. The requirement to scope and plan the CD prior to Main Gate has created a need to extend the Assessment Phase, and thus the need to reschedule Main Gate. However, this change means that we may have the opportunity to bring into service more quickly an equipment which could deliver a step increase in precision attack capability.

The current forecast date for submission of the Main Gate Business case is November 2005, for approval in January 2006. It should be noted that the forecast cost of the Assessment Phase at section 2b below only relates

to Assessment work up to the first Main Gate. Assessment activity for later stages will continue long after this initial Main Gate, due to the incremental nature of the programme. In fact, the bulk of IFPA Assessment work (some 88% by value) will take place after the first Main Gate.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	18
Approved Cost at Initial Gate	24
Variation	-6

2c. Duration of the Assessment Phase

Current forecast date of Main Gate Approval	January 2006
Target date for Main Gate Approval	November 2005
Variation (Months)	+2

2d. Boundaries of future Demonstration and Manufacture phase costs

	Lowest	Most Likely	Maximum	Range
Current forecast cost of Demonstration and Manufacture phase	£1029m	£1286m	£1672m	£643m
Forecast cost of Demonstration and Manufacture phase at initial Gate	-	£814m	-	-
% Change	-	58%	-	-

2e. Boundaries of current internal planning assumption for entry into service

	Earliest	Most Likely	Latest	Range
Current forecast ISD	December 2006	December 2008	December 2010	48 Months
Forecast ISD at initial Gate	December 2006	December 2008	December 2010	48 Months
% Change	0%	0%	0%	0%

PRE-MAIN GATE PROJECT SUMMARY SHEET

UNITED KINGDOM MILITARY FLYING TRAINING SYSTEM (HOLISTIC)



Integrated Project Team Responsible:

UNITED KINGDOM MILITARY FLYING TRAINING SYSTEM (UKMFTS)

Single Point of Accountability for project capability:

Director Equipment Capability (Theatre Airspace)

Senior Responsible Owner for broader capability:

Capability Manager (Precision Attack)

SECTION 1: ABOUT THE REQUIREMENT

The output of the current flying training system is beginning to fail to meet the input standard for Operational Conversion Units resulting in an additional and expensive training burden.

In addition, the existing training platforms (Hawk T1, Jetstream, Tucano, Dominie, Squirrel, Griffin, Grob Tutor and Firefly) are approaching the end of their useful lives and have outdated systems which are unable to prepare trainees for current and future front line aircraft, such as Typhoon, JSF, A400M and Apache. A separate project is being undertaken for the replacement of the Hawk T1 aircraft, namely Advanced Jet Trainer. Whilst it is a component part of UKMFTS, it has separate approvals and is therefore not included in any of the dates or costs in section 2.

The current system is based on a number of separate contractual arrangements for the provision of equipment and support. An element of Fast Jet training is also out-sourced to NATO Flying Training Canada. Consequently the system is fragmented, difficult to manage and inefficient introducing significant delays due to holdovers and lengthy training pipelines.

SECTION 2: THE ASSESSMENT PHASE

2a. Description of the Assessment Phase

Four possible procurement options for UKMFTS were identified at Initial Gate in December 2002: Do-nothing, Do-minimum, PPP/PFI and Smart Conventional. Of these, the Do-nothing option would render the MoD unable to train aircrew beyond 2012 and has been discounted. The Do Minimum option would not deliver the required quality and quantity of students in the correct timescales, but will continue to be considered up to Main Gate.

The remaining options were tested in a Convergence Phase concluding that the adoption of a PPP Contractual Partnering model would best harness the collective skills of MoD and industry by utilising a mix of PFI and smart conventional procurement to deliver a coherent and flexible 'system of systems'. This option envisages the appointment of a Training System Partner to work with the MoD over the life of the project to incrementally deliver the total aircrew-training requirement. This strategy was subsequently endorsed by the Investment Approvals Board on 24 February 2005.

An Invitation to Negotiate was issued to three consortia in March 2005, with bid returns due in August 2005.

Main Gate submission is planned for November 2006 with an Initial Service Provision in 2007 and Full Service Provision by 2012.

Key variations which have occurred during this phase, include a reduction in the future numbers of aircrew required for the frontline with an associated reduction in forecast Whole Life Costs following Medium Term Work Strands and a reduction in forecasted assessment phase costs following a redefinition of industry's involvement within a partnering regime.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	29
Approved Cost at Initial Gate	39
Variation	-10

2c. Duration of the Assessment Phase

Current forecast date of Main Gate Approval	November 2006
Target date for Main Gate Approval	February 2006
Variation (Months)	+9

2d. Boundaries of future Demonstration and Manufacture phase costs *

	Lowest	Most Likely	Maximum	Range
Current forecast cost of Demonstration and Manufacture phase	£5790m	£6679m	£8625m	£2835m
Forecast cost of Demonstration and Manufacture phase at Initial Gate	-	£8715m	-	-
% Change	-	-23%	-	-

2e. Boundaries of current internal planning assumption for entry into service †

	Earliest	Most Likely	Latest	Range
Current forecast ISD	January 2007	April 2007	April 2008	15 Months
Forecast ISD at initial Gate	April 2006	April 2007	April 2008	24 Months
% Change	‡	0%	0%	-

* Represents Whole Life Costs for PPP/PFI procurement including support up to 2032 as reflected in the Initial Gate business case. Costs are reflected within Equipment Plan and Short Term Plan.

† Represents Initial Service Provision - precise services to be defined during the Invitation To Negotiate and preferred bidder negotiations leading to Main Gate approval.

‡ Earliest date for Main Gate approval not provided in the Initial Gate business case.

PRE-MAIN GATE PROJECT SUMMARY SHEET

WATCHKEEPER

Picture Not Available

Integrated Project Team Responsible:

TACTICAL UNMANNED AIR VEHICLE (TUAV)

Single Point of Accountability for project capability:

Director Equipment Capability (Intelligence, Surveillance, Target Acquisition & Reconnaissance)

Senior Responsible Owner for broader capability:

Assistant Chief of the Air Staff

SECTION 1: ABOUT THE REQUIREMENT

The Watchkeeper system will consist of unmanned air vehicles, sensors, and ground control stations. It will provide the Land Component Commander with a 24 hour, all weather, Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) capability supplying accurate, timely and high quality imagery to answer commanders' critical information requirements.

The Strategic Defence Review New Chapter identified that the ability to gather information about an opponent and to then use it to maximum effect is central to future combat capabilities in both high intensity conflicts and peace support operations. The Defence Strategic Guidance and The Future Capabilities Requirement 2002 highlight the importance of an ISTAR system of networked sensors. Capability audits have further identified the importance of a LAND ISTAR system being fully integrated with other land surveillance systems and able to operate within the context of Joint Operations.

SECTION 2: THE ASSESSMENT PHASE

2a. Description of 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 (UAV) systems to suit a defined capability requirement rather than an air vehicle centred approach. The programme is nearing the end of the Assessment Phase of the acquisition cycle and is in the process of recommending the preferred system solution to support a main investment decision. Thales were announced as preferred bidder in July 2004.

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. Trade-offs across User and System Requirements have been identified and final decisions are being made, taking full account of the impact across all Lines of Development and supported by balance of investment studies. The Main Gate Approval decision is expected in May 2005.

Alternative acquisition options have been considered. PPP/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. High levels of co-operation amongst allied nations on matters of requirement definition, technology, operational experience and acquisition are being maintained. The need for significant system integration with the emerging Network Enabled Capability

requirements has led the DPA and the potential contractors to adopt an incremental approach. This approach also supports the Force Readiness Cycle and provides for a phased uplift of capability at discrete intervals.

Opportunities to enhance Watchkeeper beyond the Full Operating Capability have been considered during the assessment and will inform future investment decisions.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	65
Approved Cost at Initial Gate	52
Variation	+13

2c. Duration of the Assessment Phase

Current forecast date of Main Gate Approval	May 2005
Target date for Main Gate Approval	May 2004
Variation (Months)	+12

2d. Boundaries of future Demonstration and Manufacture phase costs

	Lowest	Most Likely	Maximum	Range
Current forecast cost of Demonstration and Manufacture phase	***	***	***	***
Forecast cost of Demonstration and Manufacture phase at initial Gate*	-	-	-	-
% Change	-	-	-	-

2e. Boundaries of current internal planning assumption for entry into service

	Earliest	Most Likely	Latest	Range
Current forecast ISD	Jan 2010	Apr 2010	Sep 2010	8 months
Forecast ISD at initial Gate	-	-	-	-
% Change	-	-	-	-

* Initial Gate forecasts are only available for the Sender element of the programme. These have been omitted as any comparison to the current total programme could be misleading.