National Audit Office

REPORT BY THE
COMPTROLLER AND
AUDITOR GENERAL

HC 85-II
SESSION 2009–2010

15 DECEMBER 2009

Ministry of Defence

The Major Projects Report 2009

Appendices and Project Summary Sheets

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National Audit Office

Ministry of Defence

The Major Projects Report 2009

Appendices and Project Summary Sheets

This volume has been published alongside a first volume comprising of –

Ministry of Defence: Major Projects Report 2009

HC 85-I, Session 2009-2010

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Amyas Morse
Comptroller and
Auditor General

National Audit Office

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Contents

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Appendix One

The evolution of the Major Projects Report

The format of the Major Projects Report has not changed significantly since its inception 25 years ago and previously covered only part of the lifecycle of defence acquisition between the project concept phase and disposal. While this reflected the Department's approach to equipment acquisition in the 1980s and 1990s it no longer provides a complete picture to Parliament of the Department's current acquisition polices. Notably, the data reported did not reflect:

- the need to procure equipment using an incremental approach to reflect both technological immaturity at the beginning of a project and the opportunities presented by technological advances to increase capability through life and the greater consideration given to the maturity of acquisition proposals;
- the necessity of integrating all Defence Lines of Development (DLODs) during the acquisition process, such as the personnel, training and infrastructure areas, as championed by the programme approach to Through Life Capability Management; and
- the importance of ensuring that through life support costs and performance of military capabilities already in-service are adequately measured.

With the agreement of the Public Accounts Committee, we have therefore worked with the Department to evolve the format of the Report. This year marks the beginning of the evolution of the Report, by providing information on in-service support contracts.

Figure 1 lists the principal changes that have been made to the Report this year. The Department has implemented a number of changes and the quantity of data has increased to give a broader picture of performance.

Figure 1
Major changes to the information recorded in the Major Projects Report

New Information	Benefit	Status
A single Project Summary Sheet	This will be used by all thirty projects, facilitating reporting at all stages of procurement.	All projects have followed this new reporting format.
Cost, time and performance of project increments	This enables the complexity and long time scales between generations to be reflected in the information provided, thereby allowing greater accountability as additional spend is now reflected in the report. This encompasses adding new increments to existing projects (for example Astute) and bringing increments together (for example Typhoon and Typhoon Future Capability Programme).	Where appropriate, increments have been added to projects. As additional increments continue to be approved, these will be included within the population.
Explanation of capability risk	Outlines the implications for future military capability should the project be delayed, modified or reduced in scope, or cancelled altogether.	All projects have completed this section.
Support strategy of projects, including time and cost performance	This information reflects the Department's focus on Through Life Capability Management and allows greater accountability of Departmental spend.	Where support contracts have passed through their main investment decision at the 31 March 2008, these have been included in the Report. In the future, we expect to show more training and logistics contracts in this section.
Operational impact of time, cost and performance variation	This shows the direct impact on operations of any cost and time variation.	Where there are direct impacts, these have been included in the Report.
Initial and Full Operating Capability dates	As the Department moves to measuring projects by their provision of an Initial Operating Capability, this measure will more accurately reflect the provision of capability than the current In-Service Date. Full Operating Capability dates will show when all the planned capability is expected to be available.	The majority of projects have completed these sections, and many Initial Operating Capability definitions are the same as those for In-Service Dates. The Department has only recently begun to approve projects on an Initial Operating Capability basis. Full Operating Capability dates do not typically form part of an approval and are therefore not subject to validation in the same way as Initial Operating Capability.

Figure 1

Major changes to the information recorded in the Major Projects Report *continued...*

New Information	Benefit	Status
Maturity measures, such as Technology Readiness Levels	These measures provide a quantifiable means of measuring the maturity levels of different aspects of a project. Access to these assessments will enable the Department to better manage project delivery and reduce the impact of project risk through the course of project acquisitions.	The Department is still developing maturity measures for commercial, financial and project delivery skills. As such these measures have not yet been included in the Report. With regard to Technology and System Readiness Levels, over half the projects have yet to report them; this is because Technology Readiness Levels were not mandated before April 2002 when the relevant projects' main investment decision was taken. System Readiness Levels are still not mandated. The Department has committed to Parliament to provide a separate update on maturity measures to the Committee of Public Accounts.
Defence Lines of Development	Defence Lines of Development provide a mechanism for assessing the parallel development of different aspects of capability that need to be brought together to deliver the capability. Inclusion of these measures in the Report enables an assessment of how well the Department are progressing each aspect of capability, and not just the equipment itself.	Eleven Defence Lines of Development across six projects were not assessed. One project, the Beyond Visual Range Air-to-Air Missile, assessed its Defence Lines of Development against the provision of the missile and not its integration on to the Typhoon aircraft, which is when the capability will actually be provided. All other Defence Lines of Development were assessed and included in the Report.

Appendix Two

Methodology

The Major Projects Report 2009 is the twenty-sixth to be produced by the Department. The Committee of Public Accounts requested it after their 9th Report, Session 1981-82, which noted the absence of any requirement for the Department to inform Parliament about the costs of its major military projects. Until 1991 both the Major Projects Statement and the associated National Audit Office Memorandum were provided to the Committee on a confidential basis. Another significant amendment to the information available to both Parliament and the public came in 1999, when the Department introduced major changes in organisation and procedures, generally described as Smart Procurement, and the Treasury required all of central government to budget and account on the basis of resources and not cash. This year, the Report has continued to evolve with a greater focus on assessments of the delivery of the overall capability, instead of just the equipment, and project increments, amongst other changes. These developments are explored in further detail in Appendix 1.

Part One

Project population

Projects qualify for inclusion in the Major Projects Report if their forecast of future expenditure is among the 15 largest for those that have achieved approval at the main investment decision, the 10 largest for those projects still in the Assessment Phase or, new this year, one of five significant support projects for equipment in service. They are replaced when, as they progress through the procurement process, estimated forecast costs still to be incurred reduce below the level of the top projects, although their total costs may nonetheless still be significant.

There are three new projects in this year's Report which have passed their main investment decision: Future Strategic Tanker Aircraft, Queen Elizabeth Class aircraft carriers, and the United Kingdom Military Flying Training System. Dabinett, Helix, Joint Military Air Traffic Services and the United Kingdom Cooperative Engagement Capability – Frigate and Destroyer Programme, are new to the Assessment Phase population. All five support projects are new to the population, as it is the first year this type of project has been included in the Report.

Scope of validation

The Major Projects Report is not a statutory account and we do not offer a formal audit opinion on the accuracy of data contained within it. The Department compiles the Project Summary Sheets according to the guidelines, to which we have agreed, and the figures are calculated on a different basis to the Department's Resource Account. The draft Project Summary Sheets are also made available to the industrial prime contractors for comment and amendments are incorporated as appropriate.

Our validations confirm that the Project Summary Sheets conform to the guidance and we check that they have been accurately and consistently applied. Each year project teams build up detailed forecasts for the equipments on costs and time to completion, which are subject to Departmental scrutiny for inclusion in its Planning Round. The Department conducted an Equipment Examination and a Planning Round in 2009. However, we received much of our information before these were finalised and therefore have agreed the data supplied to the latest scrutinised position at 31 March 2009. Each project team was required to substantiate changes to that position by providing a detailed audit trail. We do not question the forecasts or assumptions of the Department's long-term costings unless better information subsequently becomes available.

Other test checks on the data confirm In-Service Dates to project plans, performance against Defence Lines of Development with Capability Working Groups (including front line commands) and the likely achievement of their Key Performance Measures with Heads of Capability. Initial Operating Capability dates are not validated, unless they are used at the main decision point to measure progress against cost, time and performance. Full Operating Capability is not validated, as it is subject to continuous revision.

Outcome of validation

All the draft Project Summary Sheets were amended following validation. The incidence of significant errors has declined and for the majority the adjustments were minor to improve clarity.

Analysis

We considered whether the Department is currently forecasting to procure major equipments within time, to budget, and to meet Key Performance Measures and Defence Lines of Development. Our examination of time and forecast cost is based on the most likely estimates, but when a project has been approved under Smart Acquisition, there will be a "not to exceed" value as well. As a consequence, some of the variations in the Project Summary Sheets represent movement within this difference. This is known as the "Risk Differential".

The analysis involved using both quantitative and qualitative sources of information. We focused on those projects showing the greatest cost or time variances and the factors that caused them to change, with particular attention being paid to the method by which they are being procured. Case examples of a few key projects illustrate our findings.

Part Two

This year's Part Two consists of a look at programming issues resulting from the Equipment Examination the Department undertook in 2008 to reduce the cost of the ten-year Equipment Plan. We looked at the impact of this on five projects: Queen Elizabeth Class aircraft carriers, Astute Class submarines, Lynx Wildcat and Merlin Mk2 helicopters, and the Falcon communications system. These were chosen as they have been most affected by delays and short-term affordability decisions as a result of the Equipment Examination. Forecast cost, time and performance as well as other implications of the decisions taken have been used to illustrate the effect of the Equipment Examination.

Part Three

Part Three is an addition to the Major Projects Report in 2009, expanding the Report to include a broader picture of capability acquisition – particularly Through Life Capability Management and Programme Management, and the performance and costs associated with in-service capabilities.

We considered how the Department is progressing in implementing Through Life Capability Management, and in the provision of information relating to the in-service performance of capabilities.

We reviewed key documents, including project papers prepared as part of the Through Life Capability Management programme and Departmental-wide reviews. Interviews were held with a range of Departmental staff, including the Project Design team, the Project Implementation team, Heads of Capability, Defence Equipment and Support directors and relevant Defence Lines of Development owners, including front line users of the capability.

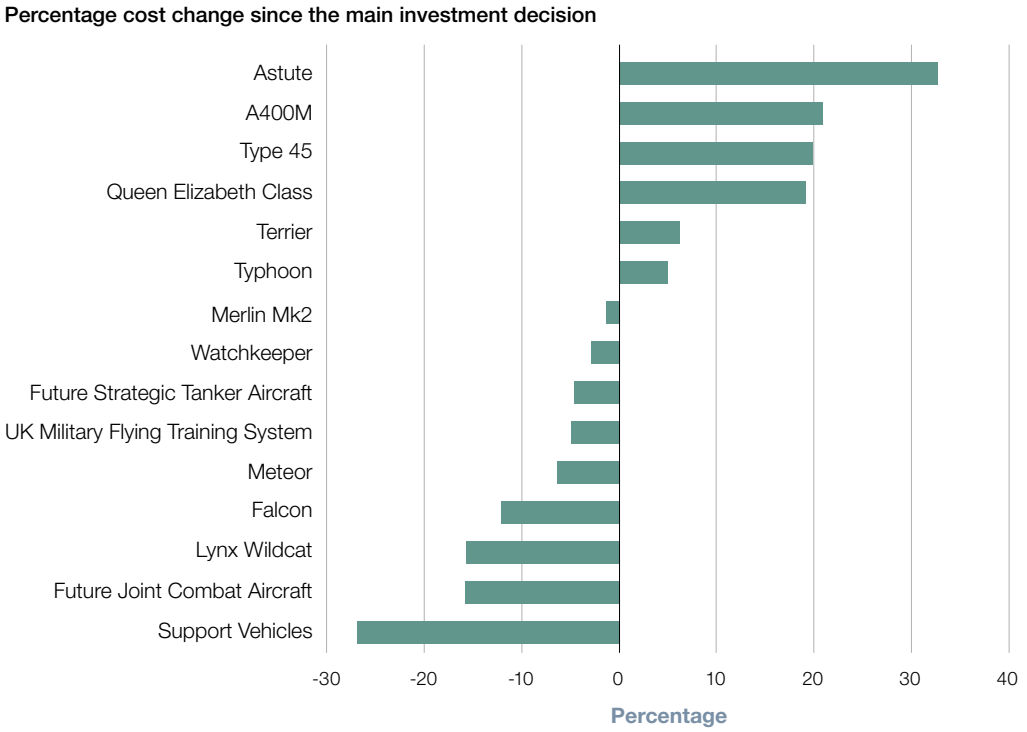
Appendix Three

Cost performance since the main investment decision

Although individual approvals are set at the "not to exceed" level (which may be between 50 and 90 per cent of the identified risks materialising), the Department continues to plan on the basis of the "most likely" (50 per cent confidence level).

Figure 2

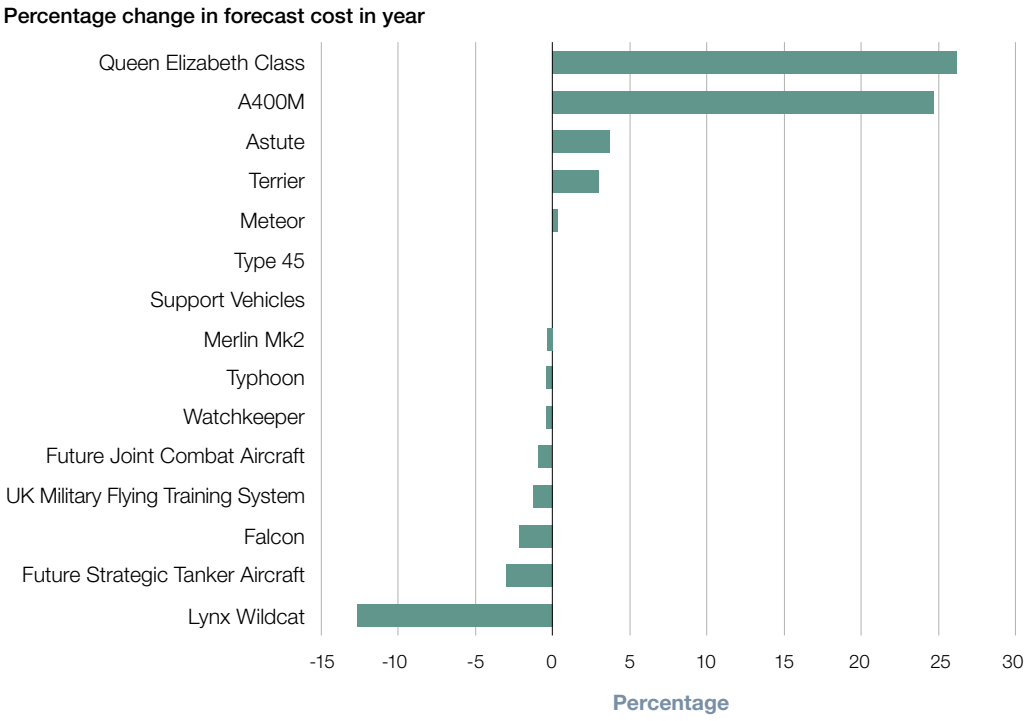
Six projects are forecasting overruns against their "most likely" costs at approval. Of these, five are also forecasting overruns against their "not to exceed" costs at approval



Source: National Audit Office analysis of Departmental data

Figure 3

Queen Elizabeth Class, A400M, Astute and Terrier showed the greatest in-year cost increases

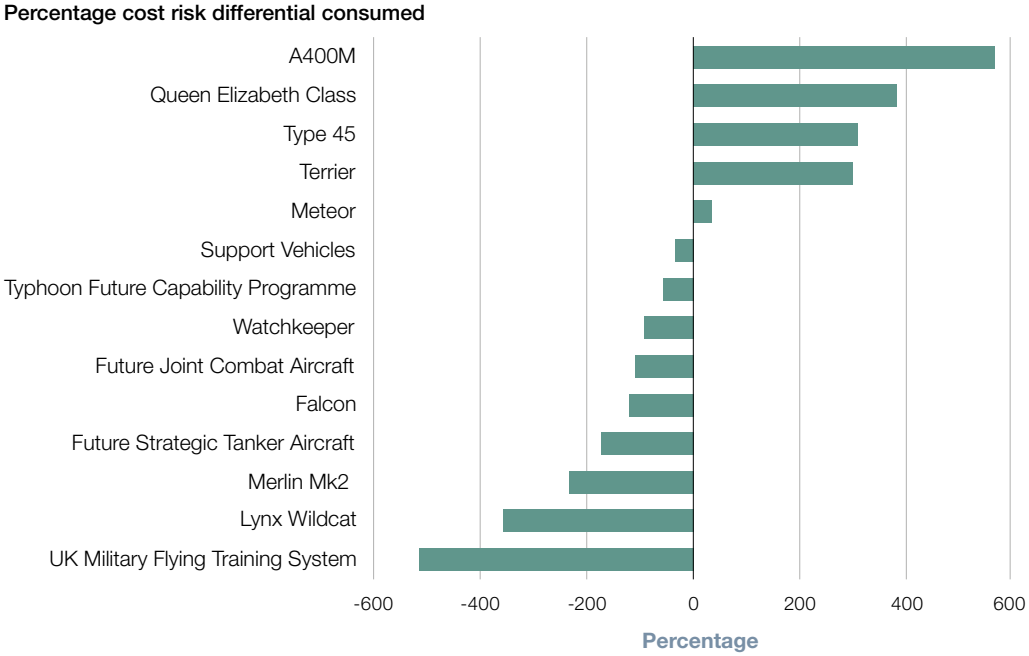


Source: National Audit Office analysis of Departmental data

Risk Differential represents the difference between the budgeted (that is "most likely") and the highest ("not to exceed") cost estimates approved at the main investment decision. **Figure 4** shows that four projects are forecasting to consume their entire Risk Differential.

Figure 4

Four projects have consumed their Risk Differential at least three times over



Source: National Audit Office analysis of Departmental data

NOTE
Astute Class submarines and the Typhoon aircraft are excluded because they are legacy projects and as such do not have Risk Differential in their approvals.

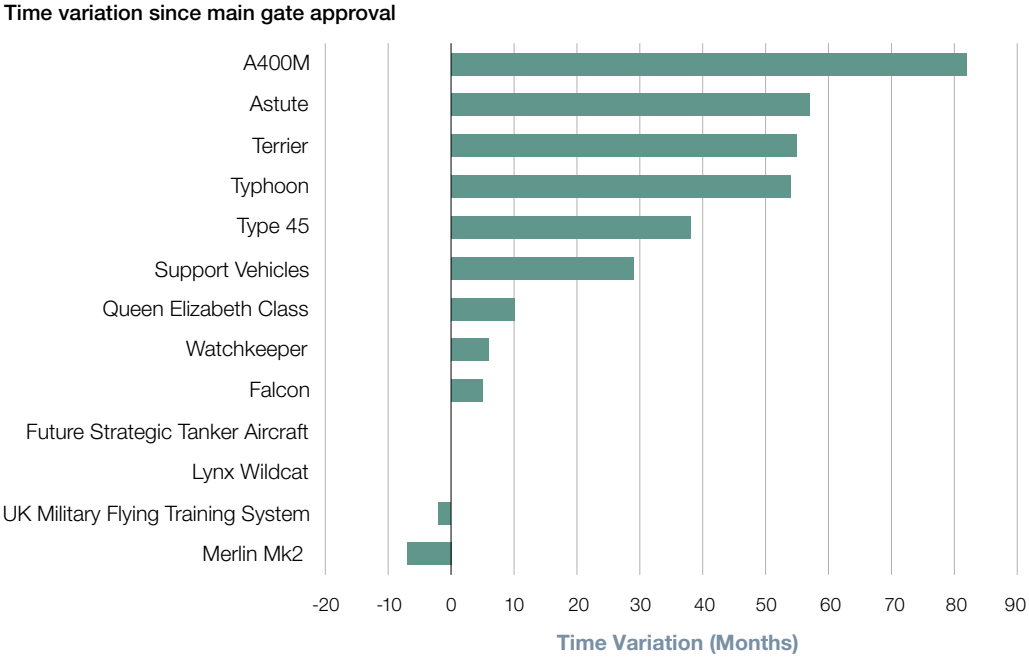
Appendix Four

Time performance since the main investment decision

Although individual approvals are set at the "not to exceed" level (that is, the time delay if the majority of the identified risks were to materialise), the Department continues to plan on the basis of the most likely (50 per cent confidence limit) as represented in **Figure 5**.

Figure 5

Nine projects are forecasting delays against their "most likely" In-Service Dates at approval. Of these, seven are also forecasting delays against their "not to exceed" In-Service Date estimates at approval



Source: National Audit Office analysis of Departmental data

NOTES

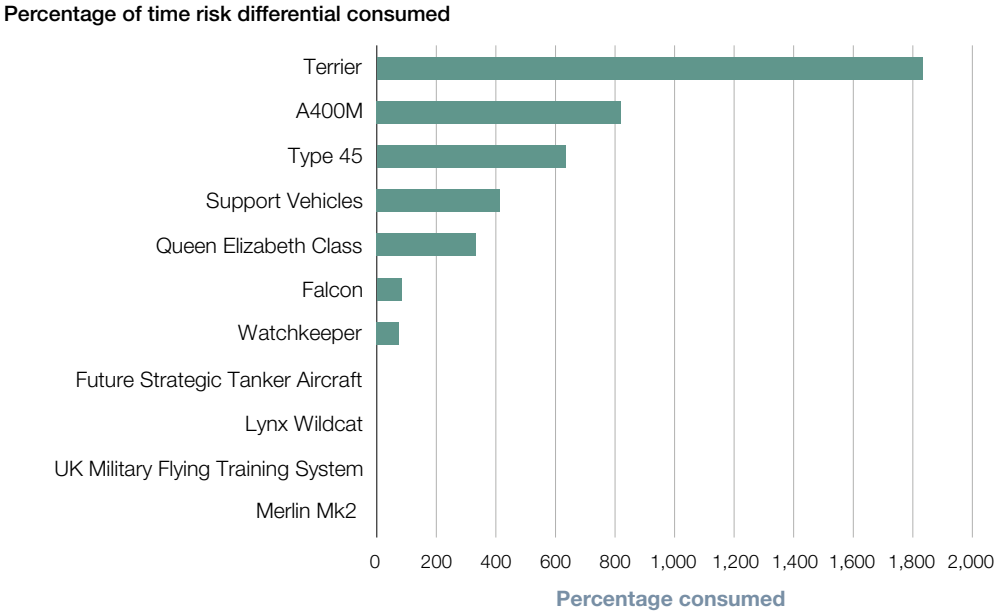
1 Future Joint Combat Aircraft is excluded as its In-Service Date has not yet been approved.

2 Meteor is excluded from this analysis as its In-Service Date has been re-defined.

Risk Differential represents the difference between the expected (that is "most likely") and the latest ("not to exceed") time estimates approved at the main investment decision. **Figure 6** shows that five projects are forecasting to consume their entire Risk Differential.

Figure 6

Five projects have consumed their Risk Differential at least three times over



Source: National Audit Office analysis of Departmental data

NOTES

1 Future Joint Combat Aircraft is excluded as its In-Service Date has not yet been approved.

2 Meteor is excluded as its In-Service Date has been re-defined.

3 Astute Class submarine and the Typhoon aircraft are excluded because they are legacy projects and as such do not have Risk Differential in their approvals. Typhoon Future Capability Programme was approved more recently, but is also excluded as it does not have Risk Differential in the approval for time.

Appendix Five

Executive Project Summary Sheets and Project Summary Sheets

Part A – Support Projects

Attack Helicopter - Interim Support Arrangement

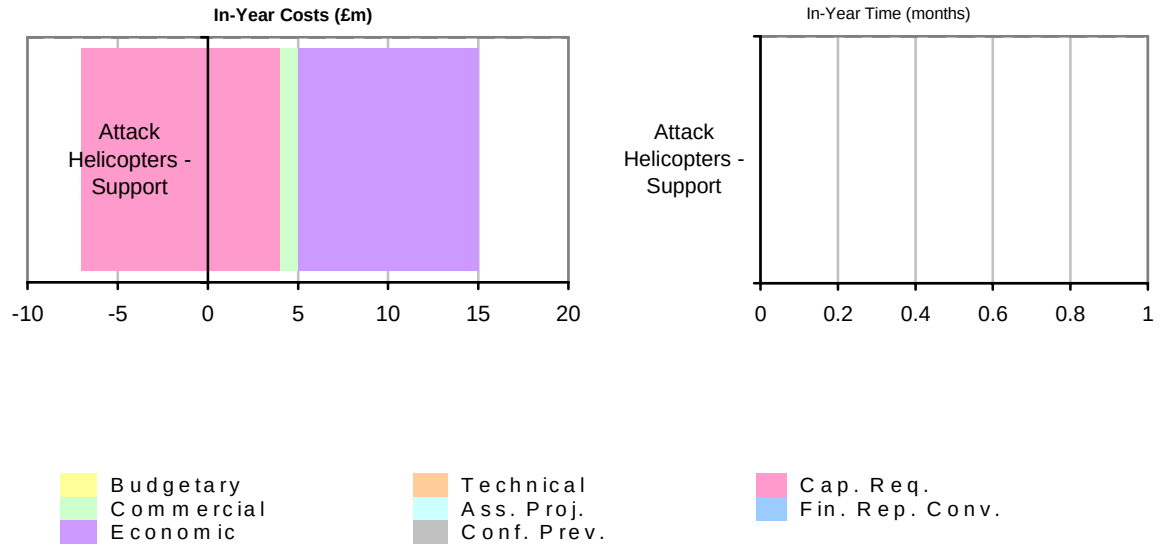
The Capability

In 1996, AgustaWestland was contracted as the Prime Contractor to supply sixty-seven Apache Army Helicopter Mark 1 to fulfil the Attack Helicopter requirement for the British Army. This was pre "Smart Procurement" and based on off-the-shelf procurement. The helicopter is a United Kingdom variant of the United States Army AH-64D Apache Longbow helicopter, with the addition of Rolls Royce Turbomeca Engines and a comprehensive Helicopter Integrated Defensive Aids Suite. The first Apache was delivered in May 2000, and Initial Operational Capability was declared in late 2004. Deployment of Apache to Operation Herrick occurred in May 2006, ahead of schedule. The Apache is in the process of being updated with the Modernised Target Acquisition and Designation Sight, a reliability improvement for the primary sensor system.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Support Phase	£237m	£222m	-15	+8
Support Contract Go-Live	April 2007	April 2007	0 months	0 months
Support Contract End	March 2010	March 2010	0 months	0 months

In Year Progress



Support Costs in-year reflects the planned budget for year two of the three year Interim Support Arrangement. Given the high US content of the UK's Apache helicopter, changes in Exchange Rates are a major driver behind cost changes on the project

There have been no slips to the Interim Support Arrangement.

Risk Assessment against Defence Lines of Development

Equipment		Training		Logistics		Infrastructure	
Personnel		Doctrine		Organisation		Information	

Hercules Integrated Operational Support

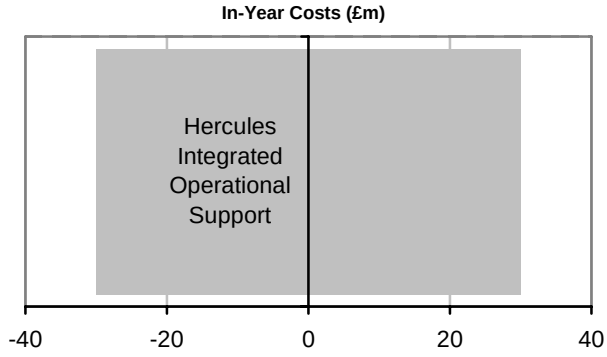
The Capability

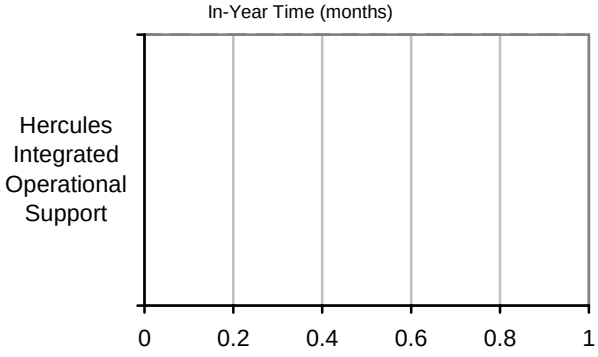
Hercules Integrated Project Team placed a contract in June 2006 for a UK-based, combined C-130K and C-130J Depth Maintenance Technical Support organisation populated with both Industry and MOD employees. MOD retains responsibility for airworthiness and safety management, whilst Industry continue with their existing Design Authority role. Depth maintenance is carried out at a Combined Maintenance and Upgrade facility at Marshall of Cambridge. Hercules Integrated Operational Support Supply Chain Management provides a single, integrated supply chain for C-130K and C-130J fleets offering visibility of assets and inventory to the Hercules Integrated Operational Support partners. Supply Chain Management supports all maintenance activities in Forward and Depth at Combined Maintenance and Upgrade facility and ensures continuity of supply for deployed operations via Priming Equipment Packs. The MOD retains funding to develop and embody aircraft updates offering maximum flexibility

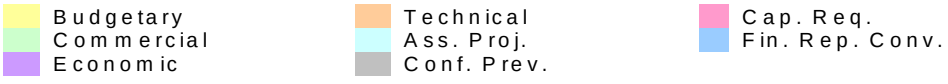
Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Hercules Integrated Operational Support	£1860m	£1447m	-£413m	-
Support Contract Go-Live	June 2006	June 2006	0 months	0 months
Support Contract End	March 2030	March 2030		

In Year Progress







There was no overall variation of costs In Year on Hercules Integrated Operational Support. £30M additional expenditure was incurred in support to operations but this was reclaimed from the Conflict Prevention Fund.

No variation of months In Year on Hercules Integrated Operational Support.

Risk Assessment against Defence Lines of Development

Equipment	■	Training	■	Logistics	■	Infrastructure	■
Personnel	■	Doctrine	■	Organisation	■	Information	■

Nimrod Maritime Reconnaissance and Attack MK4

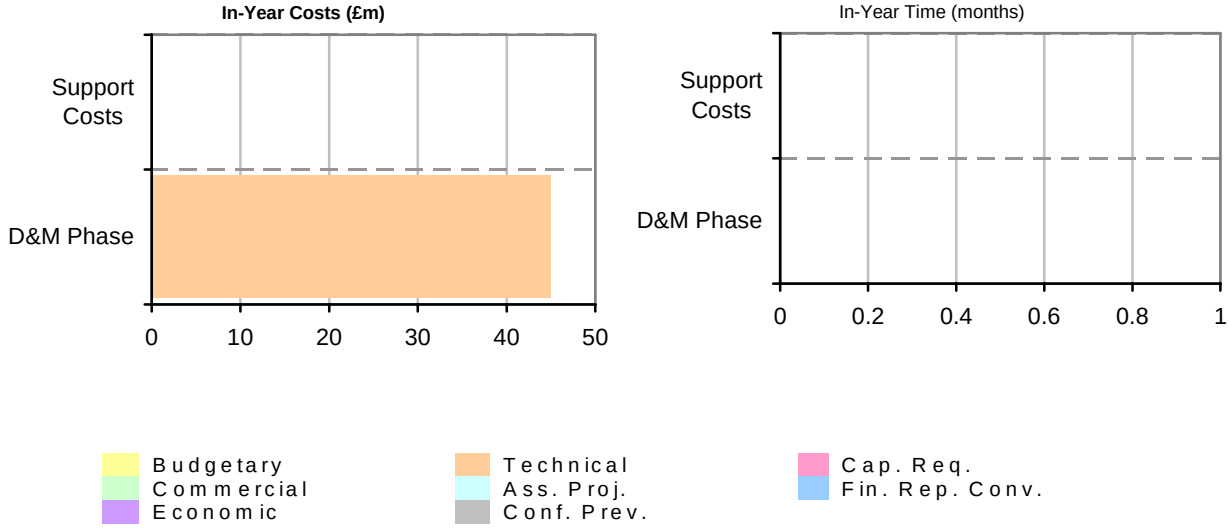
The Capability

The Nimrod Maritime Reconnaissance and Attack MK4 will replace the current Nimrod Maritime Reconnaissance MK2 as the new maritime patrol aircraft. Nimrod Maritime Reconnaissance and Attack MK4 will provide significantly enhanced Anti-Submarine and Anti-Surface 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.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£4m	£5m	+£1m	£0m
Cost of D&M Phase	£2813m	£3647m	+£834m	+£45m
Cost of Support Phase	£146m	£140m	-£6m	£m
In-Service Date	April 2003	December 2010	+92 months	0 months

In Year Progress



The net In-Year cost increase of £46M is attributable to the deletion of 3 aircraft (-£76M), an extended flight trials programme (+£22M), the treatment of corrosion on donor components from Nimrod MR2 aircraft (+£42M), changes to the aircraft (+£35M), provision for Operational Test & Evaluation fallout (+£18M) and increase to risk funding (+£6M).

No change to In-Year Time.

Risk Assessment against Defence Lines of Development

Equipment	■	Training	■	Logistics	■	Infrastructure	■
Personnel	■	Doctrine	■	Organisation	■	Information	■

Skynet 5

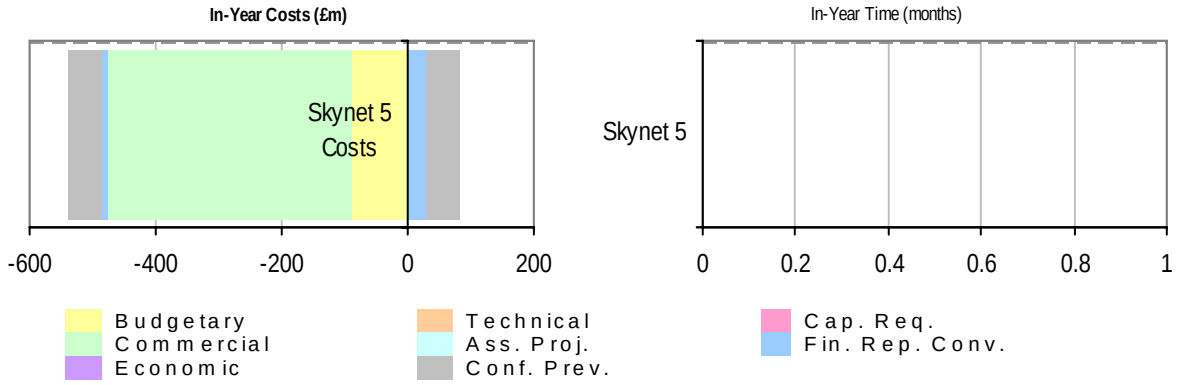
The Capability

Skynet 5 provides secure, military grade satellite communications. In-service Skynet 5 services are being fully utilised to support all current operational deployments and contingency operations. Any reduction in the level of service currently being provided by the Skynet 5 services would have a serious impact to the conduct of operations, with loss of the essential capabilities to the front line deployed troops of secure and robust communications links back to the UK.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£113m	£123m	+£10m	£0m
Cost of D&M Phase & Support	£3660m	£3203m	-£457m	-£457m
In-Service Date	March 2005	February 2005	-1 month	0 months
Support Contract Go-Live	September 2002	October 20003	-3 months	0 months
Support Contract End	February 2018	February 2020	+24 months	0 month
Full Operating Service		March 2009		

In Year Progress



The Skynet 5 communications service contract had relied on insurance to cover the launch and in-orbit risks associated with the new satellites needed to provide the required PFI service. Since contract award there has been contraction in the capacity in the satellite insurance market. In 2005 Skynet 5 gained approval for a revised procurement strategy that resulted in project costs increasing to £3660M for a third in-orbit spare satellite and a fourth satellite in the event of launch failure. Following three successful satellite launches, Skynet 5 forecast costs have reduced from £3660m to £3203m. In year additional costs of £53m were incurred and recovered from the Conflict Prevention Fund.

Risk Assessment against Defence Lines of Development

Equipment	■	Training	■	Logistics	■	Infrastructure	■
Personnel	■	Doctrine	■	Organisation	■	Information	■

Tornado

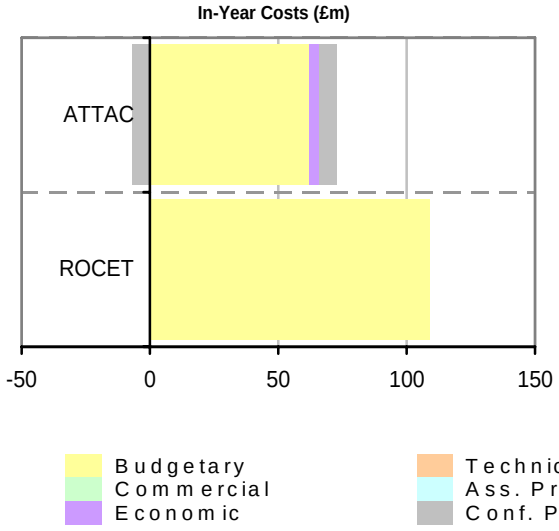
The Capability

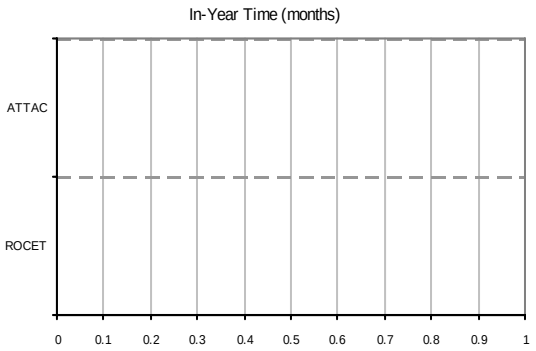
The UK Tornado fleet is fundamental to the delivery of air power into the future. Meeting new funding targets made the original support solution unaffordable and a partnering approach with BAE Systems and Rolls-Royce Defence Aerospace was selected to reduce the cost of Tornado support by more than half. A single contract was placed with each company to provide platform and engine availability. These contracts provide the required support until the aircraft Out-of Service Date and meanwhile are flexible to changes in Defence planning.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Availability Transformation Tornado Aircraft Contract (ATTAC)	£1193m	£1257m	+£64m	+£66m
Cost of RB199 Operational Contract for Engine Transformation (ROCET)	£470m	£468m	-£2m	+£109m
Availability Transformation Tornado Aircraft Contract Go-Live	December 2007	November 2007	-1 months	0 months
RB199 Operational Contract for Engine Transformation Go-Live	December 2007	December 2005	-24 months	0 months

In Year Progress





In-year increases on the Availability Transformation Tornado Aircraft Contract have been mainly as the result of increased output. Other causes include conflict prevention and exchange rate fluctuations

In year increases on the RB199 Operational Contract for Engine Transformation are due to an increase in output required against the RAF Management Plan

Risk Assessment against Defence Lines of Development

Equipment	■	Training	■	Logistics	■	Infrastructure	■
Personnel	■	Doctrine	■	Organisation	■	Information	■

Part B – Post Main Investment Decision

A400M

The Capability

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 Future Large Aircraft "Initial Gate" approval was achieved in July 1997. A contract was signed with Airbus Military Sociedad Limitada to develop and produce 180 aircraft for seven European nations. UK is to take 25 aircraft with deliveries expected to commence in Financial Year 2014-2015.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£2m	£1m	-£1m	£0m
Cost of D&M Phase	£2744m	£3285m	+£541	+£653m
In-Service Date	December 2009	December 2015	+72 months	+48 months

In Year Progress

***

***

Budgetary
Commercial
Economic

Technical
Ass. Proj.
Conf. Prev.

Cap. Req.
Fin. Rep. Conv.

The principal factor affecting cost growth has been the unfavourable rate of exchange between Sterling and the Euro. Delays to the programme, announced by Airbus Military, have increased costs due to the effects of inflation and Cost of Capital Charge. Technical Factors (a reassessment of the need for capital spares and additional airworthiness support to cover aircraft release to service) have also led to cost growth. Changed Capability Requirements have been offset to an extent by a reduction in the planned usage of the International Training Centre facility.

Airbus announced that the first flight of the prototype aircraft, due in January 2008, may not now happen until late 2009. In December 2008 Airbus proposed a "new approach" to the A400M programme, including revising the production schedule. Full details of the revised schedule are still to be provided by Airbus but, based on preliminary information, it is estimated that initial UK deliveries cannot start before 2013.

Risk Assessment against Defence Lines of Development

Equipment		**Training**		**Logistics**		**Infrastructure**	
Personnel		**Doctrine**		**Organisation**		**Information**	

Astute Class Submarine

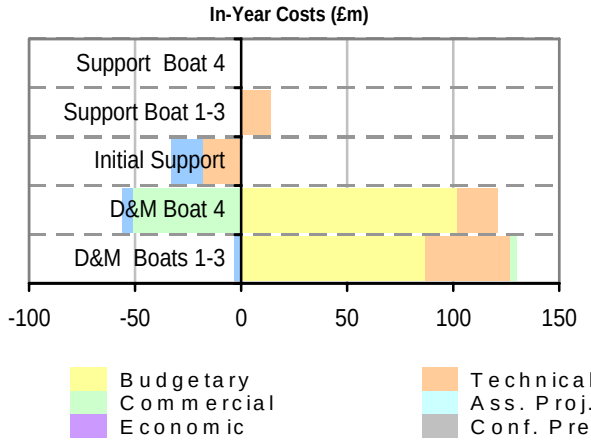
The Capability

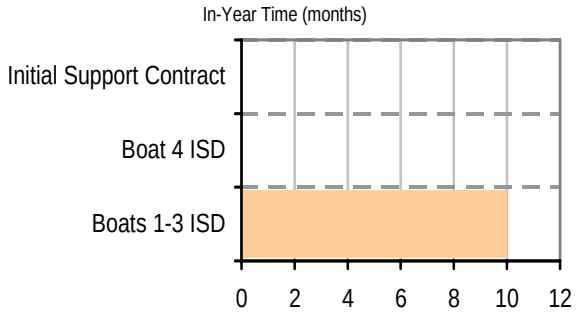
The military requirement is for up to 7-8 Astute Class Submersible Ship Nuclear to replace the existing Swiftsure and Trafalgar Classes of nuclear powered attack submarine. Astute Class submarines are required to perform a range of military tasks; these unique requirements are combined within the Astute design to provide global reach, endurance, covertness, sustained high speed and the ability to conduct unsupported operations in hostile environments.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£33m	£29m	-£4m	£0m
Cost of D&M Phase	£4188m	£5522m	+£1334m	+£192m
Cost of Support Phase	£773m	£1149m	+£376m	-£19m
In-Service Date Boats 1-3	June 2005	March 2010	+57 months	+10 months
In-Service Date Boat 4		December 2016	0 months	0 months
Initial Support Contract Go-Live	August 2007	May 2007	-3 months	0 months
Initial Support Contract End	December 2012	December 2012	0 months	0 months

In Year Progress





Technical cost changes are due to increases in construction costs (+£76m) for Astute Boats 1-3 and build, nuclear plant and safety costs (+£19m) for Astute Boat 4 with a decrease against non prime contract lines (-£36m) for Astute Boats 1-3. A reduction in shipbuilder's relief of £3m for Astute Boats 1-3 and a VAT receipt of £51m for Astute Boat 4 accounts for the change in receipts. Budgetary Changes reflect impact of Option E09UW399S to defer costs from Boats 2-7 in first 4 years. (+£87m for Astute Boats 1-3 and £102m for Astute Boat 4). The decrease in Support costs is due to Boat Slippage (£-18m) and revised delivery profiles for Capital Spares. There is a reduction in the Cost of Capital Charges resulting from revised delivery profiles (-£3m for Astute Boats 1-3, -£5m Astute Boat 4 and -£15m for Capital spares).

There has been a ten month slip in the project due to technical difficulties.

Risk Assessment against Defence Lines of Development on reaching IOC

Equipment	■	Training	■	Logistics	■	Infrastructure	■
Personnel	■	Doctrine	■	Organisation	■	Information	■

Beyond Visual Range Air to Air Missile

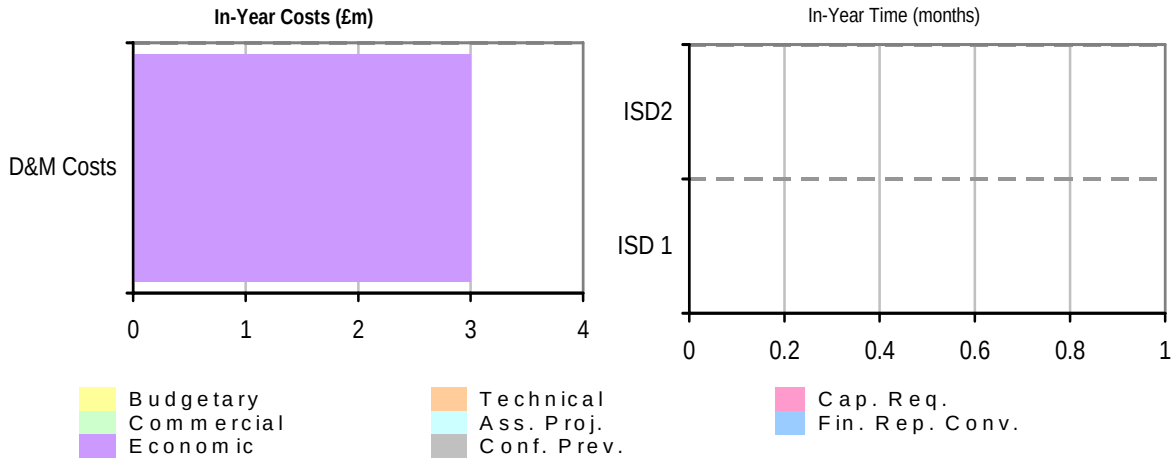
The Capability

The Beyond Visual Range Air-to-Air Missile programme is intended to develop and produce a replacement for the interim fit of Advance Medium Range Air-to-Air Missile as the long-range air-to-air weapon on Typhoon in UK service. It is a collaborative project with France, Germany, Italy Spain and Sweden. Main Gate approval was obtained in May 2000, with a contract for Development, Manufacture and Support let with MBDA (UK) in December 2002.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	14 M	20 M	+6 M	£0m
Cost of D&M Phase	1,362 M	1,282 M	-80 M	+3m
In-Service Date (original)	August 2012		+12	0 months
In-Service Date 1	August 2012	August 2012	0	0 months
In-Service Date 2	July 2015	July 2015	0	0 months

In Year Progress



Change in Euro exchange rate on Meteor Prime Contract (+3m)

There have been no in-year changes in timescales.

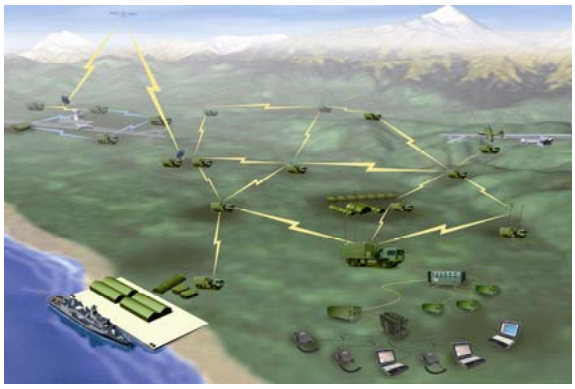
Risk Assessment against Defence Lines of Development

Equipment	Training	Logistics	Infrastructure
Personnel	Doctrine	Organisation	Information

Falcon

The Capability

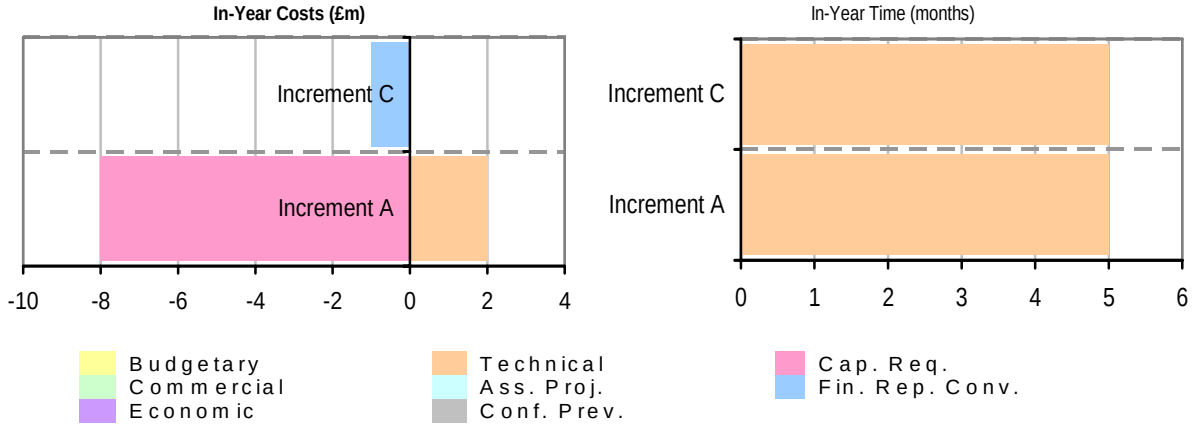
Falcon will provide the comprehensive deployable communication systems that are needed at all levels of command and will be the high capacity system that binds together tactical communications in a theatre of operations as an integral part of the plans for Networked Enabled Capability. The programme comprises a number of increments of which only Increments A and C are reflected in the PSS. Increment A will provide a tactical formation level secure communication system for the High Readiness Force (Land) and the Allied Rapid Reaction Corps. Increment C, providing capability for Royal Air Force deployed operating bases, is the same equipment as contracted under Falcon Increment A.



Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£30m	£31m	+£1m	-
Cost of D&M Phase	£374m	£331m	-£43m	-£7m
In Service Date Increment A	February 2011	November 2010	-3 months	+ 5 months
In Service Date Increment C	March 2011	February 2011	-1 month	+ 5 months

In Year Progress



As the project schedule has matured, the latest assessment of the delivery schedule for Increment A has led to an increase in the Cost of Capital. This is more than offset by the in-year reduction connected with the MOD decision not to commit to additional Defence Information Infrastructure integration, which has had consequential impacts on interoperability and survivability. The decrease in costs for Increment C is the result of a reduction of In-Year expenditure against Control Total

The majority of the system has been developed to a high degree of maturity and the system validation and verification process started, but there have been delays to the voice telephony sub-system and the cryptographic sub-system, which have had a consequential 5 month delay to the whole contract. The Equipment Acceptance Trial, now contracted for late 2009, will be a key milestone in the system's development.

Risk Assessment against Defence Lines of Development

Equipment		Training		Logistics	
Infrastructure		Personnel		Doctrine	
Organisation		Information		Interoperability	

Joint Combat Aircraft

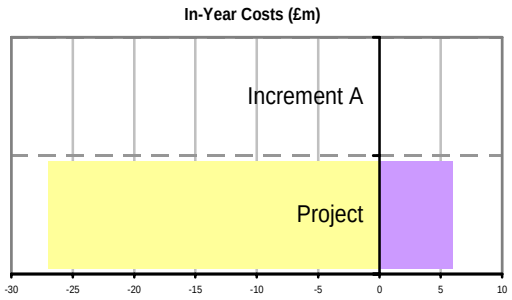
The Capability

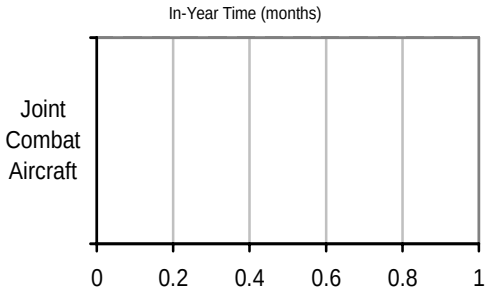
Joint Strike fighter was selected to meet the UK's requirement to provide the UK with an expeditionary air to ground and air to air capability to maintain the Carrier Strike capability currently filled by the Harrier. Joint Strike fighter is an aircraft programme run by the USA to which there are eight partner nations with the UK being the only level one partner thus allowing the UK to influence the base design of Joint Strike Fighter to include UK requirements within the System Design and Demonstration Phase of the programme. In 2001 the UK noted but did not approve and In Service Date hence the UK has a "tailored Main Gate for Demonstration only".

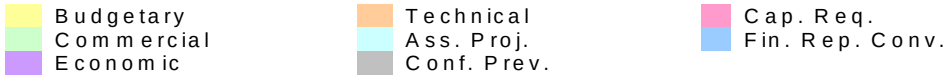
Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£150m	£144m	-£6m	£0m
Cost of D&M Phase – System Design and Demonstration	£2,874m	£2,451m	-£423m	-£21m

In Year Progress







Risk mitigation action leading to minimal level of unforeseen activities emerging (-£10m), Ship Borne Rolling Vertical Landing (-£8m) due to overestimate of the work required at this stage of the programme, slippage in the integration of Joint Combat Aircraft with the Future Aircraft Carriers (-£6m) correction of in year System Development and Demonstration Contribution (+£2m). **Re-profiling of future years** -comprising of Ship Borne Rolling and Vertical Landing (-£1m), updated assessment of the expected implementation work supporting the Autonomic Logistics Information System – (-£2m). An increase due to Joint Safe Escape (+£1m) refinement of Risk mitigation funding for future years (-£4m), Reduction of Safety Case (-£2m). **Cost of Capital Charge** -variance as a result of above (+£3m). Economic increases reflect the reported $/£ foreign exchange movement from that used in PR08 to PR09 (+£6m)

As no In Service Date has yet been set for this project there is no official measurement of in year movement in time.

Risk Assessment against Defence Lines of Development

Equipment	■	Training	■	Logistics	■	Infrastructure	■
Personnel	■	Doctrine	■	Organisation	■	Information	■

Lynx Wildcat

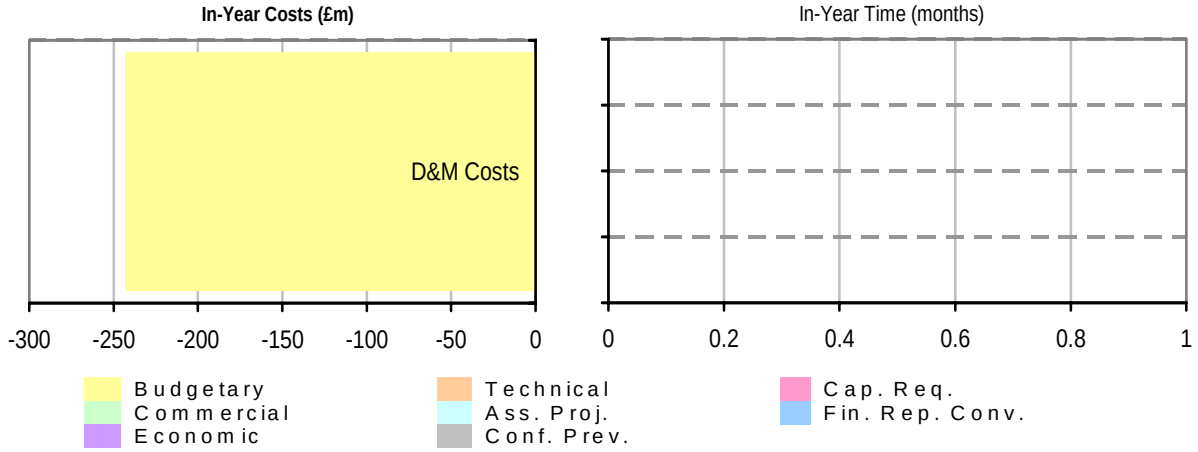
The Capability

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

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£59m	£57m	-£2m	£0m
Cost of D&M Phase	£1966m	£1669m	-£297m	-£242m
In-Service Date - BRH	August 2014	January 2014l	-7 months	0 months
In-Service Date - SCMR	August 2015	January 2015	-7 months	0 months

In Year Progress



Project cost is significantly reduced due to a PR09 Option to 'Descope the project and reduce the number of aircraft from 80 to 62'.

Risk Assessment against Defence Lines of Development

Equipment	■	Training	■	Logistics	■	Infrastructure	■
Personnel	■	Doctrine	■	Organisation	■	Information	■

Future Strategic Tanker Aircraft

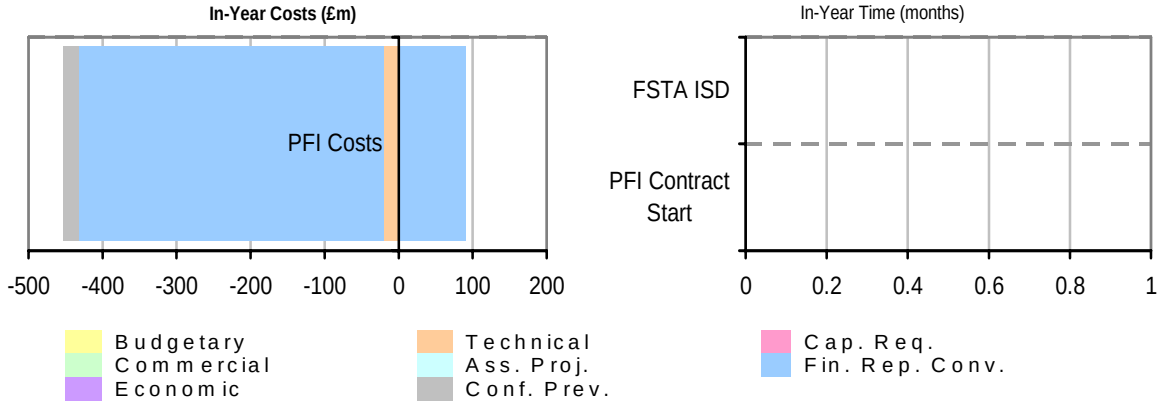
The Capability

The Future Strategic Tanker Aircraft is planned to replace the Air-to-Air Refuelling and the passenger Air Transport capability currently provided by the Royal Air Force's fleet of VC10 and TriStar aircraft. Air-to-Air Refuelling is a key military capability that significantly increases the operational range and endurance of front line aircraft across a range of defence roles and military tasks. Many of the UK's frontline Fast Jet fleets require Air Refuelling to an operational theatre in order to meet deployment timelines.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£13m	£38m	+£25m	-
PFI Costs	£12,536m	£11,963m	-£573m	-£363m
In-Service Date	November 2014	May 2014	-6 months	-
Support-Service PFI Contract Go-Live	March 2008	March 2008	-	-
Support-Service PFI Contract End	March 2035	March 2035	-	-

In Year Progress



Overall there has been an in-year reduction in project cost. Costs to supporting operations, originally included in Main Gate approval, will now be funded via conflict prevention. The Technical factors reduced following an improved definition of technical requirements relating to communication and information systems. The major area for change is Budgetary and follows a change from actual costs to a risk based assessment of: equipment obsolescence and change in law; internal accounting adjustments and a revision of potential risk opportunities.

The FSTA project is proceeding on time.

Risk Assessment against Defence Lines of Development

Equipment		Training		Logistics		Infrastructure	
Personnel		Doctrine		Organisation		Information	

Merlin Capability Sustainment Programme

The Capability

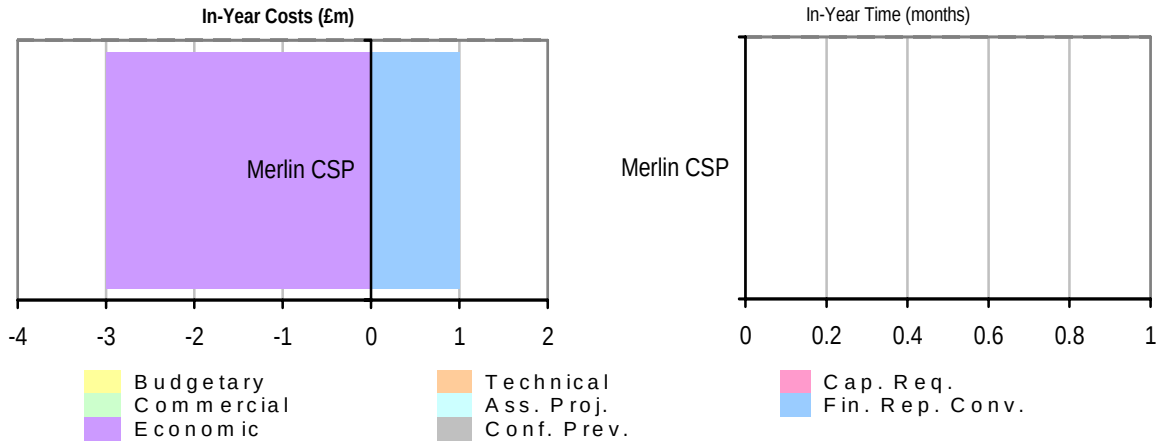
The Merlin Capability Sustainment Programme will update 30 Merlin Mk1 aircraft to overcome existing and forecast obsolescence within the Weapon System Avionics to ensure sustainment of the required capability until the planned out of service date (2029). The Demonstration & Manufacture contract has been placed with Lockheed Martin Aero Systems Integration Corporation.

The Merlin Mk1 is responsible for delivering protection to the Royal Navy's fleet from sub surface threats. It also provides a significant contribution to their overall situational awareness both above and below the water. The programme is designed to sustain the capability out to the current out of service date. The converted aircraft will be known as the Merlin Mk2.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£29m	£27m	-£2m	£0m
Cost of D&M Phase	£840m	£830m	-£10m	-£2m
In-Service Date	September 2014	February 2014	-7 months	0 months

In Year Progress



Earlier than forecast completion of work led to reduction in inflation but increase in cost of capital.

None

Risk Assessment against Defence Lines of Development

Equipment	■	Training	■	Logistics	■	Infrastructure	■
Personnel	■	Doctrine	■	Organisation	■	Information	■

Queen Elizabeth Class

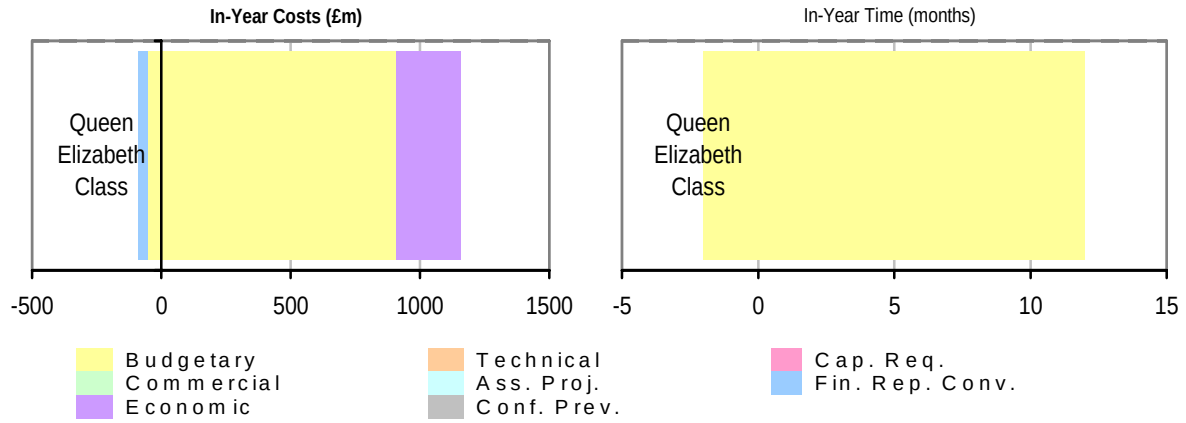
The Capability

The continuing need for the Carrier Strike capability was confirmed in the 2003 Defence White Paper. The platform element of the capability will be provided by 2 new carriers – to be known as the Queen Elizabeth Class. A competitive assessment phase led to the formation of an Alliance structure (including MOD and industry) to combine the skills and resources needed to take the project forward. A staged approval to Main Gate led to award of the manufacture contract in July 08, with ISDs originally planned for 2014 and 2016. However due to a delay in contract signature the approved dates are later than this. MOD's Equipment Examination in late 2008 announced a delay of between 1 and 2 years to constrain funding in years 1-4 and give better alignment with the Joint Combat Aircraft programme; ISD is currently forecast for 2016.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£118M	£298M	+£180M	£0m
Cost of D&M Phase	£4359M	£5133M	+£774M	+£1070M
In-Service Dates – Queen Elizabeth	October 2015	May 2016	+7mths	+10mths

In Year Progress



The Equipment Examination option constrained the Class' funding in yrs 1-4 with consequential delay to both ISDs and the introduction of cost growth into the programme. The potential shortfall in maritime Defence Final Outputs is mitigated by the extension of legacy Carrier Vertical Strike platforms.

The Class delay adds risk to delivery of Joint Combat Aircraft IOC(Maritime). Industrial impacts are substantial and will result in the Aircraft Carrier Alliance build programme being rescheduled, reducing the overall level of competition and causing out of sequence work with blocks having to be preserved for longer periods.

Risk Assessment against Defence Lines of Development

Equipment	■	Training	■	Logistics	■	Infrastructure	■
Personnel	■	Doctrine	■	Organisation	■	Information	■

Support Vehicle

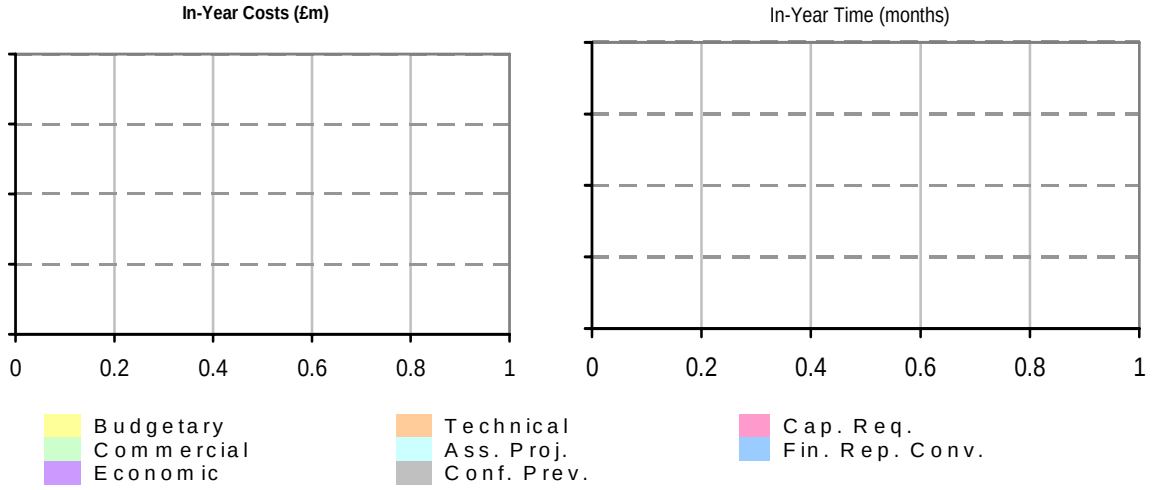
The Capability

The Support Vehicle programme will procure the future tri-service cargo and recovery vehicles that will increase the military material lift/distribution and recovery capabilities. The programme will procure a fleet of vehicles consisting of 42 variants but effectively based around the Light, Medium and Heavy Cargo Vehicles (6, 9 and 15 tonne respectively), the 7,000 litre Unit Support Tanker, the Recovery Vehicle and the Recovery Trailer. These vehicles will replace the in-service 4, 8 and 14 tonne cargo vehicles and the three in-service recovery vehicle types

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of D&M Phase	£1641m	£1272m	-£369m	£0m
Cost of Support Phase	£1180m	£324m	-£0[1]m	£0m
In-Service Date	April 2006	February 2008	+22 months	0 months
Support Contract Go-Live	-	January 2008	0 months	0 months

In Year Progress



Risk Assessment against Defence Lines of Development

Equipment	■	Training	■	Logistics	■	Infrastructure	■
Personnel	■	Doctrine	■	Organisation	■	Information	■

[1] No variation has been entered because the original Business Case was based on a traditional type support solution at estimated cost of £1180M. In 2005 the strategy adopted was a Contracted Logistic Support arrangement with an estimated cost of £324M. The two approaches are entirely different and a cost comparison is not feasible.

Terrier

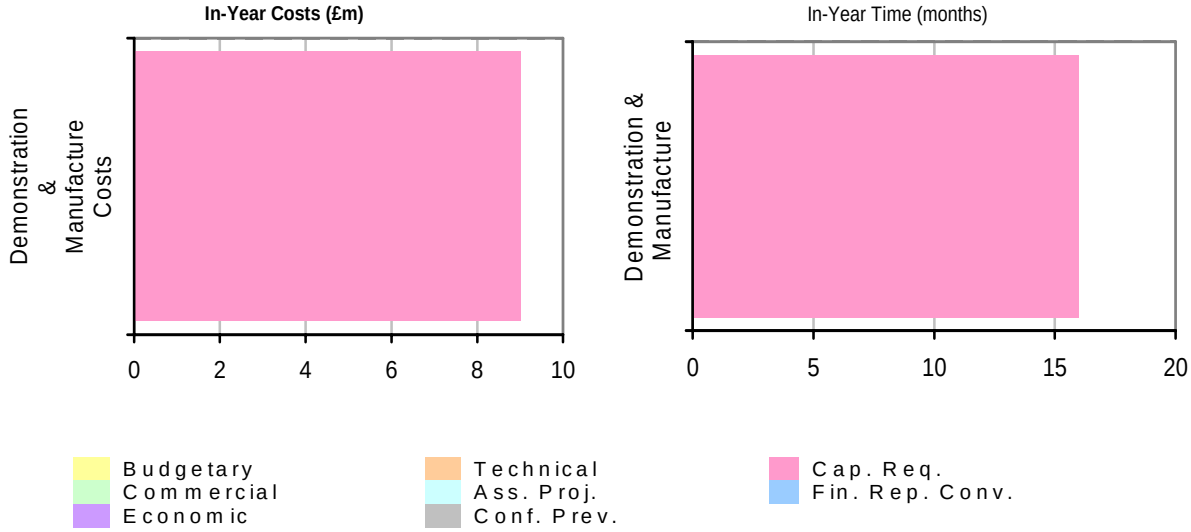
The Capability

Terrier is required 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 Engineer units. Terrier is being procured to replace the capability provided by the Combat Engineer Tractors.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£17m	£17m	£0m	£0m
Cost of D&M Phase	£304m	£322m	+£18m	+£9m
Cost of Support Phase	£64m	£63m	-£1m	£0m
In-Service Date	December 2008	April 2013	+52 months	+16 months

In Year Progress



Customer change in requirement for Mine Blast Survivability, revised Bowman fit and architecture to accept Electronic Countermeasures. Trades for reliability

Customer change in requirement for Mine Blast Survivability, revised Bowman fit and architecture to accept Electronic Countermeasures. Trades for reliability

Risk Assessment against Defence Lines of Development

Equipment	■	Training	■	Logistics	■	Infrastructure	■
Personnel	■	Doctrine	■	Organisation	■	Information	■

Type 45 Destroyer

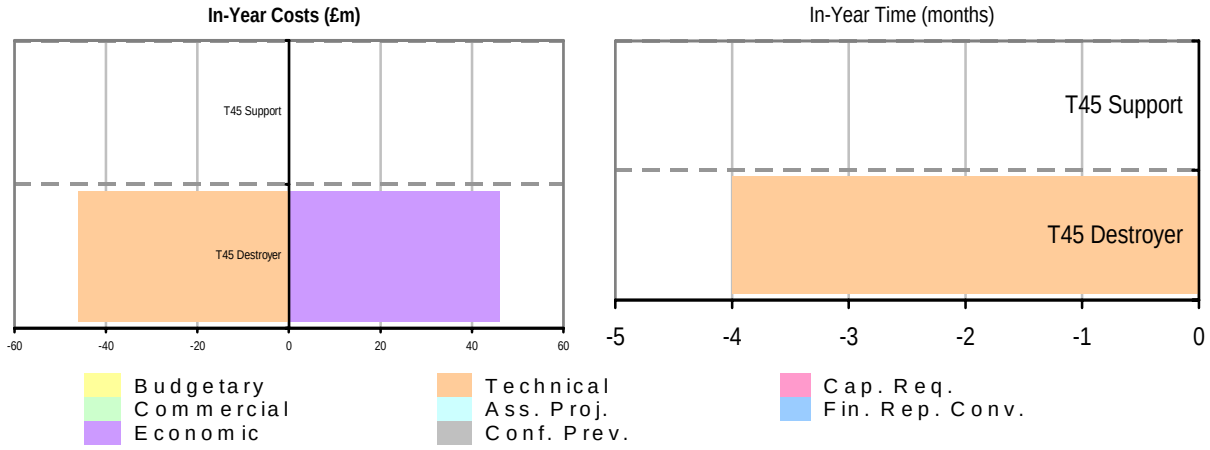
The Capability

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

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£213m	£232m	+£19m	£0m
Cost of D&M Phase	£5475m	£6464m	+£989m	£0m
Cost of Support Phase	£14m	£14m	£0m	£0m
Duration of Assessment Phase		108 months		
In-Service Date	Nov 2007	July 2010	+32 months	-4 months
Support Contract Go-Live	June 2008	June 2008	0 months	0 months

In Year Progress



Benefits associated with the predicted earlier delivery of Platforms (-£50M). These were offset by increases in Principal Anti-Air Missile System costs due to Exchange Rate (+£44M), Type 45 Ship costs due to higher than anticipated escalation of contractual Variation On Price (VOP) indices (+£2M) and an increase in programme costs identified through the annual financial planning process (+£4M). The net effect is no cost growth.

Technical risk has been retired (e.g. 2 successful Principal Anti-Air Missile System firings) which is reflected in the latest timescale Risk Analysis indicating ISD achievable earlier than previously reported (-4months).

Risk Assessment against Defence Lines of Development

Equipment	■	Training	■	Logistics	■	Infrastructure	■
Personnel	■	Doctrine	■	Organisation	■	Information	■

Typhoon

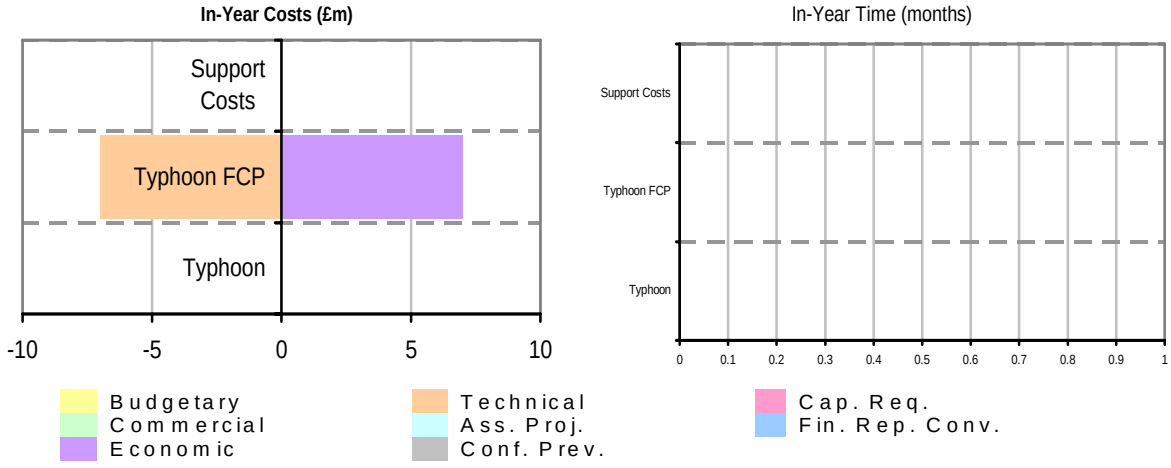
The Capability

Typhoon is an agile, multi-role combat aircraft, which is being developed, produced and supported in a collaborative project with Germany, Italy and Spain. Typhoon entered service with the RAF in 2003 and commenced operational duties in June 2007 when it assumed Quick Reaction Alert responsibility for defence of UK airspace. The air-to-air missile capability on the first tranche of aircraft has been complemented by the integration of an initial precision air-to-surface capability, which was declared combat ready by the RAF in July 2008. The Typhoon Future Capability Programme will provide a more comprehensive air-to-surface package on the second tranche of aircraft from 2012.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£131m	£122m	-£9m	£0m
Cost of D&M Phase	£17129m	£17962m	+£833m	-£54m
Cost of Support Phase	£13100m	£13100m	+0m	+0m
In-Service Date (Typhoon)	December 1998	June 2003	+54 months	0 months

In Year Progress



Additional costs on Typhoon Future Capability Programme due to changes to planning round assumptions for exchange rates and weakening of the Pound against the Euro and US Dollar during 2008/09 together with the associated impact on cost of capital.
Reduction to Cost of Capital costs on Typhoon Future Capability Programme due to reprofiling Resource and more robust forecast of accrual.

-

Risk Assessment against Defence Lines of Development

Equipment		Training		Logistics		Infrastructure	
Personnel		Doctrine		Organisation		Information	

United Kingdom Military Flying System

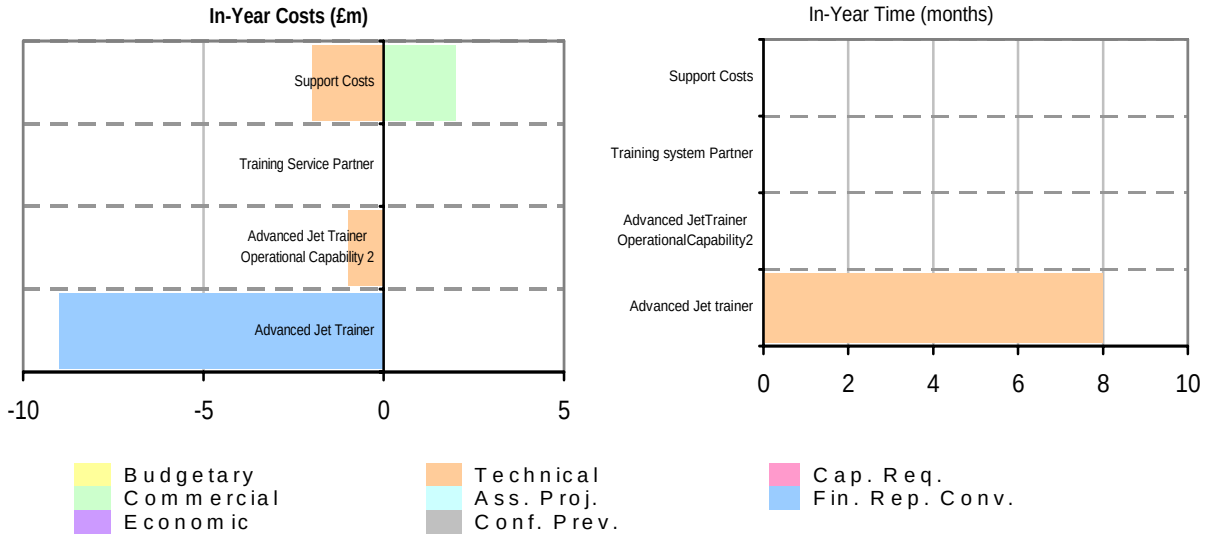
The Capability

UK Military Flying Training System will deliver a coherent, flexible and integrated flying training capability catering for the needs of the Royal Navy, the royal Air Force and the Army Air Corps. The flying training system takes aircrew from initial training through elementary, basic and advanced flying training phases to their arrival at their designated operational aircraft. The focus for UK Military Flying Training System is to achieve a holistic system based on capability and service delivery; it is not solely about the provision of aircraft platforms. It also offers an opportunity to modernise the flying training processes for all three Services, realise efficiencies and, since training is currently spread across several organisations, take advantage of potential economies of scale.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£116m	£110m	-£6m	£0m
Cost of D&M Phase	£884m	£841m	-£43m	-£10m
Cost of Support Phase	£315m	£308m	-£7m	£0m
In-Service Date Advanced Jet Trainer	February 2010	July 2010	+5months	+8months

In Year Progress



Variations arise from a reduced BAE Systems estimate for Security accreditation for the Advanced Jet Trainer Operational Capability 2, reduced Support costs as a result of non-delivery of Advanced Jet Trainer aircraft, less than expected refurbishment expenditure on the headquarters and a minor increase from Indirect resource calculations.

There have been no In-year time variations as a result of the costing variations reported.

Risk Assessment against Defence Lines of Development

Equipment		Training		Logistics		Infrastructure	
Personnel		Doctrine		Organisation		Information	

Watchkeeper

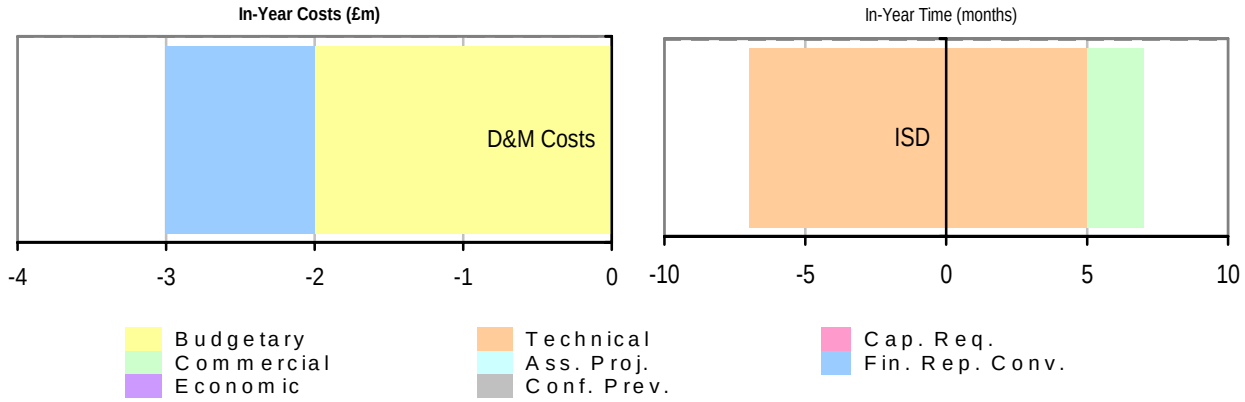
The Capability

Watchkeeper will provide the operational commander with a 24 hour, all weather, intelligence, surveillance, target acquisition and reconnaissance capability supplying accurate, timely and high quality imagery to support decision making. The system will consist of unmanned air vehicles, sensors, data links and ground control stations. There will be a capability gap due to Phoenix Unmanned Air Vehicle out of service date being April 2008 and Watchkeeper approved In Service Date of February 2011. The Hermes 450 Unmanned Air Vehicle has been contracted on a service based provision to fulfil the current capability gap and cover an Urgent Operational Requirement in Iraq and Afghanistan.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£52m	£65m	+£13m	£0m
Cost of D&M Phase	£920m	£895m	-£25m	-£3m
In-Service Date	Feb 2011	Dec 2010	-2 months	0 months

In Year Progress



A two million pound cost reduction is the result of an option being taken to change the Watchkeeper runway at Upavon from a hardened to a grass surface. A further one million is due to a reduction in the Cost of Capital Charge resulting from re-profiling accruals.

Throughout the year there has been movement in both directions recorded to the Watchkeeper schedule. Close monitoring of potential risks, particularly those associated to the trials programme being located Israel and successful mitigation actions has resulted in maintaining our previous published forecast In Service Date of December 2010.

Risk Assessment against Defence Lines of Development

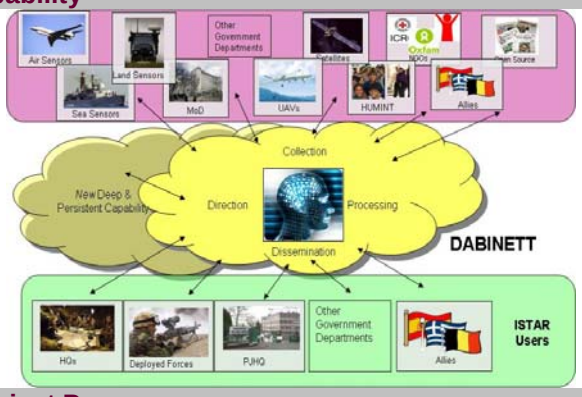
Equipment		Training		Logistics		Infrastructure	
Personnel		Doctrine		Organisation		Information	

Part C – Pre-Main Investment Decision Projects

Dabinett

The Capability

The Dabinett Programme will significantly improve the efficiency, effectiveness, quality and timeliness of intelligence delivered to the commander, primarily by making better use of legacy systems but also through the introduction of new capability across all the Defence Lines of Development. It consists of a number of projects delivering capability across three overlapping phases.



Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase (first four years)	£8m	£8m		

The Assessment Phase

Programme

Date	Milestone
March 2008	Initial Gate Approval

Programme is in a continuous assessment Phase that will initiate a number of projects, with their own lifecycles, over a series of phases to deliver the full capability identified for Dabinett.

Future Integrated Soldier Technology

The Capability

The Future Integrated Soldier Technology programme aims to integrate both current and emerging key technologies that British dismounted soldiers require for them to maintain their position in the forefront of capability. The programme will ensure the future soldier has equipment that optimises effectiveness, reduces physical and psychological load, and minimises the effects of combat stress and the risks of human error. The particular areas being addressed are Surveillance and Target Acquisition, and Command, Control, Communications, Computers and Information.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£26m	£142m	+£116m	
Cost of Assessment Phase Inc 1	£26m	£38m	+£12m	

The Assessment Phase

Key Milestones

- Initial Gate Approval: August 2001
- Award of prime contract: March 2003
- Main Gate Approval – Increment 1A: ***
- Main Gate Approval – Increment 1B: ***

Narrative

Initial Gate approval was achieved in August 2001. Following a competitive planning phase, Thales UK Ltd was selected as the Assessment Phase prime contractor in March 2003. A major trial in Autumn 2005 indicated that some systems were short of the required levels of technical readiness. As a result, a new incremental procurement strategy was adopted, allowing technology to be exploited as it matures, thereby de-risking the programme while not losing sight of the aim of an integrated suite of equipment. The first increment is divided into two parallel elements, one addressing the area of Surveillance and Target Acquisition (Increment 1a), the other looking at Command, Control, Communications, Computers and Information (Increment 1b). Further increments are anticipated but have not yet been approved. Towards the end of 2008 both elements of the first increment were reprofiled, partly in response to operational demand for increased quantities of Surveillance and Target Acquisition equipment, with the result that revised price quotations have been obtained. This has delayed submission of the Main Gate Business Cases. Once each increment has been approved at Main Gate, detailed contractual arrangements will be negotiated with the prime contractor, who will then undertake a programme of demonstration and manufacture resulting in the delivery of equipment.

Future Rapid Effect System

The Capability

Future Rapid Effect System will be part of a balanced force consisting of Heavy, Medium and Light brigades.

The Future Rapid Effect System will replace the Army's Saxon, FV 430 and Combat Vehicle Reconnaissance (Tracked) vehicles. The new vehicles will provide higher levels of deployability and survivability over these existing vehicles.

The Future Rapid Effect System fleet is expected to be comprised of five families of vehicles: Utility, Reconnaissance, Medium Armour, Manoeuvre Support and Basic Capability Utility.

Picture not available

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£241m	£344m	+103m	N/A

The Assessment Phase

Key Milestones

- May 2004 - Initial Gate Approval (Utility Vehicle)
- June 2007 – Utility Vehicle Acquisition Strategy approved
- January 2008 – System of Systems Integrator contract award
- May 2008 – Provisional preferred bidder for Utility Vehicle Design announced
- June 2008 – Initial Gate Approval (Specialist Vehicle)
-

Narrative

The initial Assessment Phase was approved in April 2004 and has focused primarily on those roles that will make up the Initial Operating Capability. The Assessment Phase has involved analysing the options for meeting the requirement, managing the programme of technical risk reduction work and developing the acquisition strategy for future.

The Specialist Vehicle element of the Future Rapid Effect System programme continues to make good progress and secured Investment Approvals Board and Ministerial approval in June 2008 for funding to conduct the bulk of its Assessment Phase

Helix

The Capability

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

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£44M	£41M	-£3M	

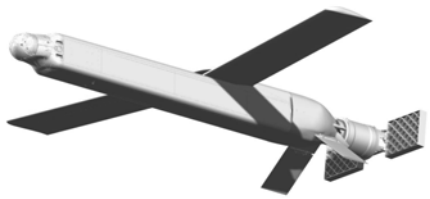
In Year Progress

Date	Milestone
August 2003	Initial Gate Approval
April 2004	Award of contracts for Assessment Phase
April 2005	First down-select
April 2007	Final down-select
May 2008	Assessment Phase Strategy Re-examination

Indirect Fire Precision Attack

The Capability

Indirect Fire Precision Attack will provide, by incremental acquisition, a suite of munitions for indirect precision attack of static, mobile, and manoeuvring targets, extending to ranges in excess of 150 kilometres. The capability required under Indirect Fire Precision Attack will be delivered through a structured programme of Assessment, Demonstration and Manufacture phases. The Assessment Phase is indicating that the Indirect Fire Precision Attack capability is likely to be achieved by a mixture of guided rockets, enhanced artillery shells and Loitering Munitions. They will carry a variety of payloads. Indirect Fire Precision Attack munitions will make use of a number of in-service platforms such as the Multiple Launch Rocket System and the AS90 self-propelled howitzer. The mix of munitions procured under the programme will have a range of In-Service Dates: this multi-solution approach is being managed through an incremental procurement strategy.



Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£112m	£102m	-£10m	

The Assessment Phase

Key Milestones

- Initial Gate Approval May 2001
- Assessment Phase Contract Award May 2002
- Increment 2 - Loitering Munitions Approval June 2008
- Increment 1 – Ballistic Sensor Fuzed Munition – Contract placement for Demonstration & manufacture achieved in September 2007 following international competition.

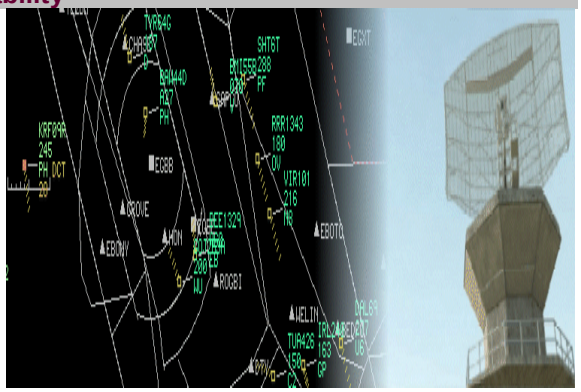
Narrative

The Initial Gate Business Case for the Indirect Fire Precision Attack was approved in May 2001. Competition using a Capability Based Questionnaire was followed by an Assessment Phase contract being awarded in May 2002 to a consortium of companies led by BAE Systems Future Systems. In line with the approved Indirect Fire Precision Attack strategy for an incremental programme, a series of Assessment Phases will be conducted, each being approved by a separate Review Note. The contract for the second phase of the Assessment was placed with the BAE Systems led consortium in January 2007.In light of the incremental procurement strategy, procurement of components will be approved via a series of Main Gate Business Cases. After each component received Main Gate approval, it will be managed as a separate programme in its own right. Each capability will continue to be included in the operational analysis work so that the overall mix and quantity of munitions can be refined as the programme progresses.

Joint Military Air Traffic Service

The Capability

The Joint Military Air Traffic Services project seeks to sustain the provision of Terminal Air Traffic Management at MOD Airfields and Air Weapons Ranges through the provision of Mode S Secondary Surveillance Radar data, addressing equipment obsolescence in the air traffic inventory and through the more efficient delivery of support services. The project will provide air traffic services to military and civilian aircraft arriving at, departing from and operating within the immediate vicinity, or confines of, MOD aerodromes (United Kingdom and overseas permanent and deployed) and at air weapons ranges



Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£3m	£2m	-£1m	

The Assessment Phase

Increment 1

Date	Milestone
January 2008	Initial Gate Approval

Assessment Part 1 is scheduled to complete with the submission of a Review Note in October 2009.

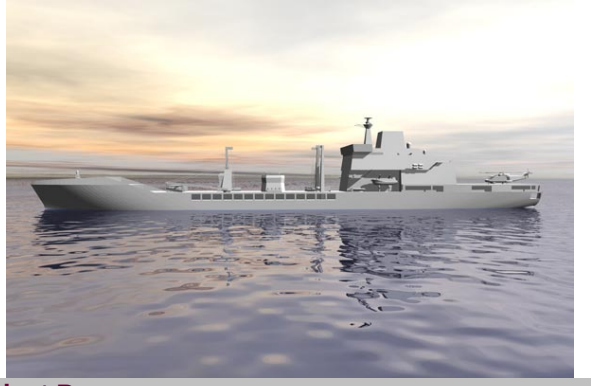
Increment 2

Date	Milestone
TBA	Review Note Approval

Military Afloat Reach and Sustainability

The Capability

The Military Afloat Reach and Sustainability programme will provide afloat logistic support to UK and allied maritime task groups at sea and their amphibious components operating ashore. Although not strictly a one-for-one replacement programme, new vessels will incrementally replace much of the existing Royal Fleet Auxiliary flotilla, as ships enter and leave service respectively.



Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£44m	***	***	

In Year Progress
The Assessment Phase

Date	Milestone
May 2008	4 bidders selected for Fleet Tanker competition: Navantia of Spain, Fincantieri of Italy, a BVT lead consortium with BMT and DSME (of Korea), and HHI of Korea.
December 2008	Department's Equipment Examination announcement states that there is scope for considering alternative approaches to procurement of the Fleet Tanker. Competition put on hold pending review.
March 2009	Competition for Fleet Tanker formally closed.

Maritime Airborne Surveillance and Control

The Capability

The requirement is to continue the provision of airborne surveillance and battle management capability for Carrier Strike as currently provided by the Sea King Mk7 Airborne Surveillance and Control variant. This capability will support naval operations and shipping, especially the Future Aircraft Carrier; and land operations in littoral regions. The system will conduct surveillance of air and surface targets, with the concurrent battle management capability allowing the command of assigned assets. This capability enables the protection of UK assets from attack and enhances the ability to conduct offensive operations.

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£21m	£15m	-£6m	

The Assessment Phase

Assessment Phase 1

Date	Milestone
July 2005	Initial Gate Approval.

The Assessment Phase 1 for the programme completed in June 2008 at a total cost of £7m.

Assessment Phase 2

Date	Milestone
June 2008	Review Note Approval.

The Assessment Phase 2 for the programme is expected to complete in *** at a total cost of £8M.

Search & Rescue – Helicopter

The Capability

Search and Rescue – Helicopter is a joint Ministry of Defence/Maritime and Coastguard Agency programme which will replace the current Search and Rescue capability, provided by the Royal Airforce and Royal Navy Sea Kings and under the Maritime and Coastguard Agency service contract. In the next decade, as the Sea Kings reach the end of their planned lives and the MCA contract expires, the capability will be progressively replaced with a harmonised, Private Finance Initiative, Search and Rescue service. A competition for the new service was launched in May 2006. Two rounds of costed bids have been submitted by Industry and are currently being evaluated by both Departments. A joint MOD/MCA Main Gate submission is planned for ***, with planned contract placement following in ***

Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase 1	£1.3m	£0.4m	-£0.9m	
Cost of Assessment Phase 2	£9.9m	£7.0m	-£2.9m	-

The Assessment Phase

Assesment Phase 1

Date	Milestone
May 2003	Initial Gate Approval

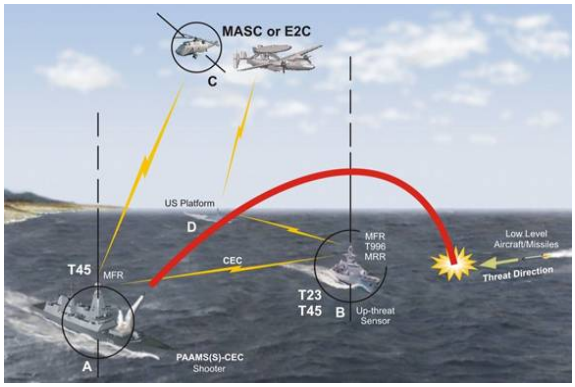
Assesment Phase 2

Date	Milestone
August 2005	Second Initial Gate Approval
May 2006	PFI Competition launched
November 2006	4 consortia down-selected
February 2007	Competitive Dialogue Starts
January 2008	1st Round Costed Bids
September 2008	Withdrawal of UK Air Rescue consortia leaving two remaining bidders
November 2008	2nd Round Costed Bids

UK Cooperative Engagement Capability Frigate & Destroyer Programme

The Capability

The Cooperative Engagement Capability is a United States Naval System fitted to an increasing number of United States assets including ships, aircraft and Army and Marine Corps land systems. It does not replace any single system but optimises capabilities inherent in combat systems. It is a Network Enabled Capability providing an advanced air and missile defence capability by sharing and fusing engagement quality data from existing sensors to deliver a stable air picture. It will fill the capability gap to detect, monitor, and counter Air Warfare threats and reduce a gap in interoperability with the United States. UK Cooperative Engagement Capability enhances the ability of fitted platforms to work together in detection, tracking and engagement of air targets. This capability represents a major advance in both air and missile defence



Summary of Project Progress

	Approved	Forecast/Actual	Variation	IY Variation
Cost of Assessment Phase	£25m	£53m	+£28m	

The Assessment Phase

Date	Milestone
May 2000	Assessment Phase 1
May 2003	Assessment Phase 2
March 2005	Equipment Plan 05 Option taken to extend the Assessment Phase by 5 years
March 2008	Assessment Phase 2b complete
September 2008	Assessment Phase 3 approval received and Invitation to Tender issued
January 2009	Assessment Phase 3 Contract accepted by industry
May 2009	Initial Design Review held and Stakeholders briefed
October 2009	Final Design Review to be held and Stakeholders briefed
***	***

Part 3 – Project Summary Sheets

A – Support Projects

Attack Helicopter

Team Responsible

Apache Project Team

Single point of accountability for Project Capability

Capability Manager (Battlespace Manoeuvre)

Senior Responsible Officer

Director Equipment Capability (Air and Littoral Manoeuvre)

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Support/Service/PFI** - Interim Support Arrangement

A. Section A: The Project

A.1. The Requirement

The Interim Support Arrangement is a precursor to the Future Support Arrangement. From first delivery in 2000, the growing Apache fleet was initially supported by Contractor Logistic Support on separate contracts with AgustaWestland. These separate contracts were extended to 2007, in anticipation of the Future Support Arrangement start date. However the Future Support Arrangement has been delayed due to extended commercial and financial discussions. Crucial in the case for the Interim Support Arrangement was that it did not conflict with the intent and strategy for the Future Support Arrangement, and the Interim Support Arrangement contract had the ability to accommodate the Future Support Arrangement if needed.

Interim Support Arrangement covers the following Apache Army Helicopter Mark 1 In Service Support areas from April 2007, until the Future Support Arrangement is in place:
Material Flow – Repair and supply chain management.
Aircraft Availability – Depth Support Maintenance and Forward Support to the training fleet.
Technical Support Services – Post Design Services.
Management Services – management services in respect of the contract with clauses to enable Project Team transformation and development of a Value for Money Benchmark for the Future Support Arrangement.

A.2. The Assessment Phase

There was no formal Assessment Phase for the Interim Support Arrangement, however it was subjected to a Business Case and Investment Appraisal.

A.3. Progress

The Interim Support Arrangement was first notified by Information Note to the Investment Approvals Board in August 2006.

The Interim Support Arrangement Investment Appraisal and Business Case were submitted for scrutiny to the Defence Logistic Investment Board in January 2007.

The Defence Logistics Investment Board of February 2007 approved Interim Support Arrangement for a three year contract at a Not To Exceed cost of £237m consisting entirely of Resource Departmental Expenditure Limit at 50% confidence.
The Investment Approvals Board was notified of the Interim Support Arrangement in February 2007. Contract Award was made on 28 March 2007 for 01 April 2007 start. The Interim Support Arrangement is structured to fully meet obligations in the Customer Supplier Agreement (now Joint Business Agreement), which includes supporting Operations, and facilitates progress towards the Future Support Arrangement.

Claims for In-Service Support against the Conflict Prevention Fund for the Apache Attack Helicopter have been less than £3m to date.

A.4. Capability Risks

The Apache Attack Helicopter capability could not be sustained without the provision of in service support. Without the Interim Support Arrangement, aircraft availability and flying rates would drop to zero very quickly. The Interim Support Arrangement provides support required in order that the Apache can fulfil its operational mission. If the Interim Support Arrangement was withdrawn, an alternative support solution would have to be put in place, possibly at increased cost.

A.5. Associated Projects – Not applicable

A.6. Procurement Strategy – Not applicable

A.7. Support Strategy

Apache Army Helicopter Mark 1 was procured through a United Kingdom Prime Contractor, AgustaWestland, with Tier 1 United States of America equipment manufacturers for the Airframe (Boeing), Sensors (Lockheed Martin Overseas Company) and Fire Control Radar (LongBow International). Other major United Kingdom equipment manufacturers provided the Engines (Rolls Royce), Transmissions (Westland Transmissions Limited) and Helicopter Integrated Defensive Aid Suite (Selex). Munitions were procured through Lockheed Martin Insys and a separate Public Finance Initiative contract by Aviation Training International Limited provided the Training Service, which runs for 30 years with a break point at 2017 to allow the contract to be renegotiated.

Original equipment manufacturers are now the suppliers to the Prime Contractor for In Service Support covered by the Interim Support Arrangement, providing:
Management Services
Material Flow – Repair and Spares provisioning
Aircraft Availability – through Depth Support and Forward Support to the training fleet.
Technical Support Services - Post Design Services & Airworthiness

	Contractor	Contract Scope	Contract Type	Procurement Route
Interim Support Arrangement	AgustaWestland (formerly Westland Helicopters Limited) (Prime Contractor)	In Service	Fixed Price core service	Single Tender
Interim Support Arrangement	Boeing (Sub-contractor)	In Service	Fixed Price	Single Tender

B. Section B: Cost

B.1. Cost of the Assessment Phase – Not applicable

B.2. Planned / Actual Cost Boundaries for Demonstration and Manufacture Phase/PFI – Not applicable

B.3. Cost of the Demonstration and Manufacture (D&M) Phase – Not applicable

B.4. Unit production cost – Not applicable

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

Description	Approved Cost (£m)	Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Interim Support Arrangement	237	222	-15	+8

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

B.5.1.1. Interim Support Arrangement

Date	Variation (£m)	Factor	Reason for Variation
March 2009	+1	Procurement Process	In-Year variation due to contract amendments of core payments Financial Year 2008/2009
March 2009	+4	Changed Capability Requirements	Anticipated roll-over of tasks into Financial Year 2010/2011
March 2009	-6	Changed Capability Requirements	Anticipated volume variance in tasks Financial Year 2009/2010
March 2009	-1	Changed Capability Requirements	Volume variance in tasks Financial Year 2008/2009
March 2009	+6	Exchange Rate	Forecast exchange variance Financial Year 2009/2010
March 2009	+4	Exchange Rate	Foreign exchange variance Financial Year 2008/2009
Historic	-7	Changed Capability Requirements	Volume variance in tasks Financial Year 2007/2008
Historic	-16	Procurement Process	Savings achieved in negotiation of core payments
Net Variation	**-15**		

B.5.2. Operational Impact of Support / Service / PFI Cost Variations

Description	
Interim Support Arrangement	-

C. Section C: Timescale

C.1. Duration of the Assessment Phase – Not applicable

C.2. Planned / Actual Boundaries for introduction of the Capability – Not applicable

C.3. In Service Date– Not applicable

C.4. Initial Operating Capability– Not applicable

C.5. Full Operating Capability– Not applicable

C.6. Support / Service / PFI Contract– Not applicable

C.6.1. Scope of Support / Service / PFI Contract

Description	
Interim Support Arrangement	Material Flow (Repair and Overhaul) of capital assets inclusive of: Sensors and Longbow Radar, as a service provision, in the United Kingdom Special Repair Activity centre at Wattisham. Fixed menu prices for specific spares inclusive repairs, for Boeing (Airframe) and other minor original equipment manufacturers. Strip, survey and quote for repair and the enabling repair facilities for the aircraft major transmission assemblies. Material Flow (Supply) providing the supply chain functions at Wattisham in support of the whole fleet. Aircraft Availability. Service provision by contract staff of long-term servicings of the whole fleet at the Depth Support Maintenance facility at Wattisham. Forward Support maintenance to the training fleet at Middle Wallop. Technical Support Services, Post Design Services (technical repairs and technical enquiries) and enabling the Design Authority to support the aircraft Airworthiness. Management Services of the above with clauses to enable Project Team transformation and development of a Value for Money Benchmark for the Future Support Arrangement.

C.6.2. Progress against approved Support / Service / PFI Contract Go-Live Date

Description	Approved Date	Actual Date	Variation (months)	In-Year Variation (months)
Interim Support Arrangement	April 2007	April 2007	0	0

C.6.2.1. Go-Live Date Variation

Date	Variation	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

C.6.3. Progress against approved End of Support / Service / PFI Contract Date

Description	Approved Date	Forecast/Actual Date	Variation (months)	Variation (months)
Interim Support Arrangement	March 2010	March 2010	0	0

C.6.3.1. End of Contract Date Variation

Date	Variation (months)	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

C.6.4. Operational Impact of Support / Service / PFI Support Contract variation

Description	
Interim Support Arrangement	-

D. Section D: Performance

D.1. Readiness Levels

D.1.1. Project

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	-	Readiness levels were not required when this project passed through Main Gate for Demonstration and Manufacture. No (re)assessment is required at Main Gate for Support.
System	-	System Readiness levels are not currently mandated for approvals

D.2. Performance against Lines of Development

Line of Development		Description	Forecast		
			To be met	At Risk	Not to be met
1.	Equipment	Ensure Apache aircraft deployed on Operation Herrick have requisite, endorsed theatre entry modifications embodied and effective support to all platform munitions is in place.	Yes	-	-
2.	Training	Ensure sufficient, effective training courses are available, including specialist aircrew, groundcrew and maintainer training.	Yes	-	-
3.	Logistics	Ensure sufficient, effective Logistic Support is in place, to include Deployable Spares Packs, Logistic Information Systems, Technical Publications, Spares delivery, maintenance reviews, Storage Policy for Apache aircraft, including engines and munitions. Progress of Future Support Arrangement. Rebuild aircraft in storage.	Yes	-	-
4.	Personnel	Ensure sufficient, trained personnel available to support the Apache fleet, including Army Technical manpower Rebalancing, Depth manpower provision and achievement of full crew manning.	Yes	Yes	-
5.	Concepts/ Doctrine	Requirement to continually re-evaluate Apache Concept of Operations and Doctrine and Equipment Support/Logistics Concept of Operations and Doctrine, in order to support current operations.	Yes	Yes	-
6.	Organisation/ Infrastructure	Develop the concept for Apache, including Wattisham as a Main Operating Base. Complete Industry/MOD collocation into an integrated corporate working environment.	Yes	Yes	-
7.	Information	The Information Line of Development is not recorded separately.			
	Percentage of those measured currently forecast to be met		100%		
	In-Year Change		0		

D.2.1.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
Historic	Personnel	Technical	Risk that insufficient, trained civilian staff are available to deliver output at Depth Support Unit, following withdrawal of military manpower in March 2009. Mitigating action by Agusta Westland has been taken prior to contract implementation, to recruit and train replacement manpower.
Historic	Concepts/Doctrine	Changed Capability Requirement	A continual review of Concept of Operations is needed to reflect current Operations.
Historic	Organisation/ Infrastructure	Technical	Development from new of the Main Operating Base concept and structure is needed; this is ongoing and not yet complete.

D.3. Performance against Key Performance Measures

D.3.1. Project – not applicable

D.3.2. Interim Support Arrangement

D.3.2.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
1	Logistics	Quantity/Efficiency - aircraft provided to meet the levels in the Forward Fleet as set out in the Joint Business Agreement.	Yes	-	-
2	Logistics	Safety/Airworthiness risks managed satisfactorily.	Yes	-	-
3	Logistics	Availability – percentage Operational Serviceability levels set and agreed in the Joint Business Agreement.	Yes	-	-
4	Logistics	Aircraft Capability – aircraft meets Operational Requirements.	Yes	-	-
5	Logistics	Reliability – percentage Operational Days lost due to Unscheduled maintenance, level set in the Joint Business Agreement.	Yes	-	-
6	Logistics	Maintainability - percentage Operational Days lost due to Scheduled maintenance, level set in the Joint Business Agreement.	Yes	-	-
7	Logistics	Spares - percentage Operational Days lost due to unavailable Spares, level set in the Joint Business Agreement.	Yes	-	-
Percentage currently forecast to be met			100%		
In-Year Change			0		

D.3.2.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
Historic	1	Changed Capability Requirements	Performance targets amended to reflect realistic and incrementally increasing performance levels and requirements of aircraft deployment on Operations. Also changes made to reflect that user flying rates and expectations were being exceeded.
Historic	3	Changed Capability Requirements	Performance targets amended to reflect realistic and incrementally increasing performance levels and requirements of aircraft deployment on Operations. Also changes made to reflect that user flying rates and expectations were being exceeded.
Historic	5	Changed Capability Requirements	Performance targets amended to reflect realistic and incrementally increasing performance levels and requirements of aircraft deployment on Operations. Also changes made to reflect that user flying rates and expectations were being exceeded.
Historic	6	Changed Capability Requirements	Performance targets amended to reflect realistic and incrementally increasing performance levels and requirements of aircraft deployment on Operations. Also changes made to reflect that user flying rates and expectations were being exceeded.
Historic	7	Changed Capability Requirements	Performance targets amended to reflect realistic and incrementally increasing performance levels and requirements of aircraft deployment on Operations. Also changes made to reflect that user flying rates and expectations were being exceeded.

D.3.2.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-

Hercules

Project

Hercules Integrated Operational Support

Team Responsible

Hercules Integrated Project Team

Single point of accountability for Project Capability

Air Command – Two Group

Senior Responsible Officer

Hercules Integrated Project Team Leader

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Support/Service/PFI -** Hercules Integrated Operational Support

A. Section A: The Project

A.1. The Requirement

Provision of a through-life partnered support contract for the Hercules C130 fleet until Out of Service Date for each platform. The Out of Service Date of C130K is 2012 and C130J is 2030. The contract will use a combined technical and supply chain approach, providing the RAF with flexible support, responsive to military requirements.

A.2. The Assessment Phase

A.3. Progress

Hercules Integrated Operational Support Contract was let with an effective date of 01 June 2006. Contract transition phase was completed in October 2007 with transition to full aircraft availability. The contract is based on current firm prices valid until 31 December 2010. Repricing activity for period 01 January 2011 to 31 December 2015 is due to commence 2009.

A.4. Capability Risks

Hercules Integrated Operational Support contract replaced a mixture of Contractor Logistic Support contracts and traditional support contracts. There would be a capability risk to the Front Line Command, if Hercules Integrated Operational Support was cancelled, as this would mean that C130 aircraft would not be available to RAF. In order to replace Hercules Integrated Operational Support the legacy contracts would need to be re-instated which would mean the costs to support C130 fleet would be greater.

A.5. Associated Projects – not applicable

A.6. Procurement Strategy – not applicable

A.7. Support Strategy

UK-based, combined C-130K and C-130J depth maintenance technical support organisation with both Industry and MOD employees. MOD retains responsibility for airworthiness and safety management, whilst Industry continue with their existing Design Authority role. Depth maintenance is carried out at a Combined Maintenance and Upgrade facility at Marshall of Cambridge. Hercules Integrated Operational Support Supply Chain Management provides a single, integrated supply chain for C-130K and C-130J fleets offering visibility of assets and inventory to the Hercules Integrated Operational Support partners. Supply Chain Management supports all maintenance activities in Forward and Depth at Combined Maintenance and Upgrade facility and ensures continuity of supply for deployed operations via Priming Equipment Packs. The MOD retains funding to develop and embody aircraft updates offering maximum flexibility.

Project	Contractor	Contract Scope	Contract Type	Procurement Route
Hercules Integrated Operational Support	Marshall-Aerospace Ltd	Prime Contractor. Through-Life Support of C130 with primary responsibility for Aircraft Maintenance	Firm Price	Single Source
Hercules Integrated Operational Support	Lockheed- Martin	Sub Prime with primary responsibility for Supply Chain	Firm Price	Single Source (Sub Contractor)
Hercules Integrated Operational Support	Rolls Royce	Sub Prime with primary responsibility for Propulsion Support	Firm Price	Single Source (Sub Contractor)

B. Section B: Cost

B.1. Cost of the Assessment Phase – not applicable

B.2. Cost Boundaries for Demonstration and Manufacture Phase/PFI – not applicable

B.3. Cost of the Demonstration and Manufacture (D&M) Phase – not applicable

B.4. Unit production cost – not applicable

B.5. Progress against approved Support/PFI Cost

Description	Approved Cost (£M)	Forecast cost (£M)	Variation (£m)	In-Year Variation (£m)
Hercules Integrated Operational Support	1860	1447	- 413	-

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

B.5.1.1. Hercules Integrated Operational Support

Date	Variation (£m)	Factor	Reason for Variation
March 2009	+30	Conflict Prevention	Increase in Operational tasks
March 2009	-30	Conflict Prevention	Claimed from Conflict Prevention Fund
Historic	+27	Conflict Prevention	Increase in Operational tasks - 2008
Historic	-27	Conflict Prevention	Claimed from Conflict Prevention Fund - 2008
Historic	+14	Conflict Prevention	Increase in Operational tasks - 2007
Historic	-14	Conflict Prevention	Claimed from Conflict Prevention Fund - 2007
Historic	-72	Exchange Rate	Contract has fixed price payments, which are in US Dollars. Payments are made against spot rate, which are different to those used in original Investment Appraisal.
Historic	-341	Risk Differential	The difference between the 50% most likely estimate and the Not to Exceed approval figure at the point of Main Gate approval.
Net Variation	**-413**		

B.5.2. Operational Impact of Support/PFI Cost Variations

Description	
Hercules Integrated Operational Support	-

C. Section C: Timescale

C.1. Duration of the Assessment Phase - not applicable

C.2. Planned / Actual Boundaries for introduction of the Capability- not applicable

C.3. Initial Operating Capability- not applicable

C.4. Full Operating Capability- not applicable

C.5. Hercules Integrated Operational Support

C.5.1. Scope of Contract

Description	
Hercules Integrated Operational Support	Provision of through-life support of the Hercules C130 fleet until Out of Service Date - C130K 2012 and C130J 2030. The contract will use a combined technical and supply chain approach, providing the RAF with flexible support, responsive to military requirements.

C.5.2. Progress against approved Contract Go-Live Date

Description	Approved Date	Actual/Forecast Date	Variation (months)	In-Year Variation (months)
Hercules Integrated Operational Support	June 2006	June 2006	-	-

C.5.2.1. Go-Live Date Variation

Date	Variation	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

C.5.2.2. Progress against approved End of Support / Service / PFI Contract Date

Description	Approved Date	Actual/Forecast Date	Variation (months)	In-Year Variation (months)
Hercules Integrated Operational Support	March 2030	March 2030	-	-

C.5.2.3. End of Contract Date Variation

Date	Variation	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

C.5.3. Operational Impact of Support Contract variation

Description	
-	-

D. Section D: Performance

D.1. Readiness Levels

Readiness Levels		
Readiness Area	**At Main Gate**	**Comments**
	Level	
Technology	-	Readiness levels were not required when this project passed through Main Gate for Demonstration and Manufacture. No (re)assessment is required at Main Gate for Support.
System	-	System Readiness levels are not currently mandated for approvals

D.1.1.Hercules Integrated Operational Support

D.2. Performance against Lines of Development

Line of Development	Description	Forecast		
		To be met	At Risk	Not to be met
1. Equipment	The provision of specific C130 platforms, systems and weapons, (expendable and non-expendable, including updates to legacy systems) needed to equip C130 fleet.	Yes	Yes	-
2. Training	The provision of trained personnel to support C130 fleet.	Yes	-	-
3. Logistics	Planning and carrying out the operational movement and maintenance of forces in support to C130 fleet.	Yes	Yes	-
4. Infrastructure	The acquisition, development, management and disposal of all fixed, permanent buildings and structures, land, utilities and facility management services (both hard & soft facility management) in support of C130 fleet.	Yes	Yes	
5. Personnel	The timely provision of sufficient, capable and motivated personnel to deliver C130 fleet outputs.	Yes	Yes	
6. Doctrine	Doctrine is an expression of the principles by which military forces guide their actions and is a codification of how activity is conducted today. It is authoritative, but requires judgement in application to support C130 fleet.	Yes	-	-
7. Organisation	Relates to the operational and non-operational organisational relationships of people. It includes military force structures, MOD civilian organisational structures and Defence contractors providing support to C130 fleet.	Yes	Yes	
8. Information	The provision of a coherent development of data, information and knowledge requirements for C130 fleet capabilities and all processes designed to gather and handle data, information and knowledge.	Yes	-	-
Percentage of those measured currently forecast to be met		100%		
In-Year Change				

D.2.1.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
November 2008	Personnel	Procurement Processes	Future transfer of Tri Star to Hercules Integrated Project team will cause industry staff to be stretched to meet KPI Fit For Purpose
November 2008	Organisation	Procurement Processes	Future transfer of Tri Star to Hercules Integrated Project team may cause Hercules Integrated Project Team to struggle to meet its Key Performance Indicators
Historic	Equipment	Technical Factors	The need to enhance capability of C130 Platforms via enhancement programmes has potential to affect aircraft numbers available to the User
Historic	Logistics	Technical Factors	Provision of manpower may not be sufficient to meet continued high operational tempo
Historic	Infrastructure	Technical Factors	Move to RAF Brize Norton from RAF Lyneham will start to become an issue in late FY09/10 with lack of decisions on infrastructure at RAF Brize Norton

D.3. Performance against Key Performance Measures

D.3.1. Project – not applicable

D.3.2. Hercules Integrated Operational Support

Performance against Key Performance Indicators – Business Case KPI

KPI	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
1	Equipment	Operational Availability User shall be capable of achieving a Fit for Purpose level of not less than 75% for the C-130K and 80% for the C-130J from the available aircraft in the respective Total Fleets, while meeting the agreed Annual Flying Task.	Yes	Yes	
2	Equipment	Force Elements at Readiness. User shall be capable of: a. Maintaining the Force Elements at Readiness levels b. Configuring the aircraft with the funded Baseline Equipment and Mission Essential Equipment c. Supporting operational patterns	-	-	Yes
3	Logistics	Optimised Through Life Support a. User shall not incur increased manpower costs in providing forward support of the C-130 fleet, with regard to scheduled maintenance, random rectification or flight servicing. b. RAF forward cannibalisation shall not exceed 100 man-hours per month on either K or J fleets	Yes	Yes	-
4	Equipment	Safety - The User shall be assured that the aircraft remains safe and airworthy to its out of service date	Yes	Yes	-
Percentage currently forecast to be met			100%		
In-Year Change			0		

D.3.2.1. Key Performance Indicators Variation

Date	Key Indicator	Factor	Reason for Variation
Historic	1	Technical Factors	The ability to meet targets is at risk owing to high tempo operational activity having a detrimental effect on aircraft condition leading to elongated periods of recovery.
Historic	2	Technical Factors	Force Elements at Readiness are currently not being achieved because the volume of aircraft flying on operations is reducing the amount available at readiness. The number of aircraft with Baseline Equipment and Mission Essential Equipment is forecast to be met. Supporting operation patterns is not currently measured.
Historic	3	Technical Factors	This KPI was not met for seven months in 08/09 for the C130J fleet. This is because of high tempo operational activity. In March 2009 the KPI was met.
Historic	4	Technical Factors	Four Class B Hazards (hazards requiring management action to introduce control measures to reduce risk and shall only be accepted when the risk has been reduced as low as reasonably practicable) remain and are currently being managed by the Project Team.

D.3.2.2. Operational Impact of variation

KPI	Date	Status	Operational impact of variation
1	March 2009	At risk	Fit For Purpose is a statistical calculation based around the number of available aircraft. It does not necessarily reflect the number of airframes the Front Line Command requires.
3b	March 2009	At risk	No Operational impact as KPI was 'at risk' for only part of the year.

Nimrod MRA4

Project

Nimrod Maritime Reconnaissance and Attack MK4

Team Responsible

Nimrod Maritime Reconnaissance and Attack MK4

Single point of accountability for Project Capability

Director Equipment Capability (Deterrent and Underwater Capability)

Senior Responsible Officer

-

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Support/Service/PFI -** Nimrod Maritime Reconnaissance and Attack MK4

A. Section A: The Project

A.1. The Requirement

The Nimrod Maritime Reconnaissance and Attack MK4 will replace the current Nimrod Maritime Reconnaissance MK2 as the new maritime patrol aircraft. Nimrod Maritime Reconnaissance and Attack MK4 will provide significantly enhanced Anti-Submarine and Anti-Surface 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.

A.2. The Assessment Phase

In November 1992, the Equipment Approvals Committee approved a Request for Information exercise whereby 17 companies were invited to provide responses to the draft Replacement Maritime Patrol Aircraft Staff Requirement. Following analysis of the industry responses, the Equipment Approvals Committee endorsed the requirement and approved an Invitation to Tender phase whereby four companies (BAE Systems, 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 Systems' Nimrod 2000 (later to be re-designated Nimrod Maritime Reconnaissance and Attack MK4) offer was approved by Equipment Approvals Committee and Ministers in July 1996. This was the equivalent of Main Gate approval.

A.3. Progress

The Nimrod Maritime Reconnaissance and Attack MK4 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 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 limited to those activities vital to the preservation of the essential skill sets within BAE Systems and its supply chain. Flight trials commenced in August 2004.

In July 2004, studies determined that the capability of the Nimrod Maritime Reconnaissance and Attack MK4 would enable 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 was approved in May 2006, and the contract was amended to re-introduce the production requirements in July 2006. As part of the approval process the project's original Key Requirements were redefined and endorsed as Key User Requirements by the Investment Approval Board and a revised definition of the In-Service Date was approved. Affordability issues identified in Spring 2008 resulted in a further reduction in the number of aircraft from 12 to 9. The Initial Gate Business Case for the Assessment Phase of Future Support was approved in May 2005, the Main Gate submission has been delayed by a re-evaluation of the support options and is now expected late 2009.

A.4. Capability Risks

Nimrod Maritime Reconnaissance Attack MK4 is able to detect, identify by class, and track all types of submarines and surface vessels, including small, high-speed contacts, in both open-ocean and littoral waters. The aircraft will also be able to conduct maritime Search & Rescue operations, including the detection, identification and tracking of life rafts and persons in the water, and the co-ordination of activities of other rescue assets.

Loss of the capability offered by the Nimrod Maritime Reconnaissance Attack MK4 would have an adverse effect on the protection of the strategic nuclear deterrent, the provision of which is one of the Ministry of Defence's Standing Strategic Tasks. In addition, the maintenance of the integrity of the UK through detection of hostile air and sea craft would be compromised.

A.5. Associated Projects - not applicable

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only	
Description	**Procurement Route**
-	-

Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Nimrod Maritime Reconnaissance and Attack MK4	BAE Systems, Warton	Design and Development	Target Cost Incentive Fee1	Prime Contractor International competition
Nimrod Maritime Reconnaissance and Attack MK4	BAE Systems, Warton	Production	Target Cost Incentive Fee1	Prime Contractor

A.7. Support Strategy

The Nimrod Maritime Reconnaissance Attack MK4 Future Support strategy was originally based on the establishment of a weapon system availability contract. However, in order to reduce cost and mitigate risk, work is now in hand to develop an incremental approach to implementing an availability based contract.

In light of the above change in strategy, the approvals plan for Maritime Reconnaissance Attack MK4 Future Support Main Gate was revised in early 2009 to reflect the need to implement two continuity contracts deemed necessary to protect ISD while the support strategy is redefined and costed.
The initial continuity contract (Continuity Phase 1) was placed in January 2009 and is due to complete at the end of June 2009. The scope of the Continuity Phase 1 contract covers the development and implementation of the support capability required to ensure readiness to support the first aircraft delivery and also protect the programme for the Maritime Reconnaissance Attack MK4 In-Service Date. In essence, the scope of the Continuity Phase 1contract represents a continuation of essential support capability build-up activities covered under the preceding Initial Support Capability Services and Long Lead Time Support Activities contracts. The activities concerned primarily relate to the preparation of facilities, the implementation of information systems, the production of processes and procedures, and the recruitment and training of personnel.

[1] Originally let as a fixed price contract.

The second continuity contract (Continuity Phase 2) is intended to cover the period July 2009 to January 2010 and will be designed to protect ISD essential activities that are on the path towards the implementation and operation of the revised support strategy. During the period of Continuity Phase 2, the Main Gate Business Case for the Future Support Programme will be submitted with the aim of securing approval to place the initial in-service support contract in early 2010.

	Contractor	Contract Scope	Contract Type	Procurement Route
Long Lead Time Support	BAE Systems	Long Lead Time Support Activity	Cost Incentivised Arrangement	Single Source with Prime Contractor
Interim Support Arrangement	BAE Systems	Interim Support Agreement	Cost Incentivised Arrangement	Single Source with Prime Contractor
Future Support	BAE Systems	Future Support	-	-

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Nimrod Maritime Reconnaissance and Attack MK4	4	5	+1	0.1	0.1

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Cost of Demonstration and Manufacture Phase forecast at Main Gate	-	2813	-

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Nimrod Maritime Reconnaissance and Attack MK4	2813	3647	+834	+45

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. Nimrod Maritime Reconnaissance and Attack MK4

Date	Variation (£m)	Factor	Reason for Variation
July 2008	+45	Technical Factors	Cost growth offset by the removal of three productionisation aircraft giving net increase. Deletion of three productionisation aircraft (-76M), extension of the Flight Trial Programme (+£22M), Corrosion on Nimrod Maritime Reconnaissance 2

			donor components (+£42M), Provision for changes to the aircraft (+£35M), Provision for Operational Test & Evaluation fallout (+18M), increase to risk funding (+6M) and other Design & Development decrease (-£2M)
Historic	-370	Accounting Adjustments and Re-definitions	Woodford under-recovery of overhead double counted in EP07 as already included in Company cost forecast (-£7m). An adjustment of the Historic calculation of the Cost of Capital charge (-£32m). Increase in costs owing to the creation of a trading fund for the Communications Electronic Security Group 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 due to revision of Cost of Capital charge (-£22m). Departmental Review - identified savings with a reclassification of termination spares expenditure (-£176m) and resulting reduction in Cost of Capital charge (-£35m). Departmental Review identified savings from reduced Cost of Capital charge from early delivery to the customer (-£69m).Departmental Review – identified savings from reclassification of Adaptable Aircraft costs (-£4m) and reclassification of Consumable Stock (-£7m). MPR05 transposition error (-£3m).
Historic	-27	Budgetary Factors	Reduction in Risk provision (MPR00 -£17m; MPR02 -£17m). Contractor forecast was greater than advised in MPR05 resulting in increased Cost of Capital charge (+£7m).
Historic	-80	Changed Capability Requirement	Reduction from 18 aircraft to 12 (-£155m) and associated reduction in Cost of Capital Charge (-£10m). 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 February 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	+24	Procurement Process	Reduction in Risk provision (-£56m); and reductions following the renegotiation 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 February 2003 for Design and Development Target Cost Fee (+£132m). Increased cost in light of company contract quality price for production and associated analysis of revised costing for October 2005 Investment Approvals Board Review Note (+£70m). Overhead recoveries (+£14m), Initial Logistics Support (+£8m), VAT liability on Design & Development support (+£5m), Increase to Management Reserve identified in the Departmental Review (+£5m). Departmental Review – identified savings from a reclassification of overheads (-£11m), reduction of contractor fee and production costs (-£10m), provision for reduced spares (-£13m), VAT exemption (-£33m), reductions for Initial Logistics Support (-£8m), reduced manpower requirements (-£22m), cancellation of spares (-£3m), and reduced Cost of Capital charge (-£7m).
Historic	+41	Inflation	Variation in Inflation assumptions (+£41m).
Historic	-7	Receipts	Forecast recovery of Liquidated Damages (-£46m) less those to be foregone as part of the Agreement announced on 19 February 2003 (+£39m).
Historic	+1,208	Technical Factors	Interest on Capital recalculated based upon Equipment Plan 07 profile and reduction in Management Reserve (-£4m). Review of EP07 estimates & schedule as a result of risk realisation Stability Augmentation System/Stall Identification Device has led to increased coherence in the programme resulting in a lower requirement for Management Reserve (-£5m). Increased Production Cost (+£229m) and increased Cost of Capital Charge linked to cost change and delay in delivery programme (+£183m). Increase in Defence Evaluation and

			Research Agency estimate (+£13m). Reduction in the study requirements (-£6m); slower technical progress than originally envisaged, particularly with wing mass, leading to reduced Cost of Capital charge (-£9m). Reduced Cost of Capital charge linked to reduction in aircraft numbers (-£2m); additional costs relating to the Agreement of February 2003 (+£359m). Increased Programme costs (+£348m). Costs of converting the three development aircraft to the production standard. (+£50m). Extension of the Flight Trials Programme (+£20m). Embodiment of the Stability Augmentation System (+£20m). Associated increase in Cost of Capital (+£12m).
Net Variation	+834		

B.3.2. Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	
-	-

B.4. Unit production cost

Description	Unit production costs		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
Nimrod Maritime Reconnaissance and Attack MK4	Development and Production Package	Development and Production Package	21	9

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

Description	Approved Cost (£m)	Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Support to the Nimrod Maritime Reconnaissance and Attack MK4 Mission Support System	8	8	-	-
Long Lead Time Support Activities	27	81	-1	-
Initial Support Capability Service	55			
Support to the Aircrew Synthetic Training Aids Mission Support System	2	2	-	-
Continuity Phase 1	54	49	-5	-
Total	**146**	**140**	**-6**	**-**

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

B.5.1.1. Support to the Nimrod Maritime Reconnaissance and Attack MK4 Mission Support System

Date	Variation (£m)	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

B.5.1.2. Long Lead Time Support Activities and Initial Support Capability Service

Date	Variation (£m)	Factor	Reason for Variation
Historic	-1	Risk Differential	Difference between the 50% most likely estimated and the Not to Exceed figure.
Net Variation	**-1**		

B.5.1.3. Support to the Aircrew Synthetic Training Aids Mission Support System

Date	Variation (£m)	Factor	Reason for Variation
Historic	-5	Risk Differential	Difference between the 50% most likely estimated and the Not to Exceed figure.
Net Variation	**-5**		

B.5.2. Operational Impact of Support/ Service/PFI Cost Variations

Description	
	-

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Nimrod Maritime Reconnaissance and Attack MK4	July 1996	-	-

C.2. Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Nimrod Maritime Reconnaissance and Attack MK4	-	April 2003	-

C.3. In Service Date

C.3.1. Definition

Description	In Service Date
Nimrod Maritime Reconnaissance and Attack MK4	**Original ISD Definition**: Delivery of 7th production standard aircraft to Royal Air Force. **MPR04 Definition:** (Part of the 19th February 2003 Agreement with the Company): Delivery of the sixth production standard aircraft to the Royal Air Force. **Reason for Change:** To reflect the reduction in the fleet from 21 to 18 agreed in 2002; six aircraft represents one squadron. **MPR07 Definition**: Provision of 5 aircraft (4 deployable) and 6 combat ready crews. **Reason for Change:** Secretary of State announced in July 2004, post Medium-Term Work Strand studies, a reduction in the number of Nimrod Maritime Reconnaissance and Attack MK4 aircraft to be procured from 18 to about 12. **MPR09 Definition:** Provision of 4 aircraft and 4 combat ready crews **Reason for Change:** To reflect the reduction in the fleet from 12 to 9. This will remove the 5th (non-deployable) aircraft from the programme.

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Nimrod Maritime Reconnaissance and Attack MK4	April 2003	December 2010	+92	-
Total			**+92**	**-**

C.3.3. Timescale variation

C.3.3.1. Nimrod Maritime Reconnaissance and Attack MK4

Date	Variation (months)	Factor	Explanation
Historic	+92	Technical Factors	To make overall programme affordable within Departmental funding constraints (MPR05 +12 months). 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 the current plan at 50% confidence (-3 months). Manufacturing Phase extended as a consequence of essential changes emerging from the Flight Trials: MPR08 +3 months
Net Variation	+92		

C.3.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
Support costs of current equipment	Historic	+344	Technical Factors	Additional costs of running on Nimrod Maritime Reconnaissance MK2
Other	Historic	-150	Technical Factors	Reduction in Nimrod Maritime Reconnaissance and Attack MK4 support costs in same period
Total	**-**	**+194**		

C.3.5. Operational Impact of In Service Date variation

Description	
Nimrod Maritime Reconnaissance and Attack MK4	The consequence of the Nimrod Maritime Reconnaissance and Attack MK4 ISD slip is that either the Nimrod Maritime Reconnaissance MK2 would 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 Maritime Reconnaissance and Attack MK4 and could require the ageing Nimrod Maritime Reconnaissance MK2 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 Maritime Reconnaissance MK2 systems. Notably the Acoustic Suite AQS 971, navigation systems, data links and other communications will address interoperability issues. The Acoustic Suite programme has benefited by

	making use of acoustic processors procured for Nimrod Maritime Reconnaissance and Attack MK4 Acoustic Suite AQS 970 programme.

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
Nimrod Maritime Reconnaissance and Attack MK4	Not defined at Main Gate. Current assumption is defined as delivery of the first aircraft to the Royal Air Force, 1 crew and the establishment of an Initial Logistic Capability.

C.4.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
-	-	-	-	-
Total			**-**	**-**

C.4.3. Timescale variation - not applicable

C.4.4. Other costs resulting from Timescale variation not applicable

C.4.5. Operational Impact of Initial Operating Capability variation not applicable

C.5. Full Operating Capability

C.5.1. Definition

Description	Full Operating Capability
Nimrod Maritime Reconnaissance and Attack MK4	Not defined at Main Gate. Current assumption is defined as delivery of the ninth aircraft to the Royal Air Force and establishment of a full Logistic Capability and 16 frontline ready crews

C.5.2. Progress Report

Description	Full Operating Capability
-	-

C.6. Support/service/PFI Contract

C.6.1. Scope of Support/Service/PFI Contract

Description	
Support to the Nimrod Maritime Reconnaissance and Attack MK4 Mission Support System	-
Long Lead Time Support Activities	
Initial Support Capability Service	
Support to the Aircrew Synthetic Training Aids Mission Support System	
Continuity Phase 1	

C.6.2. Progress against approved Support/Service/PFI Contract Go-Live Date

Description	Approved Date	Actual/Forecast Date	Variation (months)	In-Year Variation (months)
Support to the Nimrod Maritime Reconnaissance and Attack MK4 Mission Support System	June 2005	June 2005	-	-
Long Lead Time Support Activity	December 2006	December 2006	-	-
Support to the Aircrew Synthetic Training Aids Mission Support System	July 2007	July 2007	-	-
Intial Support Capability Service	March 2008	March 2008	-	-
Continuity Phase 1	March 2009	March 2009	-	-
Total				

C.6.2.1. Go-Live Date Variation

Date	Variation (months)	Factor	Reason for Variation
-	-	-	-
Net Variation	-		

C.6.3. Progress against approved End of Support/Service/PFI Contract Date – not applicable

D. Section D: Performance

D.1. Readiness Levels

D.1.1. Nimrod Maritime Reconnaissance and Attack MK4

Readiness Levels		
Readiness Area	At Main Gate	Comments
	Level	
Technology	-	Readiness levels were not required when this project passed through Main Gate for Demonstration and Manufacture. No (re)assessment is required at Main Gate for Support.
System	-	System Readiness levels are not currently mandated for approvals

D.2. Performance against Lines of Development

Line of Development	Description	Forecast		
		To be met	At Risk	Not to be met
1. Equipment	Aircraft Development & Production	Yes	Yes	-
2. Training	Aircrew & Ground crew Training	Yes	Yes	-
3. Logistics	Aircraft Support	Yes	Yes	-
4. Infrastructure	Facility refurbishment & new facility construction at the Aircraft's Main Operating Base.	Yes	Yes	-
5. Personnel	Military & Civilian manning	Yes	Yes	-
6. Doctrine	Military best practice, tactics & techniques	Yes	Yes	-
7. Organisation	Military organisational force structure	Yes	Yes	-
8. Information	Mission ready Data	Yes	-	-
Percentage of those measured currently forecast to be met		100%		
In-Year Change		-		

D.2.1.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
September 2008	Equipment	Technical Factors	The Design & Development flight trials programme may impact the Aircraft Production schedule if retrospective design changes are required.
February 2009	Training	Technical Factors	Risks to the timely delivery of Maritime Reconnaissance and Attack MK4 training have been partly minimised by early use of the first 'Production Standard' Aircraft for training purposes before the in-service flying phase begins. This is required because there is insufficient time to train the requisite number of crews before the In-Service Date milestone.
February 2009	Logistics	Changed Budgetary Priorities	The Support Strategy is under review, with the aim of introducing an optimised incremental approach in order to meet programme resource challenges. Continuity phase support contracts are being put in place to de-risk support build up activities.
February 2009	Infrastructure	Changed Budgetary Priorities	Contract work for Refurbishment of facilities at the Main Operating Base is progressing to schedule. However, the Infrastructure DLOD is within the scope of the Support Strategy Review.
February 2009	Personnel	Changed Budgetary Priorities	Pending the outcome of the Support Strategy review it will be necessary to utilise more MOD personnel than originally planned for 2009-2012 in training and support roles to substitute for Contractor manpower.
September 2008	Doctrine	Technical Factors	The potential insertion of software fixes resulting from the flight trials programme introduces a risk that the Aircraft will not perform as expected during Operational Evaluation sorties.
October 2008	Organisation	Technical Factors	The Nimrod Force has started the process of Force Re-structuring to meet the requirements for Nimrod Maritime Reconnaissance and Attack MK4 entering operational service. However recruitment delays may impact the maintenance squadron.

Performance against Key Performance Measures

D.2.2. Nimrod Maritime Reconnaissance and Attack MK4

Nimrod Maritime Reconnaissance and Attack MK4 is a legacy project and its original approval did not include Key Requirements. The Key Requirements reported to date in the Major Projects Report were retrospectively agreed between Director of Equipment Capability (Under Water Environment) and Nimrod Integrated Project Team Leader. Before endorsement was sought, it was discovered that these Key Requirements were not compliant with the latest Smart Acquisition guidelines. Consequently, new Key User Requirements were developed from first principles to comply with the latest guidelines and endorsed by the Investment Approval Board in June 2006.

D.2.2.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	-	Maritime Counter Terrorism	Yes	Yes	-
02	-	Search & Detect (Under Water Effect)	Yes	Yes	-
03	-	Submarine Attack	Yes	Yes	-
04	-	Search & Detect (Above Water Environment)	Yes	Yes	-
05	-	Tactical Interoperability	Yes	-	-
06	-	Mission Completion	Yes	Yes	-
07	-	Maritime Presence	Yes	Yes	-
08	-	Operations in Hostile Environment	-	-	Yes
09	-	Environmental Operating Conditions	Yes	Yes	-
Percentage currently forecast to be met			89 %		
In-Year Change			-11%		

D.2.2.2. Key Performance Measures Variation

Date	Key Requirement	Factor	Explanation
January 2009	KUR 07	Technical Factors	Risk driven by potential flight-time limitations caused by airframe control problems that resulted in a reduction in maximum permissible fuel loads.
January 2009	KUR 08	Changed Capability Requirement/ Technical Factors	Nimrod Self-defence capability was specified against 1996 requirements, which are no longer valid; whilst aircraft does not meet that specification, attainment was not pursued as it was not considered relevant in the post 2010 environment. Re-definition of the need is in hand, but achievement of this will constitute a new requirement
January 2009	KUR 09	Technical Factors	Risk driven by the need to repeat tests covering minimum and maximum temperature operations. Earlier tests failed to deliver the limits sought and there is need to repeat these tests now that modifications have occurred. Pressure on the flight test programme deferred repeat testing indefinitely such that there is little opportunity remaining to conduct them (notably the hot weather tests).
Historic	KUR 01	Technical Factors	Solutions to problems related to Electronic Support Measures, Radar and Electro Optical Surveillance Detection System will be resolved within the Design & Development programme. The Contractor

Date	Key Requirement	Factor	Explanation
			has an active recovery programme in place which is reviewed on a monthly basis. Additionally, further technical issues could emerge as more of the systems start to be operated together. Overall, there is a high probability that the KUR will be classified as on track by ISD.
Historic	KUR 02	Technical Factors	Solutions to problems related to Electronic Support Measures, Radar and Electro Optical Surveillance Detection System will be resolved within the Design & Development programme. The Contractor has an active recovery programme in place which is reviewed on a monthly basis. Additionally, further technical issues could emerge as more of the systems start to be operated together. Overall, there is a high probability that the KUR will be classified as on track by ISD.
Historic	KUR 03	Technical Factors	Solutions to problems related to Electronic Support Measures, Radar and Electro Optical Surveillance Detection System will be resolved within the Design & Development programme. The Contractor has an active recovery programme in place which is reviewed on a monthly basis. Additionally, further technical issues could emerge as more of the systems start to be operated together. Overall, there is a high probability that the KUR will be classified as on track by ISD.
Historic	KUR 04	Technical Factors	Required Mission System performance may not be assured prior to ISD.
Historic	KUR 06	Technical Factors	Solutions to problems related to Electronic Support Measures, Radar and Electro Optical Surveillance Detection System will be resolved within the Design & Development programme. The Contractor has an active recovery programme in place which is reviewed on a monthly basis. Additionally, further technical issues could emerge as more of the systems start to be operated together. Overall, there is a high probability that the KUR will be classified as on track by ISD.
Historic	KUR 08	Technical Factors	Technical and financial issues now resolved surrounding procurement of Electronic Warfare Rig thereby allowing aircraft to operate with a self-defence capability. Business Case with Investment Appraisal under compilation. Procurement schedule being determined; anticipate KUR compliance when schedule and risks clearly identified. Electronic Warfare Rig on contract with effect from 30 September 2006. Delivery expected January 2010 (50%), March 2010 (90%); BAE Systems have been incentivised to deliver within 2009 to meet Air Warfare Centre's

Date	Key Requirement	Factor	Explanation
			requirement for a rig availability 12 months prior to In Service Date. Recognition of assessment of KUR has been agreed with Nimrod Capability Working Group. The Electronic Warfare Rig procurement is proceeding ahead of its contracted timescales. However, the commissioning of the new facility at the Thomson Building at Royal Air Force Waddington, which combines the A400M facility requirement, is currently several months behind schedule; Defence Estates will provide a full 3-point estimate for the build programme in May 2008. Electronic Support Measure and Radar issues are being addressed; see comments against KUR 1. Defensive Aids Sub System has 3 identified issues which require planning and funding. The KUR is considered at risk, since satisfaction of KUR 8 will be determined by the environment in which the fleet operates. Any additional requirements such as use/types of flares etc will be new requirements and will need to attract discrete funding for both equipment and for the extension of the programme.

D.2.2.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
KUR 01	January 2009	At Risk	Solution in hand; technical risk assessed as low/medium. Impact would be inability of Nimrod Maritime Reconnaissance and Attack MK4 to fully support Maritime Counter Terrorism operations in support of security tasks related to Integrity of the UK.
KUR 02	January 2009	At Risk	Risk assessed as low; unable to confirm KUR achievement until post Operational Test and Evaluation in 2010. Impact would relate to support to tasks related to the Strategic Deterrent.
KUR 03	January 2009	At Risk	Risk assessed as low; unable to confirm KUR achievement until post Operational Test and Evaluation in 2010. Impact would relate to support to tasks related to the Strategic Deterrent.
KUR 04	January 2009	At Risk	Risk assessed as low; unable to confirm KUR achievement until post Operational Test and Evaluation in 2010. Impact would relate to support to security tasks related to Integrity of the UK and the Strategic Deterrent.
KUR 06	January 2009	At Risk	Operational impact of variation will not be defined until the Support

			Solution review is completed. It is likely that a trade-off will be required between cost and assurance against aircraft availability. Any risk to aircraft availability may have an operational impact.
KUR 07	January 2009	At Risk	Risk and extent of impact uncertain at present; ongoing investigations. Impact would relate to Nimrod Maritime Reconnaissance and Attack MK4 endurance.
KUR 08	January 2009	Not to be met	Aircraft self-defence capability would impact upon ability to operate the Nimrod Maritime Reconnaissance and Attack MK4 in a threat environment.
KUR 09	January 2009	At Risk	Risk assessed as low, with possibility that Nimrod Maritime Reconnaissance and Attack MK4 might be unable to be operated in extremes of hot/cold if final clearances not achieved.
Total			

D.2.3. Support Contract – not applicable

Skynet 5

Project

Skynet 5

Team Responsible

Global Communications Systems Integrated Project Team.

Single point of accountability for Project Capability

Equipment Capability, Command, Control & Information Infrastructure

Senior Responsible Officer

Vice Chief of the Defence Staff

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Support/Service/PFI -** Skynet 5

A. Section A: The Project

A.1.The Requirement

Provide secure, high availability, high survivability satellite communication services until 2020 to support UK and deployed operations. The Skynet 5 PFI programme provides the next generation of flexible and survivable satellite communications services for military use. Robust military satellite communications services are essential to support 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.

A.2.The Assessment Phase

After Initial Gate in 1993 Assessment Phase work considered 3 options, TRIMILSATCOM (a collaborative programme with France and Germany), conventional procurement and PFI. Evaluation demonstrated that TRIMILSATCOM 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 satellite communication 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.

A.3.Progress

ISD was achieved in February 2005. Full Operating Service Limited Acceptance, was achieved on 31 March 2008. This represents the delivery of all the required core Skynet 5 capabilities (including both Skynet 5A and 5B spacecraft, Reacher and Satelllite Communications on Board Terminals). The exception was the full Anti Jam performance of the Paradigm Modem System. A Review Note reflecting the delay to this final capability element was approved by the IAB. The final Skynet 5 acceptance milestone Full Operating Service was achieved in March 2009.

A.4.Capability Risks

Skynet 5 provides secure, military grade satellite communications. In-service Skynet 5 services are being fully utilised to support all current operational deployments and contingency operations. Any reduction in the level of service currently being provided by the Skynet 5 services would have a serious impact to the conduct of operations, with loss of the essential capabilities to the front line deployed troops of secure and robust communications links back to the UK.

A.5.Associated Projects – not applicable

A.6.Procurement Strategy – not applicable

A.7.Support/Service Contract Strategy

Provision of Satellite Communications Support/Service PFI Contract				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Skynet 5	Paradigm Secure Communications Limited	Competitive - International	Firm for 5 years; Fixed thereafter	PFI

B. Section B: Cost

B.1 Cost of the Assessment Phase

Description	**Approved Cost (£m)**	**Actual Cost (£m)**	**Variation (£m)**	**Post-Main Investment Decision Projects only**	
				Approved cost as a proportion of total estimated procurement expenditure (%)	**Actual Cost as a proportion of total estimated procurement expenditure (%)**
Skynet 5	113	123	+10	3.4%	3.7%

B.2. Cost Boundaries for Demonstration and Assessment Phase – not applicable

B.3. Cost of the Demonstration and Manufacture (D&M) Phase – not applicable

B.4. Unit production cost – not applicable

B.5. Progress against approved Support/PFI Cost

Description	**Approved Cost (£m)**	**Forecast cost (£m)**	**Variation (£m)**	**In-Year Variation (£m)**
Skynet 5 Original Approval	2920	3203	-457	-457
Skynet 5 Restructured Deal (additional approval)	740			
Total	**3660**	**3203**	**-457**	**-457**

B.5.1 Cost Variation against approved Support/PFI Cost

Date	Variation (£m)	Factor	Reason for Variation
March 2009	-90	Budgetary Factors	Savings Option taken to remove funding from Skynet 5.
March 2009	+29	Accounting Adjustments and Re-definitions	Provision of a standalone vehicle support solution for the Skynet 5 Reacher terminal vehicles originally assumed to be derived from a larger, MOD wide support package.
March 2009	-9	Accounting Adjustments and Re-definitions	Underspend in FY0809
March 2009	+53	Conflict Prevention	Skynet 5 Conflict Prevention Fund costs.
March 2009	-53	Conflict Prevention	Recovery from Conflict Prevention Fund.
June 2008	-387	Procurement Strategy	Following three successful satellite launches, 4th Satellite build out not required.
Total	**-457**		

B.5.2 Operational Impact of Support/PFI Cost Variations

Description	
Skynet 5	The restructured deal provided benefits to both the Department and the contractor. Above all it mitigates the loss of one satellite and ensures a much greater probability that the contractor will be able to meet the Department's required capacity of 1.1 Skynet 5 satellites, and the availability of additional communications capacity should the Department's requirements change.

C. Section C: Timescale

C.1 Duration of the Assessment Phase

Description	Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Skynet 5	January 2002	-	-

C.2. In Service Date

C.2.1. Definition

Description	In Service Date
Skynet 5	Skynet 5 Services over the Skynet 4 constellation of satellites.

C.2.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Skynet 5	March 2005	February 2005	-1	0

C.2.3. Timescale variation

C.2.3.1. Skynet 5

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

C.2.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
-	-	-	-	-

C.2.5. Operational Impact of In Service Date variation

Description	
	-

C.3. Initial Operating Capability - for Skynet 5 Initial Operating Capability is the same as ISD

C.3.1. Definition

Description	Initial Operating Capability
Skynet 5	As for ISD; Skynet 5 Services over the Skynet 4 constellation of satellites

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation	In-Year Variation
Skynet 5	March 2005	February 2005	-1	0

C.3.3. Timescale variation

C.3.3.1. Skynet 5

Date	Variation	Factor	Reason for Variation
Historic	-1	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the approved figures at Main Gate

C.3.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
-	-	-	-	-

C.3.5. Operational Impact of Initial Operating Capability variation

Description	
	-

C.4. Full Operating Capability

C.4.1. Definition

Description	Full Operating Capability
Skynet 5	All contracted Skynet 5 services across the complete defined coverage area.

C.4.2. Progress Report

Description	Full Operating Capability
Skynet 5	March 2009

C.5. Support /Service / PFI Contract

C.5.1. Scope of Contract

Description	
Skynet 5	Support/Service PFI Contract including Demonstration and Manufacture phases.

C.5.2. Performance against approved Contract Go-Live Date

Description	Approved Date	Forecast/Actual Date	Variation (months)	In-Year Variation (months)
Skynet 5	Sept 2002	October 2003	+13	-

C.5.2.1. Go-Live Date Variation

Date	Variation	Factor	Reason for Variation
Historic	+13	Procurement processes	Contract award was dependent on contractor financial close process, this was outside the influence of Ministry of Defence.

C.5.3. Performance against approved End of Contract Date

Description	Approved Date	Forecast/Actual Date	Variation (months)	In-Year Variation (months)
Skynet 5	Feb 2018	Feb 2020	+24	-

C.5.3.1. End of Contract Date Variation

Date	Variation (months)	Factor	Reason for Variation
2005	+24	Procurement Strategy	Skynet 5 Restructured Deal (additional approval), extended the contract to end February 2020

C.5.4. Operational Impact of Support Contract variation

Description	
-	-

D. Section D: Performance

D.1. Readiness Levels

D.1.1. Skynet 5

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	-	Readiness levels were not measured when this project passed through Main Gate for Demonstration and Manufacture. No (re)assessment is required at Main Gate for Support.
System	-	System Readiness levels are not currently mandated for approvals

D.2. Performance against Lines of Development

Line of Development	Description	Forecast		
		To be met	At Risk	Not to be met
1. Equipment	Assured Skynet 5 Services	Yes	-	-
2. Training	Assured training courses for remote terminals and User Services	Yes	-	-
3. Logistics	Assured support services compliant with the defined Support Solution Envelope.	Yes	-	-
4. Infrastructure	Structures and Estates required within MOD to make maximum use of Skynet 5 services.	Yes	-	-
5. Personnel	ISS and Paradigm Secure Communications resource levels and competencies.	Yes	-	-
6. Concept and Doctrine	Endorsed Concept of Operations, Concept of Employment and Concept of Use.	Yes	-	-
7. Organisation	Not currently measured.			
8. Information	Not currently measured			
Percentage of those measured currently forecast to be met		100%		
In-Year Change		0		

D.2.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
-	-	-	-
-	-	-	-

D.3. Performance against Key Performance Measures

D.3.1. Skynet 5

D.3.1.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	Equipment	Availability – Users have access to Skynet 5 services on demand.	Yes		
02	Equipment	User Services – users shall benefit from a mix of Skynet 5 services ensuring satisfaction of the Information Exchange Requirement .	Yes		
03	Equipment	Continuity of Service - Users shall not experience reduction in capability when Skynet 4 performance decays below acceptable levels.	Yes		
04	Equipment	Capacity - Users access to Skynet 5 services scaled to meet the Information Exchange Requirement.	Yes		
05	Equipment	Coverage - Key garrisons and deployed forces in areas of strategic interest able to exchange information with other users.	Yes		
06	Equipment	Support to Mobile Users - Mobile and covert users on a variety of platforms able to exchange information with other users	Yes		
07	Equipment	Flexibility and Growth - Users benefit from flexible services that accommodate growth in Information Exchange Requirement.	Yes		
08	Equipment	Interoperability - Users able to exchange information with co-operating forces in a variety of scenarios without disruption to operations.	Yes		
09	Equipment	Survivability – Critical information exchanged without disruption via hostile or natural means.	Yes		
10	Training	Training – Timely, effective up-to-date training available to exploit available resources.	Yes		
Percentage currently forecast to be met			100%		
In-Year Change			0		

D.3.1.2. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-

Tornado

Project

Tornado

Team Responsible

Tornado Integrated Project Team

Single point of accountability for Project Capability

-

Senior Responsible Officer

-

Number of Projects / Increments 2

Current Status of Projects

- **Support/Service/PFI** - Availability Transformation Tornado Aircraft Contract, RB199 Operational Contract for Engine Transformation

A. **Section A: The Project**

A.1. The Requirement

The UK Tornado fleet is fundamental to the delivery of air power into the future. The GR4 (strike attack/reconnaissance) and F3 (air defence) aircraft require support until their Out-of Service Dates. Meeting new funding targets resulted in making the original support solution unaffordable and a partnering approach with BAE Systems and Rolls-Royce Defence Aerospace was selected to reduce the cost of Tornado support by more than half. A single contract was placed with each company to provide platform and engine availability. These contracts provide the required support until the aircraft Out-of Service Date and meanwhile are flexible to changes in Defence planning.

The requirement is to deliver an integrated support solution for the Tornado GR4 and F3 fleets. The solution must meet the authorised and funded requirements for training and operations and facilitate the cost-effective insertion of new capability. The scope of the support service must include the provision of on-aircraft depth support and off-aircraft spares, repair, training and technical support. Key to this is the need to provide depth support to sustain operational deployments and this is a fundamental building block of the new contracts.

A.2. The Assessment Phase – not applicable

A.3. Progress

The Availability Transformation Tornado Aircraft Contract (ATTAC) was let on 21 December 2006 with a second phase to complete the scope in November 2007. It is a life of type contract with five years' firm pricing then five years' fixed pricing with re-pricing and re-negotiation of the contract at five yearly intervals. The first renegotiation is due in December 2011. Within the funding available, the contract was constrained to an average 80% of required flying task over the ten years, with an aspiration to increase if and when funding becomes available.

The RB199 Operational Contract for Engine Transformation (ROCET) was let on 14 December 2005 for five years and requires re-negotiation by December 2010.

A.4. Capability Risks

Failure of either the Availability Transformation Tornado Aircraft Contract or RB199 Operational Contract for Engine Transformation would severely impact the availability of Tornado aircraft to the front line and support to operations.

A.5. Associated Projects – not applicable

A.6. Procurement Strategy – not applicable

A.7. Support Strategy

The contracts are for total system availability, allocating integration risk where it is best managed and offering the best prospect of significant improvement in output via open book arrangements for joint partnering agreements. Risk and its associated price contingency allowance is cascaded to the suppliers, not held or duplicated by BAE Systems and Rolls-Royce Defence Aerospace. Both companies have a significant footprint with a small number of suppliers supporting the majority of sub-systems across a number of platforms. This potential will be exploited through aggregation of the requirement to achieve maximum leverage and best value. Incentivisation, by linking profit and performance, will be used to achieve low maintenance down times and high reliability.

	Contractor	Contract Scope	Contract Type	Procurement Route
Availability Transformation: Tornado Aircraft Contract	BAE Systems	Tornado in-service support	Firm/Fixed plus incentive	Single Source
RB199 Operational Contract for Engine Transformation	Rolls Royce	Engine in-service support	Firm/Fixed plus incentive	Single Source

B. Section B: Cost

B.1. Cost of the Assessment Phase – not applicable

B.2. Cost Boundaries for Demonstration and Assessment Phase/PFI – not applicable

B.3. Cost of the Demonstration and Manufacture (D&M) Phase – not applicable

B.4. Unit production cost – not applicable

B.5. Performance against approved Support/PFI Cost

Description	Approved Cost (£m)	Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Availability Transformation: Tornado Aircraft Contract	1,193	1,257	+64	+66
RB199 Operational Contract for Engine Transformation	470	468	-2	+109
Total	**1663**	**1725**	**+62**	**+175**

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

B.5.1.1. Availability Transformation: Tornado Aircraft Contract

Date	Variation (£m)	Factor	Reason for Variation
March 2009	+4	Exchange Rate	Change in Euro exchange rate
February 2009	+55	Budgetary Factors	Increased output from 2013 to 2017
June 2008	+7	Conflict Prevention Fund	Support to Operations
June 2008	-7	Conflict Prevention Fund	Recovery from Conflict Prevention Fund.
June 2008	+7	Budgetary Factors	Buy-out of service manpower
Historic	+6	Budgetary Factors	Payment of Government Furnished liabilities under the contract
Historic	+13	Conflict Prevention Fund	Support to Operations
Historic	-13	Conflict Prevention Fund	Recovery from Conflict Prevention Fund.
Historic	+2	Budgetary Factors	Buy-out of service manpower
Historic	+2	Changed Capability Requirements	Inclusion of support to Successor Identification Friend or Foe
Historic	-12	Budgetary Factors	Removal of training and collaborative costs from contract
Net Variation	**+62**		

B.5.1.2. RB199 Operational Contract for Engine Transformation

Date	Variation (£m)	Factor	Reason for Variation
May 2008	+109	Changed Budgetary Priorities	Increase in output required against the RAF Management Plan
Historic	-111	Procurement Processes	Reduction in contracted costs
Net Variation	**-2**		

B.5.1.3. Operational Impact of Support/PFI Cost Variations

Description	
-	-

C. Section C: Timescale

C.1. Duration of the Assessment Phase – not applicable

C.2. Planned / Actual Boundaries for introduction of the Capability – not applicable

C.3. In Service Date – not applicable

C.4. Initial Operating Capability – not applicable

C.5. Full Operating Capability – not applicable

C.6. Support Contract

C.6.1. Scope of Contract

Description	
Availability Transformation: Tornado Aircraft Contract	Tornado specific logistic support (except engines), including aircraft maintenance, provision of spares and technical services.
RB199 Operational Contract for Engine Transformation	All Tornado engine specific logistic support.

C.6.2. Performance against approved Contract Go-Live Date

Description	Approved Date	Actual/Forecast Date	Variation (months)	In-Year Variation (months)
Availability Transformation: Tornado Aircraft Contract	December 2007	November 2007	-1	-
RB199 Operational Contract for Engine Transformation	December 2007	December 2005	-24	-

C.6.2.1. Go-Live Date Variation

C.6.2.1.1. Availability Transformation: Tornado Aircraft Contract Phase

Date	Variation (months)	Factor	Reason for Variation
Historic	-1	Procurement Processes	Reduction in time taken to negotiate contract.

C.6.2.1.2. RB199 Operational Contract for Engine Transformation

Date	Variation (months)	Factor	Reason for Variation
Historic	-24	Procurement Processes	Reduction in time taken to negotiate contract.

C.6.3. Performance against approved End of Contract Date

Description	Approved Date	Actual/Forecast Date	Variation (months)	In-Year Variation (months)
Availability Transformation: Tornado Aircraft Contract	December 2016	December 2016	-	-
RB199 Operational Contract for Engine Transformation	December 2010	December 2010	-	-

C.6.3.1. End of Contract Date Variation

Date	Variation (months)	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

C.6.4. Operational Impact of Support Contract variation

Description	
Availability Transformation: Tornado Aircraft Contract	-
RB199 Operational Contract for Engine Transformation	-

D. Section D: Performance

D.1. Readiness Levels

D.1.1. Project

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	-	Readiness levels were not required when this project passed through Main Gate for Demonstration and Manufacture. No (re)assessment is required at Main Gate for Support.
System	-	System Readiness levels are not currently mandated for approvals

D.2. Performance against Lines of Development

Line of Development		Description	Forecast		
			To be met	At Risk	Not to be met
1.	Equipment	Provision of Tornado GR4 and F3 aircraft and equipment.	Yes	Yes	-
2.	Training	Provision of trained personnel to support the Tornado force.	Yes	-	-
3.	Logistics	Provision of logistic support for Tornado GR4 and F3 aircraft, including maintenance, storage and distribution.	Yes	-	-
4.	Infrastructure	Provision of infrastructure including buildings and structures, facilities and IT to support the Tornado force.	Yes	-	-
5.	Personnel	Provision of sufficient, capable and motivated personnel to the Tornado force.	Yes	Yes	-
6.	Doctrine	This line of development is not currently measured.	-		
7.	Organisation	Provision of the operational and non-operational force structure to support the Tornado force.	Yes	-	-
8.	Information	This line of development is not currently measured.	-		
	Percentage of those measured currently forecast to be met		100%		
	In-Year Change				

D.2.1.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
Historic	Equipment	Budgetary Factors	RAF manpower diverted to higher priority operational tasks.
Historic	Personnel	Budgetary Factors	Lack of available RAF and sub-contractor manpower.

D.3. Performance against Key Performance Measures

D.3.1 Project – not applicable

D.3.2. Support Contract

D.3.2.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
Availability Transformation: Tornado Aircraft Contract KPM 1	Logistics	Maintain a Bank of Available Flying Hours for the Actual Available Fleet to agreed contractual targets	Yes	-	-
Availability Transformation: Tornado Aircraft Contract KPM 2	Logistics	Manage Spares for all Tornado aircraft at Forward and for F3 Depth to agreed contractual targets	Yes	-	-
Availability Transformation: Tornado Aircraft Contract KPM 3	Logistics	The provision of a technical support service to all Tornado aircraft at Forward and to F3 Depth measured as the % of enquiries answered within the target time	Yes	-	-
Safety	Logistics	Provision and maintenance of the Tornado project team Safety Case	Yes	-	-
RB199 Operational Contract for Engine Transformation	Logistics	Meet targets for engine forward availability	Yes	-	-
Percentage currently forecast to be met			100%		
In-Year Change			0		

D.3.2.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation

D.3.2.3. Operational Impact of Variation

KPM	Date	Status	Operational impact of variation
-	-	-	-

Part B – Post-Main Investment Decision Projects

A400M

Project

A400M

Team Responsible

A400M

Single point of accountability for Project Capability

Director Equipment Capability (Expeditionary Logistics & Support)

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Post Main Investment Decision -** A400M

A Section A: The Project

A.1. The Requirement

A400M is planned to provide tactical and strategic mobility to all three Services. The required capabilities include: operations from airfields and semi-prepared rough landing areas in extreme climates and all weather conditions by day and night; carrying a variety of equipment including vehicles and troops over extended ranges; air dropping paratroops and equipment; and being unloaded with the minimum of ground handling equipment. The 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. The A400M was selected to meet this requirement. It will replace the remaining Hercules C-130K fleet.

A400M is a collaborative programme involving seven European nations (Belgium, France Germany, Luxembourg, Spain, Turkey and United Kingdom). A total of 180 aircraft (25 for UK) are being procured through a contract with Airbus Military Sociedad Limitada. The design phase is nearing completion and manufacture activities have commenced. First Flight is now expected in Financial Year 2009-2010 and delivery of the first UK aircraft to the Royal Air Force in Financial Year 2014-2015.

A.2. The Assessment Phase

The Government announced in December 1994 that it would replace its ageing C-130K Hercules fleet, in part by procuring 25 C-130J's from Lockheed Martin and in addition, subject to certain conditions, by rejoining the next phase of the collaborative Future Large Aircraft programme (now known as A400M). The Future Large Aircraft 'Initial Gate' approval was achieved in July 1997 and in the same year the solution assumed for costing purposes was changed to an initial lease of four C-17 and subsequent procurement of 25 Future Large Aircraft. A Request For Proposals was issued to Airbus in September 1997 on behalf of the seven Future Large Aircraft nations (Belgium, France, Germany, Italy, Spain, Turkey, UK). Subsequently, in July 1998, four nations (Belgium, France, Spain, UK) issued a "competitive Request For Proposals" 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 in December 1999, additional work was undertaken to inform the Main Gate submission. On 16 May 2000 the Government announced the decision to procure 25 A400M aircraft to meet the Future Transport Aircraft requirement.

A.3. Progress

The past year has been very challenging for the programme, with Airbus announcing slips to the delivery date and a slow down in initial aircraft production rates. Airbus also announced that the first flight of the prototype aircraft, due in January 2008, may not now happen until the second half of 2009. In December 2008 Airbus proposed a "new approach" to the A400M programme, including revising the production schedule. Full details of the revised schedule are still to be provided by Airbus but, based on preliminary information, it is estimated that initial UK deliveries cannot start before 2013. Positive achievements have been the roll-out of the first prototype aircraft at the Airbus Military Final Assembly Line facility in Seville in June 2008 and the first flight of the specially developed TP-400D engine on the Flying Test Bed in late December 2008. By the end of March 2009 six flights of the Flying Test Bed had occurred.

A.4. Capability Risks

Not proceeding with this capability would significantly reduce the UK's net tactical air transport capability due to having to rely solely on C130J aircraft to provide support to operations after the C130K aircraft Out of Service Date in 2012. Without mitigation, this would introduce additional risk to the C130J due to increased fatigue of the fleet. Alternatives are being investigated. The options being explored include: extension to the existing C130K aircraft, purchasing more C17 aircraft, A330 Future Strategic Tanker Aircraft being brought forward or hiring commercial aircraft. Deputy Chief of The Defence Staff (Equipment Capability) is tasked with leading on this work.

A.5. Associated Projects – not applicable

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only	
Description	**Procurement Route**

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

A.7. Support Strategy

An Assessment Phase for the support strategy is currently underway.

	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
	-	-	-	-

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	**Approved Cost (£m)**	**Actual / Forecast Cost (£m)**	**Variation (£m)**	**Post-Main Investment Decision Projects only**	
				Approved cost as a proportion of total estimated procurement expenditure (%)	**Actual Cost as a proportion of total estimated procurement expenditure (%)**
A400M	2	1	-1	0.06%	0.03%

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
A400M	-	2628	2744

B.3. Cost Boundaries of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
A400M	2744	3285	+541	+653

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. A400M

Date	Variation (£m)	Factor	Explanation
February 2009	***	Exchange Rate	A loss in 2008/2009 due to the fall in value of £ vs €.
February 2009	***	Accounting Adjustments and Re-definitions	An increase in Cost of Capital Charge as a result of programme delays
February 2009	***	Changed Capability Requirements	A reduction in the need to use the International Training Centre facilities due to programme delays
February 2009	***	Exchange Rate	An increase on payments for the training service
February 2009	***	Accounting Adjustments and Re-definitions	Inclusion of VAT on payments for training service
February 2009	***	Technical Factors	Increase due to the reassessment of the need for capital spares
February 2009	***	Changed Capability Requirements	Portable Removable On-Board Inert Gas Generation System fuel tank inertion System
February 2009	***	Inflation	An increase based on the latest delivery schedule
February 2009	***	Accounting Adjustments and Re-definitions	Increase due to a revised estimate of the cost of training
February 2009	***	Exchange Rate	An increase in 2008/2009
July 2008	***	Technical Factors	Inclusion of additional airworthiness support to cover aircraft release to service
July 2008	***	Exchange Rate	Variation in 2008/2009
July 2008	***	Inflation	An increase in 2008/2009
April 2008	***	Changed Capability Requirements	Reintroduction of one training simulator
Historic	-77	Accounting Adjustments and Re-definitions	Variation in Cost of Capital Charge due to a revision of accruals in future forecast costs (-£8m). Changes to Cost of Capital Charge and Sunk Costs (-£1m). Correction of previous years treatment of deliveries (+£1m). Transfer from RDEL to CDEL (-£1m). Difference in variation figures due to revision of Cost of Capital Charge (-£42m). Changes in timing of expenditure leading to a variation in Cost of Capital Charge (-£26m)

Date	Variation (£m)	Factor	Explanation
Historic	-93	Budgetary Factors	Departmental Reviews have identified savings to programme risks (-£23m). Changed delivery profile from that in the Business Case (-£61m). Minor realism adjustments, includes UK share of Organisation Conjointe de Coopération en matière d'ARmement (OCCAR) Programme Division costs (+£5m), QinetiQ Support costs increased (+£1m), unidentified variance (+£1m). Equipment Programme Measure deleting 1 Simulator (-£20m). Minor realism changes includes Certification, Special To Type equipment and Training Facilities (+£7m). Realism reprofile of Development Production Phase contract together with Directed Infra-Red Counter Measures and Cargo Hold Mock-up costs (-£4m) and associated Cost Of Capital charges (+£1m)
Historic	-333	Changed Capability Requirement	Defer UK A400M National Training Facility by 2 years (-£2m). Fuel Tank Inertion System Pipe work (+£6m). Deletion of Centralised Crypto Management Unit requirement (-£12m). Deletion of Civil Pallets Configuration Item (-£5m). Addition of Propeller Brake (+£6m). Option to re-profile Training Facilities for realism (-£1m). Programme measure to move deferred configuration Items back into aircraft delivery profile (-£2m). Reduction in number of aircraft to be equipped with Defensive Aids Sub-System from 25 to 9 (-£238m). Programme option to delete and defer Configuration Items and to slip In Service Date by 12 months. (-£81m). Option bringing the Defensive Aids Sub-System forward onto aircraft 1-9 (+£9m). Delay of programme by 9 months (-£12m) and associated Cost Of Capital changes (+£25m) Deletion of one training simulator (-£23m) and associated Cost Of Capital changes (-£3m)
Historic	+353	Procurement Process	Realism to reflect 3 month delay in 2000/01 to contract effectivity (+£52m). Slip of aircraft payments and associated equipment to reflect above contract let decision (+£15m). Improved costing data for Configuration Items available (+£160m). Contract Effectivity Date slipped from November 2001 - October 2002 (+£149m). Contract Effectivity Date slipped from October 2002 - April 2003

Date	Variation (£m)	Factor	Explanation
			(-£59m). Adjustments in line with increased knowledge of Programme (+£66m). Contract Effectivity Date slipped from April 2003 - May 2003, includes redefinition of Asset Deliveries to align with aircraft delivery schedule (-£30m).
Historic	-11	Exchange Rate	A decrease in 2005/2006 (-£24m). Variation in 2004/2005 (+£39m). Variation in exchange rate assumptions used in the Business Case, 2000/2001, 2001/2002 and 2002/2003 (-£232m). Variation in 2003/04 (+£222m). Exchange rate changes (-£15m) and associated Cost Of Capital changes (-£1m)
Historic	+12	Inflation	An increase in 2005/2006 (+£14m). An increase in 2004/2005 (+£8m). Changes between inflation rate assumed in the Business Case and yearly inflation indices resulting in a decrease 2000/2001 (-£6m), an increase 2001/2002 (+£6m), a decrease 2002/2003 (-£10m).
Historic	+65	Procurement Process	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	+88	Technical Factors	Increase in Training costs, figures from industry indicated a shortfall in costing line (+£32m). Realism decrease to Support activities post aircraft delivery (-£3m). Programme realism with regard to costing Technical Publications (-£5m), Special To Type Equipment (-£5m), Aircraft Ground Equipment (-£4m), Government Furnished Equipment/Facilities (-£7m) and Codification of equipment/spares (-£1m). Training Needs Analysis identified the need for funding increase; Develop & Build Facilities (+£11m), Initial Training (+£7m), Develop & Build Training Devices (+£6m), and Develop & Build Training Facilities (-£3m). Identification of UK only certification requirements (+£6m). Costing realism in line with better programme understanding including adjustment for actual sunk costs (-£6m). Costing re-adjusted with understanding of future programme – Certification (-£15m), Government Furnished Equipment (+£4m), Support (+£4m). Re-profiling deliveries for realism

Date	Variation (£m)	Factor	Explanation
			Build Facilities (-£1m), Initial Provision Spares (-£5m), Deployment Kits (-£1m). Reduction in the requirement for government procured items. (-£46m). Improved understanding of programme requirement for Initial Provision Spares (+£83m), Deployment Kits (-£1m), Initial Training (-£13m) and Mission Planning & Restitution System (-£10m) Growth in estimates for training and Government Furnished Facilities (+£57m) and associated Cost Of Capital changes (+£4m).
Historic	-116	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the approved figures at Main Gate.
Net Variation	+541		

B.3.2. Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	
Project	-

B.4. Unit production cost

Description	Unit production costs (£m)		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
A400M	***	***	25	25

B.5. Progress against approved Support/PFI Cost - not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
A400M	May 2000	-	-

C.2. Planned / Actual Boundaries for introduction of the Capability

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

C.3. In Service Date

C.3.1 Definition

Description	In Service Date
A400M	Delivery of 7th aircraft with Strategic Military Aircraft Release and support arrangements

C.3.2 Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation	In-Year Variation
A400M	December 2009	December 2015	+72	+48

C.3.3 Timescale variation

C.3.3.1 A400M

Date	Variation (months)	Factor	Explanation
March 2009	***	Technical Factors	Updated programme estimate based upon A400M Task Force outputs and Air Support Cluster assessment.
January 2009	***	Technical Factors	Updated programme proposal received from Airbus Military, including revised production approach.
October 2008	***	Technical Factors	Programme delays affecting engine and aircraft first flight.
September 2008	***	Technical Factors	Reflects latest delay and risk assessment beyond first flight.
Historic	+9	Technical Factors	Contractor delay to aircraft delivery
Historic	+16	Budgetary Factors	Change in the customer's requirement flowing from changed budgetary priorities.
Historic	+9	Procurement Process	Delay in bringing contract into effect as a result of delayed approvals in Germany.
Historic	-10	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the approved figures at Main Gate.
Total	+72		

C.3.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
Short Term Plan	Historic	+ 41		Life extension of C130K aircraft
Total		**+ 41**		

C.3.5. Operational Impact of In Service Date variation

Description	
A400M	The revised forecast A400M in service date no longer aligns with the C130K out of service date of 2012. Further potential mitigations are being studied. The precise programme for A400M, and the cost of completion of it, are yet to be agreed.

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
A400M	Not covered by project approval.

C.4.2. Progress against approved Dates – not applicable

C.4.3 Timescale variation – not applicable

C.4.4. Other costs resulting from Timescale variation – not applicable

C.4.5. Operational Impact of Initial Operating Capability variation – not applicable

C.5. Full Operating Capability – not applicable

C.6. Support / Service / PFI Contract – not applicable

D. Section D: Performance

D.1. Readiness Levels

D.1.1. Project

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	-	Readiness levels were not required when this project passed through Main Gate..
System	-	System Readiness levels are not currently mandated for approvals

D.2. Performance against Lines of Development

Line of Development		Description	Forecast		
			To be met	At Risk	Not to be met
1.	Equipment	25 A400M aircraft, mission planning and ground support systems	Yes	Yes	
2.	Training	UK A400M training solution, including interim use of the International Training Centre in Seville.	Yes		
3.	Logistics	In Service Support contract	Yes		
4.	Infrastructure	A400M infrastructure projects, including an electronic warfare facility at RAF Waddington and necessary modifications at the main Operating Base, RAF Brize Norton.	Yes	Yes	
5.	Personnel	Formulation of squadrons and transformation of the A400M Integrated Project Team as the project moves into the In Service Support phase.	Yes		
6.	Doctrine	Agreed capability milestones, including aerial delivery and tactical operation concepts.	Yes		
7.	Organisation	Formation of squadrons and transformation of the A400M Integrated Project Team as the project moves into the in Service Support phase.	Yes		
8.	Information	Integration of the mission planning (including electronic warfare) and ground support systems into wider MOD operational and logistic support structures.	Yes		
	Percentage of those measured currently forecast to be met		100%		
	In-Year Change		0%		

D.2.1.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
February 2009	Equipment	Technical Factors	Updated programme proposal received from Airbus Military, including revised production approach.
February 2009	Infrastructure	Technical Factors	Reflects latest delay and the wider Future Brize Norton study.

D.3. Performance against Key Performance Measures

D.3.1. A400M

D.3.1.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	1, 2, 6, 8	Deployment Capability	Yes		
02	1.	Payload	Yes		
03	1.	Environmental Operating Envelope	Yes		
04	1, 6.	Tactical Operations	Yes		
05	1, 6, 8.	Navigation Performance	Yes		
06	1.	Communication System	Yes		
07	1.	Defensive Aids Suite	Yes		
08	1, 2, 6.	Aerial Delivery	Yes		
09	2, 5, 7.	Crew Composition	Yes		
Percentage currently forecast to be met			100 %		
In-Year Change			0		

D.3.1.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
-	-	-	-

D.3.1.3. Operational Impact of Variation

KPM	Date	Status	Operational impact of variation
-	-	-	-

D.3.2. **Support Contract** – not applicable

Astute Class Submarines

Team Responsible

Submarine Production

Single point of accountability for Project Capability

Directorate Equipment Capability (Under Water Effect)

Senior Responsible Officer

Director Submarines

Number of Projects / Increments 2

Current Status of Projects / Increments

- **Post Main Investment Decision -** Astute Boats 1-3, Astute Boat 4

A Section A: The Project

A.1. The Requirement

The military requirement is for up to 7-8 Astute Class Submersible Ship Nuclear to replace the existing Swiftsure and Trafalgar Classes of nuclear powered attack submarine.

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

A.2. The Assessment Phase

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

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

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

A.3. Progress

BAE Systems disclosed during 2002 significant delay and projected cost overrun. An agreement between the Department and BAE Systems was reached in February 2003 reducing risk from the production of Boats 2 and 3, and placed new incentives on the company to perform. The Department agreed to increase funding by around £430 million, against an increased contribution by the company of £250 million. An amendment to the Boat 1 contract was signed in December 2003 with Boat 1 continuing on a revised Target Cost Incentive Fee arrangement; Boats 2 and 3 continued on ascertained expenditure pending later pricing.

After the submission of a Review Note in 2007, a further £580m increase was agreed. This was coupled with increased inflationary costs and some programme throughput assumptions at the Barrow site not being borne out. All the programme's revised anchor milestones continue to be met and new project management disciplines were implemented. This included agreeing a Target Cost Incentive Fee with a maximum price for each of Boats 2 and 3.

Approval for procurement of Boat 4 was given in May 2007

Boat 1, the first of the Astute Class was launched in June 2007. On completion of initial trials Boat 1 returned to the Devonshire Dock Hall for outfitting, which included the installation of the reactor core. During 2008 several technical issues arose, which were compounded by the ten year gap between the Vanguard and Astute Classes and the erosion of the skilled resource at Barrow. Additional resources have been applied to the Astute Programme to minimise the impact, but the resolution of these issues has introduced a ten month delay to Boat 1's In Service Date. Preparatory activities for Boat 1's sailing including crew training for the first phase of sea trails remain on track.

A Review Note is being submitted to the Investment Approvals Board seeking re-approval of Boat 1's In Service Date, the implications of this on the remainder of the Astute Class Programme are under investigation, and will be the subject of a separate Review Note in late 2009. Approval was given in December 2007 for long leads items for Boat 5, to the cost of £494M.

A savings measure option was taken in 2009 to remove £139M of funding from Astute Boats 2-7 in years 2009/10 to 2012/13. These savings result in delayed delivery of Boats 2-4, which are already in build and defer build start dates and the procurement of long lead items for Boats 5-7. As a consequence of this, cost growth occurs in later years.

A.4. Capability Risks

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

A.5. Associated Projects

Description	Critical to achievement of IOC	
	Project Title	Forecast IOC
Boats 1-3	Swiftsure & Trafalgar Class Update Final Phase	2004
Boat 4	-	-

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only				
Description	**Procurement Route**			
Boats 1-3	-			
Boat 4	-			
Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Boats 1-3	BAE Systems (Submarine Solutions) (formerly BAE Systems Electronics Ltd – Astute Class Project and BAE Systems Astute Class Ltd)	Demonstration to In-Service	Boat One – Target Cost Incentive Fee Boats Two & Three – Target Cost Incentive Fee with Maximum Prices	United Kingdom Competition
Boat 4	BAE Systems (Submarine Solutions)	Boat 4 and Design for Cost Reduction for Boats 4 to 7	Limit of Liability for 1st two years of seven year build programme. Working towards Inclusion of Target Costs Incentive Fee for whole Boat 4	Single Source

A.7. Support Strategy

The Initial Astute Support Solution was approved in July 2006; it follows a traditional support model, but recognises Astute's differences and introduces additional arrangements as appropriate. Provision has been made to employ the build contractor (BAE Systems) as the Astute Technical Authority, MOD will be the Approving Authority, and Nuclear Propulsion Project Team is responsible for the Nuclear Steam Raising Plant. MOD Equipment Project Teams will support specific equipments with Director In-Service Submarine maintaining a Platform focus and providing the flotilla wide single point of contact for Fleet. Maintenance at the waterfront will be conducted under existing Warship Support Modernisation Initiative arrangements.

The Astute Class Training Service is a PFI contract, initially approved for 36 years to provide Astute specific training to the Royal Navy for Boats 1-3. Approval was given in 2007, to extend to a 38 year contract, to cover the life of Boat 4.

	Contractor	Contract Scope	Contract Type	Procurement Route
Technical Authority Support Contract	BAE Systems	Provision of Technical Authority services	Firm Price	Single Source
Astute Class Training Service Boats 1-3	FAST Training Services Limited; 50% owned by BAE Systems and 50% owned by L-3 MAPPS	Training	PFI	Competitive tender
Astute Class Training Service Boat 4	FAST Training Services Limited; 50% owned by BAE Systems and 50% owned by L-3 MAPPS	Training	PFI	Competitive tender

B. Section B: Cost

B.1. Cost of the Assessment Phase

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

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Boats 1-3	2431	2578	2730
Boat 4	1460	1524	1610

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Boats 1-3	2578	3933	+1355	+127
Boat 4	1610	1589	-21	+65
Total	**4188**	**5522**	**+1334**	**+192**

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. Boats 1-3

Date	Variation (£m)	Factor	Reason for Variation
March 2009	+40	Technical Factors	Prime increases (a mixture of labour, materials, sub-contractors and risk/indemnity/warranty and other construction costs) (+£76m). Non Prime decrease (a mixture of combat systems, nuclear power management, safety platform and design and other non construction costs) (-£36m).
March 2009	+3	Receipts	Reduction in receipt for Shipbuilders Relief (+£3m).
March 2009	+87	Budgetary Factors	A savings option was taken in the 2009 Planning Round which removed £139M of funding over the 4 years from 2009/10 from the Astute Boats 2-7 build programme, the consequent programme slippage results in additional cost growth of £539m. Of this, £87m relates to boats 1-3.
March 2009	-3	Accounting Adjustments and Re-definitions	Cost of capital reduction as the result of above cost variances (-£3m).
Historic	-192	Accounting Adjustments and Re-definitions	Increase in shipbuilders relief (-£12m). Cost of Capital effect of adding in creditors and accruals estimates for 2007/08 onwards (-£7m). Re-costing of Non-Attributable items since MPR06 (Items not Included in the original approval) (+£51m). Overall increase in Cost of Capital due to cost growth In CDEL, changed profile and delivery values (+£65m). Shipbuilders Relief (-£58m) and Sunk cost corrections (-£3m) made in project account. Decommissioning and Decontamination costs (-£1m). Reallocation of Pension cost

			increases since MPR05 (-£5m).Overall reduction in Interest on Capital due to changed delivery profile and values (-£16m). Re-costing of Non-Attributable items since MPR07 (i.e. those items not included in original approval) (+£28m). Shipbuilders Relief correction (+£6m). Variation in cost of capital charge in March 2008 due to revised cost and delivery profiles (+£8m). Recosting of Non-Attributable items since MPR05 (items not included in the original approval) (+£29m). Removal of items wrongly attributed to Astute Approval in previous years (-£11m). Decrease reflects difference between anticipated resource profile at approval and current profile (Equipment Plan 2001) (-£74m). Removal of Astute Class Training Service costs that have been incorrectly included in previous MPRs – training not part of original Astute Main Gate approval (-£62m).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).Variation in Cost of Capital charge due to revised cost and delivery profiles.
Historic	+257	Changed Capability 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 first buy (+£225m).
Historic	+39	Procurement Process	BAE Systems to forego any incentive payments on Boat One(-£13m). Reduction in Warranty to be provided by BAE Systems from three years to one year (-£3m). Planned Contract Amendments (+£55m).
Historic	+40	Inflation	Variation between anticipated rates for GDP and Variation on Price on contract (sunk costs only) (+£14m). Correction in previous Variation on Price calculation – incorrect split between labour and materials (+£26m).
Historic	+1084	Technical Factors	Cost of Capital reduction in respect of removal of Sustainability Costs (-£23m). Sustainability costs of maintaining submarine build capability removed (-£204m). Impact on Cost of Capital of Boat 3 Delivery advance of one year due to compressed sea trials (-£30m). Option E07UW178S – capability

			reduction to a 7 Boat Astute Programme, taken in Equipment Plan 2007 (-£29m). Option E07UW601S – compress Astute class Boats1-3 sea trials programme, taken in EP07 (-£3m). Cost Growth from Review Year 06 to EP07. Materials (+£164m), Labour (+£68m), GDP (+£65m), Risk (+£50m), Profit (+£7m), Non-Prime (-£66m), Overhead (-£12m), Shipbuilder Relief (+£58m). Cost growth in provision of some elements of nuclear safety cases (+£17m). Departmental review identified savings opportunities within other elements of nuclear safety cases (-£20m). Increase in cost as a result of the reassessment of risk, specifically, Team Leader challenge in MPR05 (+£123m). Cost increase identified as part of the Integrated Project Team's internal review in 2005/06 Prime Contract Overheads (+£97m), Prime Contract Materials (+£61m), Prime Contract Labour (+£26m) and unallocated cost growth (+£21m). Changes in throughput assumptions between MPR05 and MPR06 (-£73m). Reduced Requirement for Technology Insertion post MPR05 (CDEL -£17m, cost of capital (-£1m). Prime Contract pricing assumptions and changes to costing (+£19m). Reassessment of risk (+£51m). Reduction of risk on Sonar 2076 programme (-£16m). Re-costing of land attack missile interface & integration (+£5m). Re-costing of External communications (+£5m). Increase in overall BAE Systems base costs (shipyard and sub contracts) reflecting a re-estimate as well as cost of delay (+£571m). Increase in risk provision owing to technical complexity (+£152m). Changed cost reflecting Astute Agreement of February 2003 (+£52m). Re-assessment of overhead rates used in costing (-£36m).Man-hour reduction on Prime contract (-£20m).Removal of Risk funding post Boat 3 delivery (-£2m). Expenditure not apportionable to specific elements of the programme due to 2007 budgeting baseline being overstated which has subsequently been corrected (+£25m). Prime increase (+£27m). Non Prime decrease (-£28m).

Net Variation	**+1355**

B.3.1.2. Boat 4

Date	Variation (£m)	Factor	Reason for Variation
March 2009	+102	Budgetary Factors	A savings option was taken in the 2009 Planning Round which removed £139M of funding over the 4 years from 2009/10 from the Astute Boats 2-7 build programme, the consequent programme slippage results in additional cost growth in later years of £539m. Of this, £102m relates to boat 4.
March 2009	+19	Technical Factors	Increase in Build, Nuclear Plant and Safety costs (+£19m).
March 2009	-51	Receipt	VAT Receipt relating to sunk costs (-£51m).
March 2009	-5	Accounting Adjustments and Re-definitions	Cost of capital reduction as the result of above cost variances (-£5m).
Historic	-86	Risk Differential	The difference between the risk allowed for in the most likely (50%) and highest acceptable (90%).
Net Variation	**-21**		

B.3.2. Operational Impact of Cost Variations of D&M Phase

Description	
Project	-
Increment A	-

B.4. Unit production cost

Description	Unit production costs (£m)		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
Boast 1-3	-	-	3	3
Boat 4	1610	1589	1	1

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

Description	Approved Cost (£m)	Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Initial Astute Support Solution	331	298	-33	-33
Astute Class Training Service Boats 1-3	182	591	+409	+14
Astute Class Training Service - Boat 4	260	260	-	-

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

B.5.1.1. Initial Astute Support Solution

Date	Variation (£m)	Factor	Reason for Variation
March 2009	-18	Technical factors	Cost reduction due to not needing to support boats as a result of slippage. (-£18m).
March 2009	-15	Accounting Adjustments and Re-definitions	Cost of capital charge decrease resulting from changed delivery profiles. (-£15m).
Net Variation	**-33**		

B.5.1.2 Astute Class Training Service Boats 1-3

Date	Variation (£m)	Factor	Reason for Variation
March 2009	+14	Technical Factors	Re-assessment of costs for training/policy changes.(+£14m).
Historic	+343	Technical Factors	Re-alignment of Astute Class Training Service to the revised Astute Boat Programme and extending the contract from 25 to 36 years. (+£343m).
Historic	+83	Budgetary Factors	Addition of recoverable VAT to ensure that the forecast cost is consistent with the approved cost.
Historic	-31	Risk Differential	The difference between the risk allowed for in the most likely and highest acceptable.
Net Variation	**+409**		

B.5.2. Operational Impact of Support / Service / PFI Cost Variations

Description	
Programme / Project	-

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Boats 1-3	March 1997	-	-
Boat 4	May 2007	-	-

C.2. Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Boats 1-3	-	June 2005	-
Boat 4	February 2015	August 2015	103 months from contract signature[2]

C.3. In Service Date

C.3.1. Definition

Description	In Service Date
Boats 1-3	Contract Acceptance Schedule Stage 1 (safe operation and start of operational work up)
Boat 4	**Original ISD definition**: Platform and Weapons acceptance against all requirements as defined within Astute Class Through Life Management Plan, issue 6 dated April 2006 **MPR 09 definition**: Boat 4 Operational Handover to Fleet **Reason for change**: To align ISD with asset being utilised by the Navy.

[2] The main contract for Boat 4 has not yet been signed. When it is, the approved date will be shown, along with any variation in forecast in service date for Boat 4.

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Boats 1-3	June 2005	March 2010	+57	+10
Boat 4	103 months from contract signature	December 2016	-	-
Total			**+57**	**+10**

C.3.3. Timescale variation

C.3.3.1. Boats 1-3

Date	Variation (months)	Factor	Reason for Variation
January 2009	+10	Technical Factors	Further delays have occurred during Astute (Boat 1) testing and commissioning phase. These were caused by technical factors the rapid resolution of which was hampered by the lack of skilled personnel with recent submarine testing and commissioning experience.
Historic	+47	Technical Factors	Risk analysis, taking into account opportunities to reduce construction time, predicts most likely In-Service Date of November 2008 (-1 month). Risk analysis, taking in to account opportunities to reduce construction time, predicts a most likely In-Service Date of December 2008 (-1 month). Exceptional difficulties arose with the introduction of a computer aided design system, the availability of trained staff and project management (+43 months). Effect of technical problems assessed a six month slip in In-Service Date (completion of the first phase of sea trials) (+6 months).
Net Variation	**+57**		

C.3.3.2. Boat 4

Date	Variation (months)	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

C.3.4. Other costs resulting from Timescale variation

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

C.3.5. Operational Impact of In Service Date variation

Description	
Boats 1-3	The Astute delay will result in the delayed introduction of improved capability over current classes; such as improved detection, greater weapon load and increased availability. Since these delays the Department has fully considered the plans for submarine capability in the light of this and many other factors
Boat 4	Reduce ability to fulfil Fleet tasking

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
Boats 1-3	IOC is defined as Operational Handover as this is the point at which on-board systems have been operationally proven, representing "minimum usefully deployable form"
Boat 4	IOC is defined as Operational Handover as this is the point at which on-board systems have been operationally proven, representing "minimum usefully deployable form"

C.4.2. Progress against approved Dates

Description	Approved Date	Actual/Forecast Date	Variation (months)	In-Year Variation (months)
	-	-	-	-
	-	-	-	-
Total			**-**	**-**

C.4.3. Timescale variation – not applicable

C.4.4. Other costs resulting from Timescale variation – not applicable

C.4.5. Operational Impact of Initial Operating Capability variation – not applicable

C.5. Full Operating Capability

C.5.1. Definition

Description	Full Operating Capability
Boats 1-3	FOC will be declared following Operational Workup and agreement on any outstanding requirements / Defect and Deficiency Database issues post Contract Acceptance Schedule Stage 2.
Boat 4	FOC will be declared following Operational Workup and agreement on any outstanding requirements / Defect and Deficiency Database issues post Contract Acceptance Schedule Stage 2.

C.5.2. Progress Report

Description	Full Operating Capability
	-
	-

C.6. Support / Service / PFI Contract

C.6.1. Scope of Support / Service / PFI Contract

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

C.6.2. Progress against approved Support / Service / PFI Contract Go-Live Date

Description	Approved Date	Actual/Forecast Date	Variation (months)	In-Year Variation (months)
Initial Astute Support Solution	August 2007	May 2007	-3	-
Astute Class Training Service Boats 1-3	February 2004	March 2008	+49	-
Astute Class Training Service Boat 4	December 2013	July 2012	-18	-

C.6.2.1. Go-Live Date Variation

Date	Variation (months)	Factor	Reason for Variation
Historic	-3	Risk Differential	The difference between the risk allowed for in the most likely (50%) and highest acceptable (90%)
Net Variation	**-3**		

C.6.2.2. Go-Live Date Variation

Date	Variation (months)	Factor	Reason for Variation
Historic	+50	Technical Factors	Re-alignment of Astute Class Training Service to the revised Astute Boat Programme.
Historic	-1	Risk Differential	The difference between the risk allowed for in the most likely (50%) and highest acceptable (90%)
Net Variation	**+49**		

C.6.2.3. Go-Live Date Variation

Date	Variation (months)	Factor	Reason for Variation
March 2009	-18	Changed requirement	To offset the risk of design changes, increased training throughput and to ensure retention of key supplier resources.
Net Variation	**-18**		

C.6.3. Progress against approved End of Support / Service / PFI Contract Date

Description	Approved Date	Actual/Forecast Date	Variation (months)	In-Year Variation (months)
Initial Astute Support Solution Project	December 2012	December 2012	-	-
Astute Class Training Service Boats 1-3	September 2026	September 2037	+132	-
Astute class Training Service Boat 4	September 2039	September 2039	-	-

C.6.3.1. End of Contract Date Variation

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

C.6.4. Operational Impact of Support / Service / PFI Support Contract Variation

Description	
	-

Section D: Performance

D.1. Readiness Levels

D.1.1. Boats 1-3

Readiness Levels		
Readiness Area	**At Main Gate Level**	**Comments**
Technology	-	Readiness levels were not required when this project passed through Main Gate.
System	-	System Readiness levels are not currently mandated for approvals

D.1.2. Boat 4

Readiness Levels		
Readiness Area	**At Main Gate Level**	**Comments**
Technology	-	Readiness levels were not measured when this project passed through Main Gate.
System	-	System Readiness levels are not currently mandated for approvals

D.2. Performance against Lines of Development

Not required for pre-Main Investment Decision Projects					
Line of Development		**Description**	**Forecast**		
			To be met	**At Risk**	**Not to be met**
1.	Equipment	The provision of the platform and equipment/systems to meet the user requirement.	Yes		
2.	Training	Delivery of trained submarine crew and support personnel, by the enduring provision of sufficient and suitable facilities, training media and instructors.	Yes		
3.	Logistics	Capability being sustained in order that Astute Class can meet allocated military tasks in peacetime, conduct a transition to war and operate effectively in time of conflict.	Yes	Yes	
4.	Infrastructure	How Astute Class will operate and interface with naval real estate such as dockyards, ammunition facilities, pilots and ranges.	Yes		
5.	Personnel	The provision of trained people. Acceptance of the manning solution will be a staged process.	Yes		
6.	Doctrine	Expression of the principles by which military forces guide their actions and is a codification of how activity is conducted today.			
7.	Organisation	The Forces Structures component of Military Capability for Astute is measured against the number of vessels in the class and their readiness state against the requirement of the Royal Naval Plan			
8.	Information	The provision of a coherent development of data, information and knowledge requirements for capabilities and all processes designed to gather and handle data.			
	Percentage of those measured currently forecast to be met		100%		
	In-Year Change				

D.2.1.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
March 2009	Logistics	Technical Factors	Risk remains to the support solution during the Transition phase from manufacture into service and in providing the initial provision of spares to the first of class.
-	-	-	-

D.3. Performance against Key Performance Measures

D.3.1. Boats 1-3

D.3.1.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	1 to 7	Weapon system effectiveness	Yes		
02	1 to 7	Sonar performance	Yes		
03	1, 3	Hull strength (survivability)	Yes		
04	1,2,3, 5	Top speed	Yes		
05	1, 3	Endurance	Yes		
06	1,2,3, 4,5,8	Acoustic signature	Yes		
07	3, 5	Complement	Yes		
08	1 to 8	Land attack capability	Yes		
09	1 to 8	Special forces capability	Yes		
Percentage currently forecast to be met			100%		
In-Year Change			0		

D.3.1.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
-	-	-	-
-	-	-	-

D.3.1.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-
-	-	-	-
Total		**-**	

D.3.2. Boat 4

D.3.2.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	1,2,4, 5,6,7, 8	Intelligence and Surveillance	Yes	-	-
02	1,2,3, 4,5,8	Interoperability	Yes	-	-
03	1,2,3, 4,5,6, 8	Sustained Global Reach	Yes	-	-
04	1 to 8	Theatre Mobility	Yes	-	-
05	1 to 8	Mission Flexibility	Yes	-	-
06	1 to 8	Force and Power Projection	Yes	-	-
07	1 to 8	Battlespace Dominance	Yes	-	-
08	1,2,3, 5,8	Survivability	Yes	-	-
09	1 to 5	Generation	Yes	-	-
10	1,3,8	Through Life Adaptability	Yes	-	-
Percentage currently forecast to be met			100%		
In-Year Change					

D.3.2.2. Key Performance Measures Variation

Date	Key Measure)	Factor	Reason for Variation
-	-	-	-

D.3.2.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-
Total		**-**	

D.3.3. Support Contract – not appliable

Beyond Visual Range Air-to-Air Missile

Project

Beyond Visual Range Air-to-Air Missile

Team Responsible

Beyond Visual Range Air-to-Air Missile

Single point of accountability for Project Capability

Director Equipment Capability (Theatre Airspace)

Senior Responsible Officer

-

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Post Main Investment Decision -** Beyond Visual Range Air-to-Air Missile

A. Section A: The Project

A.1. The Requirement

The Beyond Visual Range Air-to-Air Missile (the selected equipment is 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. Until Meteor is integrated, Typhoon will be armed with the Advanced Medium Range Air-to-Air Missile, acquired from Raytheon Missile Systems.

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

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

A.2. The Assessment Phase

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

A.3. Progress

The contract for the demonstration, manufacture and support of Meteor was placed with MBDA UK Ltd on 23 December 2002. To date only the UK has committed to production; the contract includes production options that can be exercised by partner nations during the demonstration phase. The unavailability of Typhoon aircraft for development and integration trials has necessitated a realignment of the development programme, with Tornado F3 introduced as the primary trials platform, supplemented by the additional use of a Gripen. There is an aspiration to re-introduce Typhoon into the programme as missile

development becomes more mature. The necessary Memorandum of Understanding and contract amendments were finalised in October 2008**.**

The Department reviewed the Beyond Visual Range Air-to-Air Missile programme in 2007/08 in the light of the changing strategic environment and decided to align the integration of Meteor onto Typhoon with the delivery of a major aircraft enhancements package in late 2014/early 2015. A proposal for preliminary Typhoon missile carriage and release work is targeted for contract award in early 2009/10, as the necessary first step to full integration.

A.4. Capability Risks

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

A.5. Associated Projects

Description	Critical to achievement of IOC	
	Project Title	Forecast IOC
Typhoon	Typhoon Future Capability Programme	2012

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only	
Description	**Procurement Route**
-	-

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

A.7. Support Strategy

It is currently envisaged that Meteor will be supported through Contractor Logistic Support arrangements, covering Post Design Services, Repairs and Surveillance and Life Extension. The final agreed strategy is dependent upon the outcome of the reliability trials within the development programme and information and decisions from the Meteor Partner Nations. The current forecast is that these inputs will be available in time to inform a support strategy submission to the approval authorities in late 2010/early 2011.

	Contractor	Contract Scope	Contract Type	Procurement Route
-	-	-	-	-

B. Section B: Cost

B.1. Cost of the Assessment Phase

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

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Beyond Visual Range Air-to-Air Missile	1198	1240	1362

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Beyond Visual Range Air-to-Air Missile	1,362	1,282	-80	+3
Total	**1,362**	**1,282**	**-80**	**+3**

B.3.1. Cost Variation against approved Cost of the D&M Phase

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

Date	Variation (£m)	Factor	Reason for Variation
March 2009	+3	Exchange Rate	Change in Euro exchange rate on Meteor Prime Contract (+3m)
Historic	+48	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). Correction of treatment in Contracted Out Services VAT from previous years to align with Main Gate

Date	Variation (£m)	Factor	Reason for Variation
			Approval (+£3m). Revision of Cost of Capital charge due to revised delivery profile (+£51m).
Historic	-72	Budgetary Factors	In consultation with the customer the decision has been taken to examine capability trade-offs while Realignment and Integration proposals are being matured and assessed against the requirement (-£36m). Effect of Equipment Planning 05 Options: reduce Meteor numbers (-£55m), decision taken not to upgrade Advanced Medium Range Air-to-Air Missile 120Bs (-£65m). Re-costing of UK Technical Support requirements in addition to Memorandum Of Understanding commitments (+£3m). Re-costing of Meteor Integration (-£1m). Increases for Insensitive Munitions (+£9m). Missiles & Ancillary Equipment in Support of Typhoon Integration (+£6m). Surveillance & Life Extension (+£5m). Initial Spares (+£3m). Container Development (+£1m). Container Production (+£1m). Support to Typhoon Integration (+£2m). Revised deliveries of Meteor Missiles (+£12m). Container Logistics Support for Meteor (+£7m). Production Investment (+£1m). Trial Ranger (+£11m). Increase in Unit Production Cost for Advanced Medium Range Air-to-Air Missile missiles (MPR03 +£25m; MPR04 +£15m). Surveillance Spares for Advanced Medium Range Air-to-Air Missile (+£1m). UK share of Government Furnished Equipment (+£6m). Decrease for Service Evaluation Trials for Meteor (-£7m). Integration of Meteor onto Typhoon (-£9m), Production of Meteor Telemetred Operational Missiles (-£1m), In Service Reliability Demonstration support (-£3m). Meteor Technical Support (-£2m). Minor miscellaneous Meteor items (-£1m).
Historic	-120	Changed Requirement	UK share of additional common requirement (+£2m), additional requirement for Dual Date Link (+£6m), additional containers required for Meteor (+£2m), refurbishment of existing Advanced Medium Range Air-to-Air Missiles (-£16m). Re-costing of Meteor Missile Additional Acquisition (-£2m). Reduction in missile numbers to minimum contractual commitments (-£53m). Reassessment of In Service Evaluation Trials for Meteor (-£19m). Re-assessment of Meteor Integration (-£40m).

Date	Variation (£m)	Factor	Reason for Variation
Historic	+55	Change in associated project	UK support to Development Guided Firing campaign on Gripen (+£6m). UK support to Tornado F3 Alternative trials platform (+£3m). UK share of "Realignment" programme due to the non-availability of Typhoon aircraft for Meteor Development Trials programme (+£46m).
Historic	-16	Procurement Process	UK's share of MBDA revalidation of prices caused by delay in contract placement (+£6m). Revalidation to reflect prices within Advanced Medium Range Air-to-Air Missile contract (-£14m), and effect of revalidation on Cost of Capital Charge (-£8m)
Historic	+30	Exchange Rate	Change in Euro exchange rate on Meteor prime (+£29m). Change in Dollar exchange rate on Advanced Medium Range Air-to-Air Missile (-£11m). Revaluation of foreign currency assumptions on current and future Advanced Medium Range Air-to-Air Missile contracts (+£9m). Revaluation of foreign currency assumptions on Meteor Prime Contract (+£3m).
Historic	+114	Procurement Process	Revaluation of UK's share of Government Furnished Equipment / Government Furnished Facilities requirements (-£20m). Additional funding required for integration of Advanced Medium Range Air-to-Air Missile AIM 120C onto Typhoon (+£82m). Gripen Trial (+£2m). Realism measure on funding for integration of Advanced Medium Range Air-to-Air Missile 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 Government Furnished Equipment (+£1m). UK share of Memorandum Of Understanding Technical Support requirements (+£2m). UK share of Memorandum Of Understanding Government Furnished Equipment requirements (+£7m). Revised Variation of Price associated with deliveries of Meteor Missiles (+£27m). Reduction in technical support to Advanced Medium Range Air-to-Air Missile (-£5m). Prime Contractor supporting Typhoon Integration Programme (+£20m). UK contractual commitment to pre-production activities (+£5m). Cost associated with UK's contractual commitment to minimum production quantities (+£57m).

Date	Variation (£m)	Factor	Reason for Variation
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).
Net Variation	**-80**		

B.3.2.Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	
Beyond Visual Range Air-to-Air Missile	-

B.4. Unit production cost

Description	Unit production costs (£m)		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
Beyond Visual Range Air-to-Air Missile	1.0	2.1	***	***

B.5. Performance against approved Support/Service/PFI Cost – not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Beyond Visual Range Air-to-Air Missile	May 2000	October 1995	55

C.2 Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Beyond Visual Range Air-to-Air Missile (Original ISD)	June 2010	September 2011	August 2012
Beyond Visual Range Air-to-Air Missile (ISD2)	February 2015	July 2015	July 2015

C.3 In Service Date

C.3.1 Definition

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

C.3.2 Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Original ISD	August 2012	-	+12	-
ISD1	August 2012	August 2012	0	0
ISD2	July 2015	July 2015	0	0
Total			**0**	**0**

C.3.3 Timescale variation

C.3.3.1 Beyond Visual Range Air-to-Air Missile – variations against original In-Service Date definition

Date	Variation (months)	Factor	Reason for Variation
Historic	+15	Change in associated project	Typhoon integration delays cannot be absorbed and uncertainty over Typhoon Future Capability Programme (+15 months).
Historic	+8	Procurement Process	Slippage caused by delays in placing contract (+11 months). Reassessment of opportunities arising from Meteor Realignment activities, to reduce the duration of firing trial campaigns and to de-risk transition from Demonstration to Production phases (-3 months).
Historic	-11	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest (90%) estimates approved at Main Gate (-11 months).
Net Variation	+12		

C.3.4 Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
Change in associated project	Historic	+5	Change in associated project	Extension to the life of the current Advanced Medium Range Air-to-Air Missile variant until integration of Meteor onto Typhoon is achieved (+£5m).
Total	**-**	**+5**		

C.3.5 Operational Impact of In Service Date variation

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

C.4 Initial Operating Capability

C.4.1 Definition

Description	Initial Operating Capability
Beyond Visual Range Air-to-Air Missile	IOC is the same as ISD 2

C.4.2 Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Total			**0**	**0**

C.4.3 Timescale variation – not applicable

C.4.4 Other costs resulting from Timescale variation – not applicable

C.4.5 Operational Impact of Initial Operating Capability variation – not applicable

C.5 Full Operating Capability

C.5.1 Definition

Description	Full Operating Capability
Beyond Visual Range Air-to-Air Missile	The full exploitation of the Meteor capabilities by the Typhoon platform. This includes a two way datalink, a full six missile fit and the full use of Meteor symbology and cockpit functionality.

C.5.2 Progress Report

Description	Full Operating Capability
Beyond Visual Range Air-to-Air Missile	The option of proceeding to Full Operating Capability will be considered in due course in the light of further threat analysis

C.6 Support / Service / PFI Contract – not applicable

D. Section D: Performance

D.1. Readiness Levels

D.1.1 Beyond Visual Range Air-to-Air Missile

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	-	Readiness levels were not required when this project passed through Main Gate.
System	-	System Readiness levels are not currently mandated for approvals

D.2. Performance against Lines of Development[3]

Not required for pre-Main Investment Decision Projects				
Line of Development	Description	Forecast		
		To be met	At Risk	Not to be met
1 Equipment		Yes		
2 Training		Yes		
3 Logistics		Yes		
4 Infrastructure		Yes		
5 Personnel		Yes		
6 Doctrine		Yes		
7 Organisation		Yes		
8 Information		Yes		
Percentage currently forecast to be met		100%		
In-Year Change		-		

D.2.1 Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
-	-	-	-

[3] The Defence Lines of Development outlined above reflect their status at ISD 1 in 2012. At ISD 1, BVRAAM development will be complete but the missile will not have been integrated onto the Typhoon aircraft

D.3. Performance against Key Performance Measures

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

D.3.1.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	Information	Multiple Target Capability	Yes		
02	Doctrine	Kill Probability	Yes		
03	Doctrine	Enhanced Typhoon Survivability	Yes		
04	Equipment	Typhoon Compatibility	Yes		
05	Logistics	Minimum Air Carriage Life	Yes		
06	Logistics	Reliability	Yes		
07	Logistics	Support	Yes		
Percentage currently forecast to be met			100 %		
In-Year Change			0		

D.3.1.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
-	-	-	-

D.3.1.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-
Total		**-**	

D.3.2. **Support Contract** – not applicable

Falcon

Project

Falcon

Team Responsible

Theatre and Formation Communications Systems

Single point of accountability for Project Capability

Director Equipment Capability (Command, Control & Information Infrastructure)

Senior Responsible Officer

Number of Projects / Increments 2

Current Status of Projects / Increments

- **Post Main Investment Decision -** Falcon Increment A, Falcon Increment C

A. Section A: The Project

A.1. The Requirement

Falcon will provide the comprehensive deployable communication systems that are needed at all levels of command and will operate in conjunction with systems such as Bowman, Cormorant, Skynet 5 and with allies' communication and information systems. It will not duplicate the capability of existing systems, but will be the high capacity system that binds together tactical communications in a theatre of operations as an integral part of the plans for Networked Enabled Capability. Falcon will replace, incrementally, a number of current systems, in particular Ptarmigan.

The programme comprises a number of increments of which only Increments A and C are reflected in this report. Increment A will provide a tactical formation level secure communication system for the High Readiness Force (Land) and the Allied Rapid Reaction Corps. It will enable units to be deployed rapidly to areas of crisis, thereby allowing the UK to remain a pivotal member of the Allied Rapid Reaction Corps. The system will be modular and upgradeable, incorporating much off the shelf technology that will ease management of obsolescence throughout its service life. Increment C, providing capability for Royal Air Force deployed operating bases, is the same equipment as contracted under Falcon Increment A. Falcon Increment A will require significantly less manpower to operate than the system being replaced.

A.2. The Assessment Phase

Increment A of the Falcon programme gained Initial Gate approval in July 2002, following an extended Concept Phase that considered two key options: buy off the shelf technology (Bowman and Cormorant) or buy new capability. It was concluded that a new capability was required.
Marconi Selenia (now Selex) and BAE Systems Insyte were selected for the 15 month Assessment Phase contract and to compete for the Demonstration and Manufacture Phase prime contract for Increment A. The Assessment Phase contracts concentrated on reducing the risk in the proposals for the Demonstration and Manufacture phase, including demonstration of components and subsystems to achieve an acceptable, affordable, low risk solution. In addition, Whole Life Cost estimates were refined. Bidders' proposals for the Demonstration and Manufacture phase were submitted on 31 March 2004.
The procurement strategy endorsed at Initial Gate comprised four increments: Increment A provided for High Readiness Force (Land) and the Allied Rapid Reaction Corps; Increment B for UK divisions and brigades under armour; Increment C for Royal Air Force deployed operational bases; and Increment D for littoral warfare and deep support, including higher mobility. Increment D was then an unfunded aspiration. During the later stages of the Assessment Phase in 2004/2005, a savings option removed funding from the first two years of the Demonstration and Manufacture phase, resulting in a review of the incremental procurement strategy. Two options were considered. The first was for a single programme that effectively would have combined all three funded increments. This would have necessitated the project returning to pre-Initial Gate status and delayed the ISD by up to four years. This option was adopted as the planning assumption and reflected in MPR 2005. The second option was for the delivery of "early capability" that would provide for one medium scale deployment by 2010. It would utilise the savings option funding

profile and exploit the existing contractor bids for Increment A. This option was explored and found to be viable.
In July 2005, approval was given to the further in-depth exploration of the second option and the selection of BAE Systems Insyte as the preferred bidder for Falcon Increment A. A programme was developed in conjunction with the preferred bidder that was affordable within the available funding.
Falcon Increment C achieved Main Gate approval in July 2007 and was added as a Falcon Increment A contract amendment in September 2007.

A.3. Progress

Following Main Gate approval for Increment A in March 2006, the Demonstration and Manufacture contract was awarded to BAE Systems Insyte. Negotiations to acquire the MAN 6 Tonne Support Vehicle have been completed. The majority of the system has been developed to a high degree of maturity and the system validation and verification process started, but there have been delays to the voice telephony sub-system and the cryptographic sub-system, which have had a consequential delay to the whole contract. The Equipment Acceptance Trial, now contracted for late 2009, will be a key milestone in the system's development.

Later increments (Increments B and D) are now known collectively as Future Falcon. Future Falcon is planned to provide tactical communication systems for the more mobile Division/Brigade level and for deep support roles. Future Falcon is currently in early Concept and further Falcon Increments will be subject to separate approvals.

A study was approved by Director Intelligence, Surveillance, Target Acquisition & Reconnaissance and added to the Falcon contract. This explored the integration of Defence Information Infrastructure (Future Deployed) to the Falcon capability identifying a technical solution. Three costs for integration were proposed; a firm price of £18M pre Equipment Acceptance Trial, and two Rough Order Magnitude costs of £42M post Equipment Acceptance Trial but pre System Field Trial and £67M post System Field Trial. The firm price option although affordable was turned down by the Defence Equipment & Support commitment regime. Consequently a work around will need to be managed to allow Falcon to interoperate with Defence Information Infrastructure (Future Deployed) until this integration work is taken forward.

A.4. Capability Risks

Falcon Increment A and Increment C will deliver secure one-to-one voice and wideband data networks to deployed forces, including Headquarters Allied Rapid Reaction Corps, Divisional and Brigade Headquarters and unit level command posts and Deployed Operating Bases. Without this capability Land and Air Forces will be unable to execute effective command and control. In addition, Falcon Increment A and Increment C will also provide wideband data coverage for vital intelligence gathering platforms such as Airborne Stand Off Radar, Land Environment Air Picture Provision and Watchkeeper. Without the wideband data network delivered under Falcon this intelligence information will not be delivered to the key decision makers in a timely fashion. Falcon Increment C will also support the increased data requirements of new aircraft such as Typhoon and will allow them to operate from Deployed Operating Bases.

A.5. Associated Projects – not applicable

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only	
Description	**Procurement Route**
	-
	-

Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Falcon Increment A	BAE Systems Insyte	Demonstration and Manufacture	Firm price	UK competition
Falcon Increment C	BAE Systems Insyte	Demonstration and Manufacture	Firm price	Single Source

A.7. Support Strategy

The support strategy is based on a Contractor Logistic Support agreement with firm prices for the first four years from IOC. Fixed prices have been secured for a further five years after this period for both Increments A and C.

	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Falcon Increment A	BAE Systems Insyte	Capability and Availability	Firm price for first four years	As part of main competition
Falcon Increment C	BAE Systems Insyte	Capability and Availability	Firm price for first four years	Single Source

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	**Approved Cost (£m)**	**Actual / Forecast Cost (£m)**	**Variation (£m)**	**Post-Main Investment Decision Projects only**	
				Approved cost as a proportion of total estimated procurement expenditure (%)	**Actual Cost as a proportion of total estimated procurement expenditure (%)**
Falcon Increment A	30	31	+1	9.5%	9.8%
Falcon Increment C	-	-	-	-	-
Total	**30**	**31**	**+1**	**9.5%**	**9.8%**

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

Description	**Lowest Forecast / Approved**	**Budgeted For (Post-Main Investment Decision Projects only)**	**Highest Forecast / Approved**
Falcon Increment A	290	308	324
Falcon Increment C	42	47	50

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Falcon Increment A	324	285	-39	-6
Falcon Increment C	50	46	-4	-1
Total	**374**	**331**	**-43**	**-7**

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. Falcon Increment A

Date	Variation (£m)	Factor	Explanation
February 2009	+2	Technical Factors	Latest assessment of deliveries, for Falcon A, leading to an increase in Cost of Capital.
November 2008	-8	Changed Capability Requirement	This is due to the Commitments Regime decision not to commit to Defence Information Infrastructure (Future) integration during 2008/09.
Historic	+1	Accounting Adjustments and Re-definitions	Correction of treatment in Contracted Out Services VAT from previous years to align with Main Gate Approval
Historic	-5	Budgetary Factors	Assessment of later years' risk mitigation budget yielded a reduction in 2011/12 (-£4m). Reduction in Risk Mitigation funding in 2008/09 to ensure overall Falcon Increment A affordability within Equipment Programme 07 (-£1m).
Historic	-3	Changed Capability Requirement	Vehicle Military Engineering Programme for Falcon vehicles was transferred in 2006/07 to Joint Electronic Surveillance Integrated Project Team (-£1m). Vehicle Military Engineering Programme for Falcon vehicles was transferred 2005/06 to Joint Electronic Surveillance Integrated Project Team (-£2m).
Historic	-7	Procurement Process	Condition of Main Gate Financial Approval was any planned accrual in 2005/06 that could not be achieved could not be slipped into subsequent financial years (-£7m).
Historic	-2	Technical Factors	Costs saved due to Falcon Vehicle change identified by contract study
Historic	-17	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (80%) estimates at Main Gate.
Net Variation	**-39**		

B.3.1.2. Falcon Increment C

Date	Variation (£m)	Factor	Explanation
December 2008	-1	Accounting Adjustments and Re-definitions	Reduction of In-Year expenditure against Control Total
Historic	-3	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (80%) estimates at Main Gate.
Net Variation	**-4**		

B.3.2. Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	
Falcon Increment A	The MOD Commitments Review decision not to go ahead with the Defence Information Infrastructure (Future Deployed) Interoperability upgrade has put the Falcon Interoperability and Survivability Key User Requirements at risk. From an Interoperability perspective Falcon will not work with Defence Information Infrastructure (Future Deployed) or any other Microsoft based Information System. In order to mitigate against some of these interoperability issues configuration changes will be made to Falcon, however, the result of doing this effects the ability of Falcon to survive in a hostile electromagnetic environment.
Falcon Increment C	As above for Increment A.

B.4. Unit production cost – not applicable

B.5. Performance against approved Support Cost

Description	Approved Cost	Forecast cost	Variation (£m)	In-Year Variation (£m)
Falcon Increment A	82	70	-12	
Falcon Increment C	18	18	0	

B.5.1. Cost Variation against approved Support Cost

B.5.1.1. Falcon Support Contract

Date	Variation (£m)	Factor	Reason for Variation
Historic	-12	Accountancy adjustments and re-definitions	Correction of treatment in Contracted Out Services VAT to align with Main Gate approval
Net Variation	**-12**		

B.5.2. Operational Impact of Support Cost Variations

Description	
Programme / Project	-

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Falcon Increment A	March 2006	July 2002	44
Falcon Increment C	-	-	-

C.2. Planned/Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Falcon Increment A	October 2009	June 2010	February 2011
Falcon Increment C	May 2010	September 2010	March 2011

C.3. In Service Date

C.3.1. Definition

Description	In Service Date
Falcon Increment A	This is defined as the minimum scaling to provide wide and local area deployable communications that will support a non-enduring medium scale UK framework nation land deployment short of war fighting.
Falcon Increment C	This is the minimum scaling to provide local area deployable communications to support a non enduring medium scale peace keeping RAF deployment on one austere and one bare base

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Falcon Increment A	February 2011	November 2010	-3	+5
Falcon Increment C	March 2011	February 2011	-1	+5
Total	**-**	**-**	**-4**	**+10**

C.3.3. Timescale variation

C.3.3.1. Falcon Increment A

Date	Variation (months)	Factor	Reason for Variation
December 2008	+5	Technical Factors	Delays in development of voice telephony and Encryption sub-systems.
Historic	-8	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**		

C.3.3.2. Falcon Increment C

Date	Variation (months)	Factor	Reason for Variation
December 2008	+5	Technical Factors	Delays in development of voice telephony and Encryption sub-systems.
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**		

C.3.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
-	-	-	-	-
Total	**-**	**-**		

C.3.5. Operational Impact of In Service Date variation

Description	
-	-

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
Falcon Increment A	IOC is the same date as ISD
Falcon Increment C	IOC is the same date as ISD

C.4.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
-	-	-	-	-
-			**-**	**-**

C.4.3. Timescale variation not applicable

C.4.4. Other costs resulting from Timescale variation not applicable

C.4.5. Operational Impact of Initial Operating Capability variation not applicable

C.5. Full Operating Capability

C.5.1. Definition

Description	Full Operating Capability
Falcon Increment A	This is defined as the scaling and functionality that will enable the Allied Rapid Reaction Corps to conduct war fighting operations as a High Readiness Force (Land)
Falcon Increment C	This is the capability to support two medium scale RAF deployments, one of which is enduring

C.5.2. Progress Report

Description	Full Operating Capability
Falcon Increment A/C	The project is at the stage of releasing design to production in order that production can commence. Production is required for the System Field Trial and IOC, these are the milestones that are presently being monitored and reported on by the Production and fielding Working Group.

C.6. Support Contract

C.6.1. Scope of Contract

Description	-
Falcon Increment A	Contractor Logistics Support providing for a minimal agreed level of System Availability
Falcon Increment C	Contractor Logistics Support providing for a minimal agreed level of System Availability

C.6.2. Performance against approved Contract Go-Live Date

Description	Approved Date	Actual/Forecast Date	Variation (month)	In-Year Variation (month)
Falcon Increment A	February 2011	November 2010	-3	+5
Falcon Increment C	March 2011	February 2011	-1	+5
Total			**-4**	**+10**

C.6.2.1. Falcon Increment A Go-Live Date Variation

Date	Variation (months)	Factor	Reason for Variation
December 2008	+5	Technical Factors	Delays in development of voice telephony and encryption sub-systems.
Net Variation	**+5**		

C.6.2.2. Falcon Increment C Go-Live Date Variation

Date	Variation (months)	Factor	Reason for Variation
December 2008	+5	Technical Factors	Delays in development of voice telephony and encryption sub-systems.
Net Variation	**+5**		

C.6.3. Performance against approved End of Contract Date

Description	Approved Date	Actual/Forecast Date	Variation (month)	In-Year Variation (month)
Falcon Increment A	December 2018	December 2018	-	-
Falcon Increment C	December 2018	December 2018	-	-

C.6.3.1. End of Contract Date Variation

Date	Variation (months)	Factor	Reason for Variation
Falcon Increment A	-	-	-
Falcon Increment C	-	-	-
Net Variation	**-**		

C.6.4. Operational Impact of Support Contract variation

Description	
Falcon Increment A	-
Falcon Increment C	-

D. Section D: Performance

D.1. Readiness Levels

D.1.1. Falcon Increment A

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	6	
System	4	

D.1.2. Falcon Increment C

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	6	
System	4	

D.2. Performance against Lines of Development

Falcon Increment A

Line of Development	Description	Forecast		
		To be met	At Risk	Not to be met
1. Equipment	Delivery of suitable equipment to Head Quarters Land Forces in order to meet user requirements.	Yes	Yes	-
2. Training	Sufficient Conversion Training and Steady State Training in order to allow Head Quarters Land Forces to deliver the correct level of operational capability.	Yes	Yes	-
3. Logistics	Delivery of a robust support package in order to allow Head Quarters Land Forces to operate equipment at sufficient readiness levels.	Yes	-	-
4. Infrastructure	Head Quarters Land Forces to ensure adequate garaging/storage facilities and work services are in place to meet equipment delivery schedule.	Yes	-	-
5. Personnel	Head Quarters Land Forces have sufficient personnel in place to deliver the Falcon capability.	Yes	-	-
6. Doctrine	Head Quarters Land Forces have the relevant concepts and doctrine in place to support the deployment of the Falcon capability.	Yes	-	-
7. Organisation	Head Quarters Land Forces have the relevant organisational structures in place in order to effectively deploy and manage the Falcon capability.	Yes	-	-
8. Information	Head Quarters Land Forces ensure the relevant documentation and briefing material is in place to support the Falcon capability.	Yes	-	-
9. Interoperability	Theatre Formation Communication Systems Integrated Project Team is to ensure the equipment, procedures and documentation are in place to allow the Falcon capability to interoperate with other key Global Information Infrastructure network systems and the key Information Systems reliant on Falcon.	Yes	Yes	-
Percentage of those measured currently forecast to be met		100%		
In-Year Change		-		

Falcon Increment C:

Line of Development	Description	Forecast		
		To be met	At Risk	Not to be met
1. Equipment	Delivery of suitable equipment to Head Quarters RAF in order to meet user requirements.	Yes	Yes	-
2. Training	Sufficient Conversion Training and Steady State Training in order to allow Head Quarters RAF to deliver the correct level of operational capability.	Yes	Yes	-
3. Logistics	Delivery of a robust support package in order to allow Head Quarters RAF to operate equipment at sufficient readiness levels.	Yes	-	-
4. Infrastructure	Head Quarters RAF to ensure adequate garaging/storage facilities and work services are in place to meet equipment delivery schedule.	Yes	-	-
5. Personnel	Head Quarters RAF have sufficient personnel in place to deliver the Falcon capability.	Yes	-	-
6. Doctrine	Head Quarters RAF have the relevant concepts and doctrine in place to support the deployment of the Falcon capability.	Yes	-	-
7. Organisation	Head Quarters RAF have the relevant organisational structures in place in order to effectively deploy and manage the Falcon capability.	Yes	Yes	-
8. Information	Head Quarters RAF ensure the relevant documentation and briefing material is in place to support the Falcon capability.	Yes	-	-
9. Interoperability	Theatre Formation Communication Systems Integrated Project Team are to ensure the equipment, procedures and documentation are in place to allow the Falcon capability to interoperate with other key Global Information Infrastructure network systems and the key Information Systems reliant on Falcon.	Yes	Yes	-
Percentage of those measured currently forecast to be met		100%		
In-Year Change				

D.2.1.1. Defence Lines of Development Variation:

Falcon Increment A:

Date	Line of Development	Factor	Reason for Variation
February 2009	Equipment	Technical Factors	Programme slips in the delivery of the Falcon Encryption System, Voice Over Internet Protocol system and Management System for Factory Acceptance.
February 2009	Training	Changed Capability Requirement	Issues with the capacity and resourcing plan for Falcon Steady State Training solution do not meet the perceived requirement.
February 2009	Interoperability	Technical Factors	Emerging requirements from Defence Information Infrastructure (Future Deployed) and other Microsoft based Information Systems requires a change to the Falcon network in order to allow the correct passage of data. This risk was identified and appropriate risk funding was allocated to mitigate, however, the MOD Commitments Restraint Regime decided not to implement the risk mitigation.

Falcon Increment C:

Date	Line of Development	Factor	Reason for Variation
February 2009	Equipment	Technical Factors	Programme slips in the delivery of the Falcon Encryption System, Voice Over Internet Protocol system and Management System for factory acceptance trails have resulted in a lack of user confidence in the overall programme to deliver on time.
February 2009	Training	Changed Capability Requirements	There is neither an accepted training plan nor a plan to ensure that the training meets either contracted solutions or Front Line Command aspirations. Actions are in-hand from Capability Integration Working Group and from the Training Working Group.
February 2009	Organisation	Changed Capability Requirements	The current manning levels do not allow RAF to fully man all Falcon installations when deployed and this may be a formal requirement once the security requirements of falcon are fully understood.
February 2009	Interoperability	Technical Factors	Emerging requirements from Defence Information Infrastructure (Future Deployed) and other Microsoft based Information Systems requires a change to the Falcon network in order to allow the correct passage of data. This risk was identified and appropriate risk funding was allocated to mitigate, however, the MOD Commitments Restraint Regime decided not to implement the risk mitigation.

D.3. Performance against Key Performance Measures

D.3.1. Falcon

D.3.1.1. Falcon Increment A

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	6, 7, 8	Falcon shall meet the Information Exchange Requirements of its User communities	Yes	-	-
02	1	Falcon shall have the mobility necessary to support its User communities	Yes	-	-
03	1	Falcon shall be sufficiently flexible so resources can be proportionally matched to the scale of effort required during all phases of an operation	Yes	-	-
04	1, 8	Falcon shall support the passage of secure information at a level appropriate to its protective marking	Yes	-	-
05	1, 2, 6, 7, 8	Falcon managers shall be able to manage all aspects of a Falcon deployment in an efficient, timely and effective manner in order to meet the needs of the User	Yes	-	-
06	6, 8	Falcon Users shall be able to exchange information between co-operating forces in Joint and Combined operations without disruption to the conduct of operations	Yes	Yes	-
07	2, 5, 7	Falcon shall minimise the manpower and training burden in order to provide efficient support to operations	Yes	-	-
08	1	Falcon shall survive in a hostile physical and electronic environment	Yes	Yes	-
09	3, 4	Falcon shall be sustainable on operations	Yes	-	-
Percentage currently forecast to be met			100%		
In-Year Change					

D.3.1.2. Falcon Increment C

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	6, 7, 8	Falcon shall meet the Information Exchange Requirements of its User communities	Yes	-	-
02	1	Falcon shall have the mobility necessary to support its User communities	Yes	-	-
03	1	Falcon shall be sufficiently flexible so resources can be proportionally matched to the scale of effort required during all phases of an operation	Yes	-	-
04	1, 8	Falcon shall support the passage of secure information at a level appropriate to its protective marking	Yes	-	-
05	1, 2, 6, 7, 8	Falcon managers shall be able to manage all aspects of a Falcon deployment in an efficient, timely and effective manner in order to meet the needs of the User	Yes	-	-
06	6, 8	Falcon Users shall be able to exchange information between co-operating forces in Joint and Combined operations without disruption to the conduct of operations	Yes	Yes	-
07	2, 5, 7	Falcon shall minimise the manpower and training burden in order to provide efficient support to operations	Yes	-	-
08	1	Falcon shall survive in a hostile physical and electronic environment	Yes	Yes	-
09	3, 4	Falcon shall be sustainable on operations	Yes	-	-
Percentage currently forecast to be met			100%		
In-Year Change					

D.3.1.3. Falcon Increment A and C - Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
January 2009	KPM 6	Technical Factors	Emerging requirements from Defence Information Infrastructure (Future Deployed) and other Microsoft based Information Systems requires a change to the Falcon network in order to allow the correct passage of data. This risk was identified and appropriate risk funding was allocated to mitigate, however, the MOD Commitments Restraint Regime decided not to implement the risk mitigation.
January 2009	KPM 8	Technical Factors	In order to mitigate against the interoperability issues described above, it may be necessary to operate Falcon with a larger Maximum Transfer Unit size. The result of this increase in Maximum Transfer Unit size will have a detrimental effect on Falcon's ability to work in a hostile electronic environment.

D.3.1.4. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
KPM 6	January 2009	At Risk	The MOD Commitments Regime decision not to go ahead with the Defence Information Infrastructure (Future Deployed) Interoperability upgrade effectively doubles the amount of deployable infrastructure which units will have to deploy.
KPM 8	January 2009	At Risk	The survivability of the network radio paths will now be degraded in order to allow Microsoft based Information Systems to use Falcon as a transit network.

D3.2 Support Contract – not applicable

Future Joint Combat Aircraft

Project

Joint Combat Aircraft

Team Responsible

Joint Combat Aircraft Team

Single point of accountability for Project Capability

Head of Capability (Deep Target Attack)

Senior Responsible Officer

Head of Capability (Deep Target Attack) (Combat Air Senior Responsible Officer)

Number of Projects / Increments 2

Current Status of Projects / Increments

- **Post Main Investment Decision** - System Development and Demonstration, Production Sustainment and Follow on Development

A. Section A: The Project

A.1. The Requirement

Following UK participation in the Concept Demonstration Phase of the programme, the United States Joint Strike Fighter was selected to meet the Joint Combat Aircraft requirement. The Strategic Defence Review confirmed this requirement to provide the UK with a replacement for the Royal Navy Sea Harrier and the Royal Air Force Harrier GR7/9. A tailored Main Gate Demonstration approval was obtained in January 2001 for participation in the System Development and Demonstration phase to the value of £1,300M, along with £600M for related non-System Development and Demonstration work, leading to signature that month by UK and United States governments of the System Development and Demonstration Memorandum of Understanding. The selection of Lockheed Martin as the Joint Strike Fighter air system prime contractor included a teaming agreement with Northrop Grumman and BAE Systems to collectively form Team Joint Strike Fighter. Two separate and competitive propulsion contracts were awarded to Pratt and Witney for the F135 engine and General Electric/Rolls Royce Fighter Engine Team for the F136 engine. Whilst other partners joined the programme at Level 2 and 3 entry arrangements, only United States and UK requirements drive the System Development and Demonstration baseline solution.

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

On 12 December 2006 Minister of State for Defence Procurement signed the Production Sustainment and Follow-on Development Memorandum of Understanding representing the first of four further Main Gates planned for the introduction of Joint Combat Aircraft into service. The UK has approval for Phase 2 of the Joint Combat Aircraft incremental strategy where the UK will participate in the joint Initial Operational Test & Evaluation with the United States. This will allow the UK to continue to influence all aspects of the Joint Strike Fighter programme as it moves into a new phase.

Two Key Performance Measures remain at risk:

KPM04 - Mission Performance: In July 2006 the Investment Approvals Board directed that Ship-borne Rolling and Vertical Landing should be included in future development of the Joint Combat Aircraft design to mitigate the risk to the Vertical Land Bring Back capability.

KPM06 – Logistic Footprint: Performance remains marginally better than requirement, although due to very narrow margin this KUR remains at risk. Work is ongoing with Lockheed Martin to drive down Logistic Footprint to ensure it remains within specification as the air system matures throughout the System Development and Demonstration phase.

A.2. The Assessment Phase

Approval was obtained in November 1996 to enter the Concept Demonstration Phase on the Joint Strike Fighter programme under a Memorandum of Understanding signed in December 1995. The phase began in November 1996 with two competing United States Prime Contractors (Boeing and Lockheed Martin) designing 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 Joint Strike Fighter to meet the requirement were also conducted but were rejected on cost effective grounds. The options were US F/A18E aircraft, French Rafale M, a "navalised" Eurofighter and an advanced Harrier.

A.3. Progress

The flight test programme is progressing with the first Conventional Take Off and Landing and the Short Take Off and Vertical Landing Variants achieving first flight and in excess of 70 plus test flights to date. The UK has received certification, supported by analysis from the United States and other independent subject matter experts, that the Short Take Off and Vertical Landing propulsion system is approved to fly throughout the current design environment (conventional and vertical). On 18 March 2009 the UK Secretary of State for Defence announced the approval for the UK to purchase three Short Take Off and Vertical Landing variants of Joint Strike Fighters which will allow the UK to participate in the Operational Test and Evaluation of Joint Strike Fighter along with the United States services.

A.4. Capability Risks

This capability provides the UK with an expeditionary air to ground and air to air capability to satisfy the Strategic Defence Review of 1998 in order to maintain the Carrier Strike capability for the UK. Without this capability the UK will not have the ability to launch air power from both land and sea at a time and place of our choosing.

A.5. Associated Projects

Description	Critical to achievement of IOC	
	Project Title	Forecast IOC
Joint Combat Aircraft	Queen Elizabeth Class (Future Aircraft Carrier)	2016 and 2018

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only	
Description	**Procurement Route**
Project	-

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

A.7. Support Strategy – not applicable

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
System Development and Demonstration	150	144	-6	6.1%	5.9%
Production Sustainment and Follow on Development	-	-	-	-	-

B.2. Cost Boundaries for Demonstration and Assessment Phase/PFI

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
System Development and Demonstration	1971	2034	2236
Production Sustainment and Follow on Development	504	638	638

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
System Development and Demonstration	2236	1813	-423	- 21
Production Sustainment and Follow on Development	638	638	0	0
Total	**2874**	**2451**	**-423**	**-21**

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. System Development and Demonstration

Date	Variation (£m)	Factor	Reason for Variation
January 2009	+6	Foreign Exchange	In year 0809 exchange rate variance (+£4m). Exchange rate variance 09/10 to 13/14 (+£2m).
January 2009	-27	Budgetary Factors	**In year out turn against forecast** – Risk mitigation action leading to minimal level of unforeseen activities emerging (-£10m), Ship Borne Rolling Vertical Landing (-£8m) due to overestimate of the work required at this stage of the programme, slippage in the integration of Joint Combat Aircraft with the Future Aircraft Carriers (-£6m) due to slower than anticipated progress, correction of in year System Development and Demonstration Contribution (+£2m). **Re-profiling of future years** - comprising of Ship Borne Rolling and Vertical Landing – reassessment of the funding required to return the aircraft with a higher payload (-£1m), updated assessment of the expected implementation work supporting the Autonomic Logistics Information System – a global system for all maintenance and spares for Joint Strike Fighter (-£2m). An increase due to Joint Safe Escape – the ability to deploy weapons safely (+£1m) which was not previously explicitly forecast, refinement of Risk mitigation funding for future years (-£4m), Reduction of Safety Case – a requirement to ensure the aircraft is fit to fly (-£2m) due to the cost to the UK being reduced by the contribution of partner nations. **Cost of Capital Charge** -variance as a result of above (+£3m).
Historic	+12	Accounting Adjustments and Re-definitions	**MPR07:** The Integrated Project Team conducted a review of the project work schedule which has given the team sufficient certainty to include more accurate accruals for the duration of the project (-£10m). Accounting Adjustment made in MPR06 now reflected in re-profiling of programme (-£2m). Interest on capital correction (MPR02 +£46m; MPR03 -£12m). New Defence Procurement Agency requirement to include Price Forecasting Group costs within the equipment plan (+£1m). Additional interest on

			capital from new Defence Procurement Agency IT accrual methodology (+£1m). Accounting reclassification of feasibility studies (-£2m). Difference in variation figures due to revision of Cost of Capital Charge (-£16m). **MPR06:** Change of accounting treatment for System Development and Demonstration contributions. (+£19m). Re-profile of 2005/06 accrual into later years. (-£18m). Removal of 2005/06 accrual, reconciliation of accrual (+£1m). **MPR05:** Re profiling of UK specific tasks (+£3m). Adjustment of treatment of Cost of Capital Charges calculation (+£1m).
Historic	+280	Budgetary Factors	**MPR08:** In year out turn against forecast – including minor changes for 2007/08 (-£14m). UK non System Development and Demonstration National work; Changes to reflect realism: UK Precision Guided Bomb (-£7m), Carrier Variant Future integration (+£1m) and Operational Test and Evaluation (-£7m). Maturation of risk identified since Equipment Plan 07: Autonomic Logistic Information System (+£5m), Conformity European markings (+£6m), Re-assessment of risk (+£6m). Re-assessment of Main programme expenditure: Mission Support (+£2m), Reprogramming (+£10m), Bowman (+£4m). Planning Round 08 Option not included in Equipment Plan 07 (-£7m). Cost of Capital charge as a result of above realignment (-£5m). **MPR07:** Re-assessment of UK National Work - attributable cost which include: UK integration costs: (-£94m), Block 3 weapons adjusted to reflect the latest costing from Prime contractor (+£7m), Safety Case now defined to prepare for contract placement in 2007/08 (+£11m) and re-assessment of risk provision (-£87m). Break out from re-assessment from risk provision above which are: UK basing integration & testing (+£5m), Identification of Operational Test & Evaluation costs (+£26m). Outturn for 2006/07 versus Forecast (-£6m). Increase in Cost of Capital Charge resulting from change of planning assumption on delivery of Intangible assets (+£48m). Adjustment for realism in the cost of the UK non-

			System Development and Demonstration work resulting from a deeper review of the estimates originally provided by the US (+£43m). Fewer UK studies than originally planned (MPR02 -£1m; MPR03 (-£6m).
Historic	-499	Changed Capability Requirement	**MPR06:** Reviews of the external missile systems for Joint Combat Aircraft resulted in the removal of the requirement for integrating externally mounted Brimstone (-£41m) and Advanced Short Range Air to Air Missile (-£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). **MPR05:** Provision for Alternate Helmet Mounted Display System removed (-£40m). Reassessment of 2004/05 forecast expenditure (-£12m). Review of miscellaneous requirement including Exchange of Letters Risk Provision (-£40m), design of UK Specific Support (-£3m), Environmental Protection (-£3m) and Autonomic Logistic Information System interoperability (-£6m). Block IV weapons as a result of Joint Strike Fighter programme re-alignment (-£368m) and associated increase Cost of Capital charge (+£44m).
Historic	-106	Exchange Rates	**MPR08:** System Development and Demonstration contribution against MPR07 Versus MPR08 Exchange rate: 07/08 (-£12m), 08/09 to 13/14 (-£6m). **MPR07:** Exchange rate against profile until 2013 (-£11m). Change in dollar/pound exchange rate (**MPR06** +£9m; **MPR05** -£181m; **MPR04** -£85m; **MPR03** -£9m; **MPR02** +£189m).
Historic	+113	Technical Factors	**MPR07:** Re-alignment of programme now included in Development - Ship-borne Rolling and Vertical Landing (+£55m). **MPR05:** Reduction of Risk line as a result of programme delays (-£29m). **MPR 04**: Re-examination of risk within the overall programme. (+£87m).
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	**-423**		

B.3.1.2. Production Sustainment and Follow on Development

Date	Variation (£m)	Factor	Reason for Variation
-	-	-	-
Net Variation	**0**		

B.3.2. Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	

B.4. Unit production cost[4] - not applicable

B.5. Progress against approved Support/PFI Cost - not applicable

C. Section C: Timescale[5]

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Joint Combat Aircraft	January 2001	-	-

C.2. Planned / Actual Boundaries for introduction of the Capability – not applicable

C.3. In Service Date

C.3.1. Definition

Description	In Service Date
Joint Combat Aircraft	Six embarked aircraft at Readiness 2 (two-five days notice to move) – to align with the US acquisition framework and definitions.

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
	-	-	-	-

C.3.3. Timescale variation - not applicable

C.3.4. Other costs resulting from Timescale variation - not applicable

C.3.5. Operational Impact of In Service Date variation

Description	
Joint Combat Aircraft	The tailored Demonstration Main Gate noted but did not approve ISD

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
Joint Combat Aircraft	Yet to be defined

[4] In order to match the US procurement cycle the JCA Main Gate was tailored for Development only. Unit Production Cost approval will be sought as part of MG UK production approval.

[5] The In Service date (ISD) approval will be sought as part of the incremental Production Approval strategy.

C.4.2. Progress against approved Dates - not applicable

C.4.3. Timescale variation - not applicable

C.4.4. Other costs resulting from Timescale variation - not applicable

C.4.5. Operational Impact of Initial Operating Capability variation - not applicable

C.5. Full Operating Capability

C.5.1. Definition

Description	Full Operating Capability
Joint Combat Aircraft	Yet to be defined

C.5.2. Progress Report - not applicable

C.6. Support Contract – not applicable

Section D: Performance

D.1. Readiness Levels

D.1.1. Project

Readiness Levels		
Readiness Area	**At Main Gate Level**	**Comments**
Technology	6/7	
System	5/6	

D.2. Performance against Lines of Development

Line of Development	Description	Forecast		
		To be met	At Risk	Not to be met
1. Equipment	36 Force Elements at Readiness.	Yes	-	-
2. Training	Sufficient trained and available personnel.	Yes	-	-
3. Logistics	Successful integration of Joint Strike Fighter support solution into UK and Joint Supply Chain.	Yes	Yes	-
4. Infrastructure	Completion of Main Operating Base Lossiemouth.	Yes	-	-
5. Personnel	Sufficient suitable personnel available for training and support.	Yes	-	-
6. Doctrine	Doctrine in place.	Yes	-	-
7. Organisation	Suitable command structures in place to support United States based Initial Operational Test and Evaluation and Operational Conversion Unit, as well as UK Main Operating Base, Queen Elizabeth Class Carriers and Forward Operating Base operations.	Yes	-	-
8. Information	Integration of Joint Combat Aircraft into UK Global Information Infrastructure.	Yes	Yes	-
Percentage of those measured currently forecast to be met		100%		
In-Year Change		0		

D.2.1.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
March 09	Logistics	Budgetary Factors	Insufficient Maritime Intra-Theatre Lift to support Joint Combat Aircraft aboard Queen Elizabeth Class Carriers
March 09	Information	Technical Factors	UK Ground Information Infrastructure may be unable to support the requirements of Joint Combat Aircraft Information Systems

D.3. Performance against Key Performance Measures

D.3.1. Joint Combat Aircraft

D.3.1.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01		Survivability	Yes	-	-
02		Interoperability	Yes	-	-
03		Combat Radius	Yes	-	-
04		Mission Performance	Yes	Yes	-
05		Mission reliability	Yes	-	-
06		Logistic footprint	Yes	Yes	-
07		Sortie Generation	Yes	-	-
Percentage currently forecast to be met			100%		
In-Year Change			0		

D.3.1.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
Historic	KPM 04	Technical Factors	The Short Take Off element of KPM 04 (based on Invincible Class Carriers not Future Aircraft Carrier) will be changed in the ongoing KPM review, although current projections indicate robust Short Take Off performance from Future Aircraft Carrier. Weight challenges and propulsion system integration issues place the Vertical Landing Bring Back element of KPM 04 at increased risk; the Integrated Project Team has commenced programme action to amend the System Development and Demonstration contract to satisfy a requirement to undertake Ship-borne Rolling Vertical Landing.
Historic	KPM 06	Technical Factors	Subject to intensive programme action by Prime Contractor. Funded design options that significantly reduce risk have been identified and further changes will be considered in due course.

D.3.1.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
04	March 2009	At Risk	Severely limits the operational effectiveness of the platform and results in high waste of weapons
06	March 2009	At Risk	Limits the use of Joint Combat Aircraft within medium scale operations
Total			

D.3.2. **Support Contract** – not applicable

Future Strategic Tanker Aircraft

Project

Future Strategic Tanker Aircraft

Team Responsible

Future Strategic Tanker Aircraft Project Team

Single point of accountability for Project Capability

Director Equipment Capability (Expeditionary Logistics & Support)

Senior Responsible Officer

Director Equipment Capability (Expeditionary Logistics & Support)

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Post Main Investment Decision** - Future Strategic Tanker Aircraft

A. Section A: The Project

A.1. The Requirement

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

A.2. The Assessment Phase

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

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

Ministers announced on 6 June 2007 that it had been decided to proceed towards financial and contractual close on the Future Strategic Tanker Aircraft PFI which was achieved on 27 March 2008.

A.3. Progress

The Main Gate Business Case was submitted to the Investment Approval Board in January 2007 and was approved in May 2007.

On 27 March 2008 a 27 year PFI contract was signed. The Investment Approval Board approved Contract Not To Exceed cost remains at £10.5bn. In addition there will be Front Line Command manpower and support costs.

The final Approval envelope for Future Strategic Tanker Aircraft was set by the Investment Approval Board on 23 June 2008.
The Main Operating Base will be at RAF at Brize Norton and the site preparation was completed on time. This work had to be completed before construction of the new facilities could commence and was a key milestone for AirTanker Ltd's progress. The infrastructure work is on track. The first set of wings was rolled out in February 2009 at Broughton on time.

Future key events include: a successful critical design review planned for the Air-to-Air Refuelling/Air Transport aircraft in May 2009; the first A330-200 aircraft is to be despatched to EADS Madrid from Airbus in Toulouse in July 2009; and the delivery of the first aircraft into service is expected in 2011.

A new requirement to provide additional protection against hostile action (Theatre Entry Standard) is being investigated and will result in an increased cost if adopted.

A.4. Capability Risks

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

The Future Strategic Tanker Aircraft is planned to replace the Air-to-Air Refuelling capability and passenger Air Transport capability provided by the RAF's VC10 and Tri Star fleets.

The VC10 first entered service in the 1960s and were converted to Air-to-Air Refuelling tankers at various dates between 1980 and 1996. The aircraft has ageing and outdated technology, and the risks to maintaining reliability and value for money grow and ultimately it will not be possible to sustain the capability. The TriStars first entered airline service in the early 1970s and converted to their current tanker and tanker/freight roles between 1983 and 1987. These aircraft are not considered to be supportable beyond the middle of the next decade.

A.5. Associated Projects – not applicable

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only				
Description	**Procurement Route**			
Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Future Strategic Tanker Aircraft	AirTanker Ltd	Service Delivery	PFI	Competitive tender

A.7. Support Strategy

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

	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Future Strategic Tanker Aircraft	AirTanker Ltd	Service Delivery	PFI	Competitive tender

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision FSTA Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Future Strategic Tanker Aircraft	13	38	+25	0.12%	0.32%

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Future Strategic Tanker Aircraft	12,126	12,326	12,536

B.3. Cost of the Demonstration and Manufacture (D&M) Phase – not applicable

B.4. Unit production cost

Description	Unit production costs (£m)[6]		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
Future Strategic Tanker Aircraft	-	-	14	14

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

Description	Approved Cost (£m)	Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Future Strategic Tanker Aircraft	12,536	11,963	-573	-363

[6] The Future Strategic Tanker Aircraft Main Gate Business Case provides as approval against a contract not to exceed cost. The contract is based against provision of service and no reference to the unit production cost is provided within the Main Gate Business Case.

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

B.5.1.1. Project

Date	Variation (£m)	Factor	Reason for Variation
June 2008	-63	Accounting adjustments and redefinitions	Forecast based on expected levels of usage and fuel costs modelled in accordance with Front Line Command estimates.
June 2008	-300	Accounting adjustments and redefinitions	Method for costing Military equipment obsolescence and change in law costs amended from using actual figures to a risk based assessment.
June 2008	-50	Accounting adjustments and redefinitions	Correction of Defensive Aids Suite balance sheet treatment to include RDEL reduction across the contract period.
June 2008	-20	Conflict Prevention	Costs to supporting operations, originally included in Main Gate approval, will now be funded via conflict prevention
June 2008	-20	Technical Factors	Improved definition of the technical requirements relating to integration and support of Communication and Information systems.
June 2008	+90	Accounting adjustments and redefinitions	Revised assessment of potential risk opportunities such as refinancing.
Historic	-210	Risk Differential	Risk differential between Main Gate approval at 50% and 90% confidence.
Net Variation	**-573-**		

B.5.2. Operational Impact of Support/Service PFI Cost Variations

Description	
Future Strategic Tanker Aircraft	N/A

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Future Strategic Tanker Aircraft	May 2007	December 2000	77

C.2. Planned / Actual Boundaries for introduction of the Capability

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

C.3. In Service Date

C.3.1. Definition

Description	In Service Date
Future Strategic Tanker Aircraft	At the point of Air-to-Air Refuelling In Service Date there will be the capability to provide at least 9 Future Strategic Tanker Aircraft capable of refuelling operations simultaneously with any two of Air-to-Air Refuelling-probe-equipped Fast Jet Receivers. Five of the nine Future Strategic Aircraft Tanker Aircraft will be able to transfer fuel to Large Receivers during day/night.

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Future Strategic Tanker Aircraft	November 2014	May 2014	-6	0

C.3.3. Timescale variation

C.3.3.1. Future Strategic Tanker Aircraft

Date	Variation (months)	Factor	Reason for Variation
Historic	-6	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the Not to Exceed (70%) estimates at Main Gate.
Net Variation	**-6**		

C.3.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
-	-	-	-	-
Total	**-**	**-**		

C.3.5. Operational Impact of In Service Date variation

Description	
	-

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
Future Strategic Tanker Aircraft	Introduction to Service is the term used in the Future Strategic Tanker Aircraft programme. This is the point when one operational Air-to-Air Refuelling aircraft will be available with Wing Pod and Centreline Fuselage Refuelling Unit.

C.4.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Future Strategic Tanker Aircraft	April 2012	October 2011	-6	-

C.4.3. Timescale variation

C.4.3.1. Project

Date	Variation (months)	Factor	Reason for Variation
Historic	-6	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the Not to Exceed (70%) estimates at Main Gate.
Net Variation	**-6**		

C.4.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
-	-	-	-	-
Total	**-**	**-**		

C.4.5. Operational Impact of Initial Operating Capability variation

Description	
	-

C.5. Full Operating Capability

C.5.1. Definition

Description	Full Operating Capability
Future Strategic Tanker Aircraft	The Full Operating Capability is when all the Future Strategic Tanker aircraft are accepted into service, the complete service available for use and the User Requirement Document met.

C.5.2. Progress Report

Description	Full Operating Capability
Future Strategic Tanker Aircraft	On track

C.6. Support Contract

C.6.1. Scope of Contract

Description	
Future Strategic Tanker Aircraft	PFI Contract covers full service

C.6.2. Performance against approved Contract Go-Live Date

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Future Strategic Tanker Aircraft	March 2008	March 2008	-	-

C.6.2.1. Go-Live Date Variation

Date	Variation (months)	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

C.6.3. Performance against approved End of Contract Date

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Future Strategic Tanker Aircraft	March 2035	March 2035	-	-

C.6.3.1. End of Contract Date Variation

Date	Variation (months)	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

C.6.4. Operational Impact of Support Contract variation

Description	
	-

D. Section D: Performance

D.1. Readiness Levels

D.1.1. Future Strategic Tanker Aircraft

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	8	The assurance assessment is based in the average component readiness level. The lowest level was two.
System	8	The assurance assessment is based on the average component readiness level. The lowest level was two.

D.2. Performance against Lines of Development

Line of Development		Description	Forecast		
			To be met	At Risk	Not to be met
1.	Equipment	All aircraft will be modified to conduct the required roles, but specific equipment will only be added as required to meet the tasking. All aircraft will be two-point tankers, of these only seven will be three-point capable, with five centre-line systems being available for use. Aircraft will be fitted for a Defensive Aids Suite.	Yes	-	-
2	Training	A comprehensive training service will be delivered by AirTanker as a key part of the contract. Aircrew will undergo type-rated training on the A330 with additional Air-to-Air Refuelling role training conducted by military instructors. Ground crew will be trained to European Aviation Safety Agency standards and hold type-rated licences.	Yes	-	-
3	Logistics	Logistics support for the fleet will be controlled by AirTanker as part of the service-delivery contract.	Yes	Yes	-
4	Infrastructure	A new hangar with bays for two A330 aircraft is being built at RAF Brize Norton, including maintenance bays and workshops. A training facility including a flight simulator will be housed in another complex nearby.	Yes	-	-
5	Personnel	Flight deck crews comprising military and military sponsored reserve will be trained, together with Mission Systems Operators. There will be cabin crew, ground-crew and operations support personnel.	Yes	Yes	-
6	Doctrine	The solution meets the requirement identified within the Concept of Use.	Yes	-	-
7	Organisation	The aircraft service will build up gradually from Introduction to Service to Air-to-Air Refuelling In Service Date.	Yes	-	-
8	Information	AirTanker Services will provide a bespoke Information Technology system to interface with current MOD Information Technology systems.	Yes	Yes	-
	Percentage of those measured currently forecast to be met		100%		
	In-Year Change		-		

D.2.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
March 2009	Logistics	Technical Factors	Development of the detailed, practical aspects of the logistic support solution has identified areas of risk between contractor and MOD. These risk areas are being mitigated through logistic workshops and engagement with AirTanker to identify processes and solutions where required.
March 2009	Personnel	Technical Factors	First ground crew go into training in December 2010. The manpower establishment is to be in place by no later than July 2009 to allow for candidates to be selected. Meetings are timetabled to progress this work.
March 2009	Information	Technical Factors	A short term, manual, interface has been agreed between the Authority and AirTanker tasking and operations Information Technology systems. In the longer Term an Application Programming Interface needs to be set up to allow direct communication between the two systems and the road-map to this solution is to be developed.

D.3. Performance against Key Performance Measures

D.3.1. Future Strategic Tanker Aircraft – not applicable

D.3.2. Support Contract

D.3.2.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
1		The User shall be able to utilise Future Strategic Tanker Aircraft to refuel all receiver aircraft cleared to operate with Future Strategic Tanker Aircraft.	Yes	-	-
2		The system shall be capable of transporting personnel and their associated personal equipment and freight.	Yes		
3		The User shall be able to utilise an air system that is airworthy and meets all appropriate regulations, both military and civilian, at all times.	Yes		
4		The User shall be able to operate the air system world-wide, in both Air to Air Refuelling and passenger Air Transport roles	Yes		
5		The User shall have the capability to interoperate with appropriately configured aircraft in a manner necessary to carry out the required function.	Yes		
6		The system shall meet the readiness requirements to provide sufficient capability to support the Military Tasks laid down in the RAF Management Plan.	Yes		
7		The User shall be able to utilise an air system that is fully supportable (including maintenance, spares, manpower, facilities and support equipment) at the rates of effort specified, both at the Main Operating Base and when deployed world-wide at all times.	Yes		
8		The system shall be capable of providing the required level of operational capability at all times.	Yes		
9		The User shall be able to acquire and maintain the necessary skills to utilise the system across the spectrum of operation.	Yes		
Percentage currently forecast to be met			100%-		
In-Year Change			-		

D.3.2.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
-	-	-	-

D.3.2.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-

Lynx Wildcat

Project

Lynx Wildcat

Team Responsible

Lynx

Single point of accountability for Project Capability

Director Equipment Capability (Air and Littoral Manoeuvre) – Battlefield Reconnaissance Helicopter Requirement Director Equipment Capability (Above Water Effect) – Surface Combatant Maritime Rotorcraft Requirement

Senior Responsible Officer

Capability Manager (Battlespace Manoeuvre)

Number of Projects / Increments 2

Current Status of Projects / Increments

- **Post Main Investment Decision** Battlefield Reconnaissance Helicopter , Surface Combatant Maritime Rotorcraft

A. Section A: The Project

A.1. The Requirement

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

A.2. The Assessment Phase

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

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

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

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

The result of the Assessment Phase considered the Lynx Wildcat to be the most likely of the options to deliver the required capability by the ISD. This gave the benefit of maintaining industrial capability in the

UK. Hence a single tender approach was judged most likely to offer both the best technical solution and best value for money overall.

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

A.3. Progress

The Demonstration & Manufacture contract was let in June 2006 to deliver 70 aircraft: 40 Battlefield Reconnaissance Helicopters for the Army and 30 Surface Combatant Maritime Rotorcraft for the Royal Navy with costed options for five more platforms of each type. Preliminary, Interim and Air Vehicle Critical Design Reviews were successfully achieved in January 2007, October 2007 and April 2008 respectively. The first airframe was delivered to the Westland build line in November 2008. Significant future milestones are: the Air Vehicle & Mission Systems Critical Design Review in August 2009 and First Flight in December 2009. The Equipment Examination 2008 concluded that reductions could be realised in procurement costs if the quantities were reduced to 34 Battlefield Reconnaissance Helicopters and 28 Surface Combatant Maritime Rotorcraft, with the impact on delivered capability minimised through introducing design changes to achieve greater versatility between the two aircraft variants. The protracted period of uncertainty surrounding the project ended in December 2008 with the Ministerial announcement confirming that the project would proceed to full scale production.

Through-life training & support solutions are to be developed as part of the project. An Information Note was approved in July 2007 to submit the Support Solution Review Note in September 2009. Approval was also given for the Training Service Initial Gate Business Case in August 2007 based on the four-stage PFI Treasury Approval process. While investigating alternative ways to deliver the Lynx Wildcat capability during the Equipment Examination, the opportunity to deliver reduced through life costs was identified. A Review Note was submitted to the Investment Approvals Board in December 2008 and approved in January 2009, detailing a new strategy to explore a single source, integrated Support Solution and Training Delivery Service through the aircraft manufacturer, AgustaWestland and reflects a revised recommendation submission date to the Investment Approvals Board in mid 2010. Logistic Support and Ready for Training dates are not affected by this revised submission date.

A.4. Capability Risks

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

A.5. Associated Projects – not applicable

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only				
Description	**Procurement Route**			
	-			
Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Lynx Wildcat	Westland Helicopters Ltd, Yeovil	Demonstration to Manufacture	Target cost incentive fee with a maximum price	Non-competitive

A.7. Support Strategy

The support strategy is to seek and secure a single integrated Support Solution and Training Service for the Battlefield Reconnaissance Helicopter and Surface Combatant Maritime Rotorcraft programmes through the aircraft manufacturer; subject to showing value for money, affordability and satisfactory commercial arrangements. The development of a combined Training and Support solution is consistent with extant Integrated Operational Support solutions and aligns with the principles of Rotary Wing Integrated Operational Support convergence.

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

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Lynx Wildcat	59	57	-2	3.5%	3.4%

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Lynx Wildcat	1760	1901	1966

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Lynx Wildcat	1966	1669	-297	-242

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. Lynx Wildcat

Date	Variation (£m)	Factor	Reason for Variation
March 2009	-8	Budgetary Factors	Lynx Wildcat programme cost reduction related to funding re-profiling within Helicopter Cluster.
January 2009	-194	Budgetary Factors	PR09 Option – Lynx Wildcat. descope and reduce numbers from 80 to 62.
January 2009	-40	Budgetary Factors	Reduced cost of capital as a result of Option and changes in cost profile between current and future years.
Historic	+8	Accounting Adjustments and Re-definitions	Increase in cost of capital due to reprofiling of lifetime expenditure, delivery schedule, updated accrual model and subsequent capitalisation of RDEL costs approved at Main Gate.
Historic	+2	Budgetary Factors	Increased cost of capital due to increased year end outturn ahead of schedule.
Historic	-65	Risk Differential	Difference between the risk allowed for in the most likely (50%) figure and highest acceptable (Not to Exceed) estimates at Main Gate
Net Variation	**-297-**	**-**	**-**

B.3.1.2. Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	
Lynx Wildcat	The reduction in aircraft quantities arising from the Equipment Examination is predicated upon a more versatile design solution allowing both aircraft variants to be utilised across the range of Battlefield Reconnaissance Helicopter and Surface Combatant Maritime Rotorcraft roles and environments, but with some minor trade-off against the achieved performance. This will place a greater necessity on the need to manage the two variants within a common in-service framework with commonality within the Defence Lines of Development

B.4. Unit production cost

Description	Unit production costs (£m)		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
Battlefield Reconnaissance Helicopter	12.7	13.0	45	34
Surface Combatant Maritime Rotorcraft	13.7	13.3	35	28
Training Simulators	46.8	34.4	2	2

B.5. Progress against approved Support/Service/PFI Cost –not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Battlefield Reconnaissance Helicopter	June 2006	December 2001	54
Surface Combatant Maritime Rotorcraft	June 2006	September 2002	45

C.2. Planned / Actual Boundaries for introduction of the Capability

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

C.3. In Service Date

C.3.1. Definition

Description	In Service Date
Battlefield Reconnaissance Helicopter	ISD is defined as four force elements at readiness to deploy on a small scale focussed intervention operation.
Surface Combatant Maritime Rotorcraft	ISD is defined as one deployable aircraft with logistic support, trained aircrew and groundcrew in place.

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Battlefield Reconnaissance Helicopter	August 2014	January 2014	-7	0
Surface Combatant Maritime Rotorcraft	August 2015	January 2015	-7	0
Total			**-14**	**0**

C.3.3. Timescale variation

C.3.3.1. Project- Battlefield Reconnaissance Helicopter

Date	Variation (months)	Factor	Reason for Variation
Historic	0	Procurement Process	Since Main Gate, Project advised that the new Treasury four gate approval process for candidate PFI projects needed to be adopted. This process had the potential to add one year to the procurement timescale for the Synthetic Training Service. Sufficiently trained aircrew are required before ISD can be declared and it was considered prudent to declare an ISD slip of 3 months while mitigation work matured (+3). Flight Simulation and Synthetic Trainers Integrated Project Team Lynx Wildcat Training Services Initial Gate Business Case was approved by the Investment Approvals Board in August 2007. The required mitigation activity has been completed and has brought the Training Service ISD in line with the approved ISD and the three months recovered (-3).
Historic	-7	Risk Differential	Difference between the risk allowed for in the most likely (50%) figure and highest acceptable (Not to Exceed) estimates at Main Gate.
Net Variation	**-7**		

C.3.3.2. Project - Surface Combatant Maritime Rotorcraft

Date	Variation (months)	Factor	Reason for Variation
Historic	0	Procurement Process	Since Main Gate, Project advised that the new Treasury four gate approval process for candidate PFI projects needed to be adopted. This process had the potential to add one year to the procurement timescale for the Synthetic Training Service. Sufficiently trained aircrew are required before ISD can be declared and it was considered prudent to declare an ISD slip of 3 months while mitigation work matured. (+3) Flight Simulation and Synthetic Trainers Integrated Project Team Future Lynx Training Services Initial Gate Business Case was approved by the Investment Approvals Board in August 2007. The required mitigation activity has been completed and has brought the Training Service ISD in line with the ISD and the three months recovered.(-3)
Historic	-7	Risk Differential	Difference between the risk allowed for in the most likely (50%) figure and highest acceptable (Not to Exceed) estimates at Main Gate.

Net Variation	**-7**

C.3.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
-	-	-	-	-
Total	**-**	**-**		

C.3.5. Operational Impact of In Service Date variation

Description	
Project	-

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
Battlefield Reconnaissance Helicopter	IOC is the same as ISD for Battlefield Reconnaissance Helicopter
Surface Combatant Maritime Rotorcraft	IOC is the same as ISD for Surface Combatant Maritime Rotorcraft

C.4.2. Progress against approved Dates – not applicable

C.4.3. Timescale variation – not applicable

C.5. Full Operating Capability

C.5.1. Definition

Description	Full Operating Capability
Battlefield Reconnaissance Helicopter	Sufficient aircraft and trained crews to generate the required number of sustainable Force Elements at Readiness; the Battlefield Reconnaissance Helicopter is compliant with the endorsed threshold User Requirement Document and the legacy Lynx Marks seven and nine are no longer required to contribute any element of support to the delivery of Land or Littoral Manoeuvre Capability
Surface Combatant Maritime Rotorcraft	Sufficient, sustainable trained crews and aircraft to generate the required number of Force Elements at Readiness; the Surface Combatant Maritime Rotorcraft is compliant with the endorsed threshold User Requirement Document and the legacy platform is no longer required to contribute any element of Maritime Capability

C.5.2. Progress Report

Description	Full Operating Capability
Battlefield Reconnaissance Helicopter	FOC was undefined at Main Gate. Subsequently work has generated the current working definition. Work continues to define the scope of the Bowman Data interface requirement which is to be delivered at FOC.
Surface Combatant Maritime Rotorcraft	FOC was undefined at Main Gate. Subsequently work has generated the endorsed definition.

C.6. Support Contract – not applicable

D. Section D: Performance

D.1. Readiness Levels

D.1.1. Project

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	7	
System	3	

D.2. Performance against Lines of Development

Line of Development		Description[7]	Forecast		
			To be met	At Risk	Not to be met
1.	Equipment	The acquisition of military platforms, systems and weapons and the maintenance of their design intent. It covers expendable and non-expendable equipments (including updates to legacy systems), needed to outfit/equip an individual, group or organisation.	Yes	-	-
2.	Training	Not yet through Main Gate			
3.	Logistics	Not yet through Main Gate			
4.	Infrastructure	The acquisition, development, management and disposal of all fixed, permanent buildings and structures, land, utilities and facility management services (both Hard & Soft Facility Management (FM)) in support of Defence capabilities. It includes estate development and structures that support military and civilian personnel. Including embarked facilities.	Yes	Yes	-
5.	Personnel	To ensure that there are sufficient, capable, motivated and suitably deployed people in the Army/Naval Service to meet the needs of Defence employers, both now and in the future.	Yes	Yes	-
6.	Doctrine	Concept of Employment endorsed. Concept of Use to be re-staffed in light of revised Concept of Operations.	Yes	-	-
7.	Organisation	Revised Army Air Corps structure to deliver Lynx Wildcat yet to be endorsed. Work underway to develop transition/fielding plan which will inform personnel requirement.	Yes	-	-
8.	Information	Full Information Exchange Requirement Matrix under development. Once complete a more accurate forecast against IOC will be possible.	Yes	-	-
	Percentage of those measured currently forecast to be met		100%		
	In-Year Change		0		

[7] The descriptions for the Equipment, Infrastructure and Personnel Lines of Development have not been endorsed by the Capability Working Group.

D.2.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
February-2009	Infrastructure	Budgetary Factors	Full infrastructure requirement not yet clear: awaiting detailed proposal for training and logistics (support solution). Awaiting clarity on funding availability. Awaiting direction on whether all assets and facilities will be based in Yeovilton or split between two sites.
February-2009	Personnel	Changed Capability Requirements	Manning process agreed. Awaiting personnel requirement from Organisation and Training Line of Development. Provision of requisite qualified helicopter instructors at correct time could impact performance.

D.3. Performance against Key Performance Measures

D.3.1. Battlefield Reconnaissance Helicopters

D.3.1.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	-	The user requires a manned rotorcraft capable of independent and co-operative, intelligent action, which provides commanders with a sustainable, timely, responsive and accurate, enduring Intelligence, Surveillance, Target Acquisition and Reconnaissance capability at long range across the full spectrum of conflict.	Yes	-	-
02	-	The user requires the capability to acquire, designate targets and direct the full spectrum of joint fires via network enabled communications.	Yes	-	-
03	-	The user shall be provided with a capability that is available for the required sustained level of operational effect.	Yes	-	-
04	-	The user shall be able to deliver operational capability with a high likelihood of survival.	Yes	-	-
05	-	The user shall be provided with a capability that can interoperate with relevant military and civil authorities	Yes	-	-
06	-	The user shall have a capability that can operate within defined natural and man-made environmental conditions.	Yes	-	-
07	-	The user shall be provided with a capability that can operate from both land and sea bases to target areas on land or sea.	Yes	-	-
08	-	The user shall be provided with a capability that can be deployed worldwide	Yes	Yes	
Percentage currently forecast to be met			100%		
In-Year Change			0		

D.3.1.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
December 2008	08	Budgetary Factors	One of the five elements of this KPM (self-deploy) has been traded-out by the Equipment Examination.

D.3.1.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
08	December 2008	At risk	There is a minimal operational impact from this KPM trade, in that only a small number of the mission scenarios are affected. Should funding be identified at a later date, this capability could be re-introduced to the design solution.

D.3.2. Surface Combatant Maritime Rotorcraft

D.3.2.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	-	The user requires a manned rotorcraft capable of independent and co-operative, intelligent action, which provides commanders with a sustainable, timely, responsive and accurate, enduring Intelligence, Surveillance, Target Acquisition and Reconnaissance capability at long range across the full spectrum of conflict.	Yes	Yes	-
02	-	The user requires the capability to acquire, designate targets and direct the full spectrum of joint fires via network enabled communications.	Yes	-	-
03	-	The user shall be able to autonomously and co-operatively attack using appropriate rapid and flexible fires with the joint battlespace.	Yes	-	-
04	-	The user requires a vertical lift capability to deploy and support joint forces, as operationally effective units, from land or sea bases.	Yes	-	-
05	-	The user shall be provided with a capability that is available for the required sustained level of operational effect.	Yes	-	-
06	-	The user shall be able to deliver operational capability with a high likelihood of survival.	Yes	-	-
07	-	The user shall be provided with a capability that can interoperate with relevant military and civilian authorities.	Yes	-	-
08	-	The user shall have a capability that can operate within defined natural and man-made environmental conditions.	Yes	-	-
09	-	The user shall be provided with a capability that can operate from both land and sea bases to target areas on land or sea.	Yes	-	-
10	-	The user shall be provided with a capability that can be deployed worldwide.	Yes	Yes	-
Percentage currently forecast to be met			100%		
In-Year Change			0		

D.3.2.2. Key Performance Measures Variation

Date	Key Measure)	Factor	Reason for Variation
December 2008	01	Budgetary Factors	Equipment Evaluation has put `at risk` the surveillance/reach element of this KPM.
December 2008	10	Budgetary Factors	One of the five elements of this KPM (self-deploy) has been traded-out by the Equipment Examination.
Historic	01	Technical Factors	One of the ten elements of this KPM is considered to be at risk. The contracted position, with respect to the installed radar detection performance, does not meet the KPM. Work is ongoing between the Integrated Project Team and Agusta Westland to evaluate the extent of the shortfall

D.3.2.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
01	December 2008	At risk	There is a minimal operational impact from this KPM trade, in that only a small number of the mission scenarios are affected. Should funding be identified at a later date, this capability could be re-introduced to the design solution.
10	December 2008	At risk	There is a minimal operational impact from this KPM trade, in that only a small number of the mission scenarios are affected. Should funding be identified at a later date, this capability could be re-introduced to the design solution.
01	Historic	At risk	There is a minimal operational impact from this variation, in that only a small number of the mission scenarios are affected. The shortfall is balanced by improvements in other aspects of performance.

D.4. Support Contract – not applicable

Merlin Mk1 Capability Sustainment Programme

Project

Merlin Capability Sustainment Programme

Team Responsible

Merlin

Single point of accountability for Project Capability

Equipment Capability (Deterrent & Underwater Capability)

Senior Responsible Officer

Capability Manager Battlefield Manoeuvre

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Post Main Investment Decision** - Merlin Capability Sustainment Programme

A. Section A: The Project

A.1. The Requirement

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

A.2. The Assessment Phase

Assessment Phase

Following approval of the Merlin Capability Sustainment Programme Initial Gate Business Case, the Assessment Phase contract was placed on 3 June 03. The main Assessment Phase activities comprised:

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

Future Rotorcraft Capability Review

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

To allow Industry to continue critical path activity and to support the reprogramming activities resulting from Future Rotorcraft Capability, the Future Rotorcraft Capability programme provided Transition Phase

funding (six months) to the Merlin Integrated Project Team for an extension to the Assessment Phase contract.

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

A.3. Progress

The programme remains on track and is focused on the completion of Training System Design Reviews (April and September 2009), following the successful aircraft system critical design review in September 2008.
At Main Gate, the Investment Approvals Board had acknowledged that the current requirement was for 38 aircraft but only approved the initial procurement of 30. This was to allow a decision of the remaining eight aircraft to be made at a later date. Work during this year has culminated in the decision not to convert the remaining eight aircraft from Mk1 aircraft to the new Mk2 standard.

A.4. Capability Risks

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

A.5. Associated Projects – not applicable

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only	
Description	**Procurement Route**

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

A.7. Support Strategy

The support strategy of the Merlin Mk2 will be the same as that employed for the current UK Merlin (Mk1 & Mk3), namely Integrated Merlin Operational Support contract. Integrated Merlin Operational Support is a whole life aircraft availability contract that is priced by flying hours within a defined band with incentives to generate fit-for purpose aircraft to the Front Line. There are five key elements of the Integrated Merlin Operational Support Service:

Service Management
Aircraft Provision
Materiel Support
Technical Support
Training

It is a 25 year contract (commenced in 2006) and priced in five year tranches. The current pricing period has an approval of *****.** While providing support to the majority of the Merlin helicopter, there are exclusions, namely the engines and other common use items that are supported elsewhere.

	Contractor	Contract Scope	Contract Type	Procurement Route
Merlin Capability Sustainment Programme	AgustaWestland (Yeovil) primed, with a Lockheed Martin sub contract	Delivery of flying hours to the UK's Merlin Helicopter forces.	Firm Price	Single Tender

B. Section B: Cost

B.1. Cost of the Assessment Phase

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

B.2. Cost Boundaries for Demonstration and Manufacture Phase

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Merlin Capability Sustainment Programme	828	837	840

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Merlin Capability Sustainment Programme	840	830	-10	-2

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. Merlin Capability Sustainment Programme

Date	Variation (£m)	Factor	Reason for Variation
March 2009	-3	Inflation	Reduction in outturn costs arising from reduced impact of inflation as a result of earlier than planned completion of work.
March 2009	+1	Accounting Adjustments and Re-definitions	Increase in Cost of Capital due to earlier completion of work.
Historic	-6	Accounting Adjustments and Re-definitions	Delivery of intangible development expenditure now coincides with the first production aircraft delivery. Previously it had been with the fifth aircraft, a year later (-£6m).
Historic	+1	Budgetary Factors	£15m of CDEL funding was brought forward during Equipment Programme 07 which has resulted in a subsequent increase in the Cost of Capital (+£1m).
Historic	-3	Risk Differential	Difference between the risk and uncertainty allowed for in the 50% confidence and the approved Not To Exceed figures at Main Gate.
Net Variation	**-10**		

B.3.2. Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	
	-

B.4. Unit production cost

Description	Unit production costs (£m)		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
	9.6	9.6	30	30

B.5. Performance against approved Support/PFI Cost – not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Merlin Capability Sustainment Programme	March 2006	May 2003	34

C.2. In Service Date

C.2.1. Definition

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

C.2.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Merlin Capability Sustainment Programme	September 2014	February 2014	-7	-

C.2.3. Timescale variation

C.2.3.1. Merlin Capability Sustainment Programme

Date	Variation (months)	Factor	Reason for Variation
Historic	-7	Risk Differential	Difference between the risk and uncertainty allowed for in the 50% confidence and the approved Not To Exceed figures at Main Gate
Net Variation	**-7**		

C.2.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
-	-	-	-	-
Total	**-**	**-**		

C.2.5. Operational Impact of In Service Date variation

Description	
	-

C.3. Initial Operating Capability

C.3.1. Definition

Description	Initial Operating Capability
Project	IOC is the same as ISD

C.3.2. Progress against approved Dates –not applicable

C.3.3. Timescale variation –not applicable

C.3.4. Other costs resulting from Timescale variation –not applicable

C.3.5. Operational Impact of Initial Operating Capability variation –not applicable

C.4. Full Operating Capability

C.4.1. Definition

Description	Full Operating Capability
Merlin Capability Sustainment Programme	***

C.4.2. Progress Report

Description	Full Operating Capability
Merlin Capability Sustainment Programme	Programme remains on track

C.5. Support Contract

C.5.1. Scope of Contract

Description	
Merlin Capability Sustainment Programme	Integrated Merlin Operation Support

C.5.2. Performance against approved Contract Go-Live Date

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
	-			

C.5.2.1. Go-Live Date Variation – not applicable

C.5.3. Performance against approved End of Contract Date

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
	-	-	-	-

C.5.3.1. End of Contract Date Variation – not applicable

C.5.3.2. Operational Impact of Support Contract variation – not applicable

D. Section D: Performance

D.1. Readiness Levels

D.1.1. Project

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	7	
System	3	

D.2. Performance against Lines of Development

Line of Development		Description	Forecast		
			To be met	At Risk	Not to be met
1.	Equipment	Delivery of required equipment (aircraft and ground equipment)	Yes		
2.	Training	Delivery of trained people, including training systems	Yes	Yes	
3.	Logistics	Delivery of necessary support products to enable Logistics Support Date to be met	Yes		
4.	Infrastructure	Delivery of necessary changes to extant infrastructure to support the required capability	Yes		
5.	Personnel	Delivery of sufficient people (aircrew and maintainers) to support capability	Yes	Yes	
6.	Doctrine	Update Mk1 Concepts & Doctrine to reflect capability delivered through Mk2	Yes		
7.	Organisation	Review/update organisation to reflect changes caused by introduction of Mk2	Yes		
8.	Information	Manage information and interface to data providers/users, including interface to Defence Information Infrastructure.	Yes		
	Percentage of those measured currently forecast to be met		100%		
	In-Year Change				

D.2.1.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
March 2009	Training & Personnel	Budgetary Factors	Affordability decision taken prior to contract award meant that the ability to train Mk1 personnel concurrently with conversion of the training facilities to the Mk2 standard was not possible. This gives rise to the risk that trained personnel will not be available to sustain Mk1 capability to its out of service and develop those required for Mk2. A number of mitigation activities are underway to minimise the impact of this risk.

D.3. Performance against Key Performance Measures

D.3.1. Project

D.3.1.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	1, 5	Attack. The user shall be able to neutralise confirmed Anti-submarine Warfare Threats.	Yes		
02	1, 2	Deployable Search and Rescue (Maritime Only). The user shall be able to conduct naval Search and Rescue.	Yes		
03	1, 3	Environment. The user shall be able to operate in environments world-wide.	Yes		
04	1, 5	Find. The user shall be able to acquire situational awareness of the Under Water Effect and Above Water Effect.	Yes		
05	1, 8	Interoperability. The user shall be able to exchange tactical information between authorities and units.	Yes		
06	1, 5	Lift. The user shall be able to move personnel and material over land and sea.	Yes		
07	2, 3	Logistical. The user shall be able to easily logistically support the Merlin Capability Sustainment Programme.	Yes		
08	1, 5	Operational Availability. The user shall be able to have Available Force Elements at a time and place as required to complete the mission.	Yes		
09	1, 4	Operational Locations. The solution shall be able to operate to and from host platforms when required.	Yes		
10	1, 2	Survivability. The user shall have force elements capable of surviving in hostile and warfighting environments.	Yes		
Percentage currently forecast to be met			100%		
In-Year Change			0		

D.3.1.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
-	-	-	-

D.3.1.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-
Total		**-**	

D.3.2. **Support Contract** – not applicable

Queen Elizabeth Class (formerly Future Aircraft Carrier)

Team Responsible

Capital Ships Directorate

Single point of accountability for Project Capability

Director Equipment Capability (Above Water Effect)

Senior Responsible Officer

Capability Manager Precision Attack

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Post Main Investment Decision** - Queen Elizabeth Class

A. Section A: The Project

A.1. The Requirement

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

A.2. The Assessment Phase

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

The competitive second stage was revised and shortened (completing in November 2002) and enabled the competing contractors to concentrate on refining their designs and taking key trade-off decisions. An innovative Continuous Assessment process was used throughout to evaluate the contractors' performance which led to the conclusion that an alliance approach involving BAE Systems, Thales UK and the Department represented the best approach to Future Aircraft Carrier. The innovative Alliance procurement strategy 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 Future Aircraft Carrier. Stage 3 completed in March 2004.

In July 2004, the Assessment Phase was extended into Stage 4 to further mature the design and carry out risk reduction work, to ensure that the best technical & procurement solution was achieved. Alliancing principles were agreed with BAE Systems and Thales UK and further developed with the selection in

February 2005 of Kellogg, Brown & Root UK Ltd as an additional participant in the Alliance. The timescale for completing the design and risk reduction work was further extended in August 2005 (into Stage 5) although this did not result in any additional cost to the programme. The Assessment Phase completed end January 2006 at a revised total cost of £298m, (following receipt of Interim Cost Certificates from the alliance participants). Final Assessment Phase figure will be confirmed upon receipt of Final Cost Certificates.

A.3. Progress

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

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

Following Main Gate approval the project moved into the Engineering Transition Phase, an extension of the Demonstration Phase to encompass the period prior to contract signature. On 3 July 2008 a contract was signed with BVT Surface Fleet for the manufacture of the two carriers together with signature of an Alliance Agreement with all members of the alliance. Since then, Infrastructure preparations and equipment procurement have proceeded with equipment sub-contracts placed by the end of 2008 in excess of £500m. On 11 December 2008, Ministers announced the outcome of MOD's Equipment Examination including the intention to re-profile the Queen Elizabeth Class project to meet near term priorities and improve the scope of alignment with the Joint Combat Aircraft programme. The re-profiling measure is expected to result in a delay of one to two years to In-Service Dates and escalation of overall project cost. Manufacture is now underway with pre-fabrication of steel for lower block one starting in December 2008 and first cut of steel in the main Aircraft Carrier Alliance yards expected later in 2009. The Aircraft Carrier Alliance programme indicates the potential of an In Service Date by middle of 2016.

A.4. Capability Risks

The Class is, together with Joint Combat Aircraft, Maritime Airborne Surveillance & Control and Maritime Auxiliary Replenishment Ships, an essential element of the Carrier Strike programme. Without this capability, the UK will be unable to project air power from the sea or to project the full level of medium scale offensive air effort and precision strike from the sea.

A.5. Associated Projects

Description	Critical to achievement of IOC	
	Project Title	Forecast IOC
Queen Elizabeth Class Infrastructure Project	Queen Elizabeth Class Infrastructure Project	2015
Harrier GR7/9 FOC Flying trials	Harrier GR7/9 FOC Flying trials	2016
Defence Information Infrastructure	Defence Information Infrastructure	2010/2011
Medium Range Radar	Medium Range Radar	2012
Queen Elizabeth Class In-Service Support Solution	Carrier In Service Support	2015

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only	
Description	**Procurement Route**

Post-Main Investment Decision Projects / Increments only

	Contractor	Contract Scope	Contract Type	Procurement Route
Queen Elizabeth Class	BAE Systems Insyte/Thales/ Kellog Brown & Root/ VT Shipbuilding/ Babcock Support Services / BAE Systems Marine	Demonstration Phase	Target cost incentive (subsequently, from July 2007 the Engineering Transition Stage as cost reimbursement)	Non-competitive
Queen Elizabeth Class	BVT Surface Fleet/Thales/ BAE Systems Marine/BAE Systems Insyte/ Babcock Marine	Manufacturing Phase	Target cost incentive	Non-competitive

A.7. Support Strategy

The Queen Elizabeth Class Support Strategy consists of two elements:

i. Support deliverables are those elements which are required for the MOD and the Carrier In-Service Support Solution provider to be able to operate and support the Queen Elizabeth Class safely and efficiently beyond Contract Acceptance Date, these will be procured in the main via the Queen Elizabeth Class manufacturing contract on an incremental basis as the support requirements are progressively matured.

ii. A programme of work known as the Carrier In-Service Support Solution project to develop and implement a value for money and affordable contracting for performance arrangement to deliver support from the point at which each of the two ships are delivered off contract by the Aircraft Carrier Alliance. The In Service Support project is split into four key phases: assessment, demonstration, mobilisation and support delivery. The first of these is the Support Assessment Phase due to complete by the end of 2010. The work is being undertaken jointly between the MOD and Aircraft Carrier Alliance.

	Contractor	Contract Scope	Contract Type	Procurement Route
Support Assessment Phase	Aircraft Carrier Alliance Industrial Participants	Assessment Phase in increments	Cost reimbursable moving to Target cost.	Non-competitive

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Queen Elizabeth Class	118	298	+180	2.2%	5.5%

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Queen Elizabeth Class	3664	4085	4359

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Queen Elizabeth Class	4359	5133	+774	+1070

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. Queen Elizabeth Class

Date	Variation (£m)	Factor	Reason for Variation
March 2009	-37	Accounting Adjustments and Re-definitions	Impact on Indirect Resource Defence Expenditure Limit of removal of Assessment Phase Costs from Demonstration and Manufacture phase forecast.
January 2009	+234	Budgetary Factors	The increases of £674m will attract additional Indirect Resource Defence Expenditure Limit.
January 2009	+674	Budgetary Factors	PR09 resulted in an option that constrained expenditure on the Queen Elizabeth Class in the first four years, this will cause cost growth of £674m over the life of the project.
January 2009	-51	Budgetary Factors	Decrease in cost of capital resulting from the +£250m variation and re-profiling of project spend.
January 2009	+250	Inflation	The Queen Elizabeth Class contracted Initial Target Cost is set at April 2006 economic conditions exposing the MOD to inflation fluctuations. The current procurement contracts were placed during a period of high inflation and, despite the current economic downturn, forecasts covering the whole of the projects life indicated it was prudent to allow for an additional £250m CDEL.
Historic	-22	Accounting Adjustments and Re-definitions	Correction to error in original Indirect Resource Defence Expenditure Limit calculation.
Historic	-274	Risk Differential	Difference between the approved not to exceed figure (70%) and the approved forecast (50%) at Main Gate.
Net Variation	**+774**		

B.3.2. Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	
Project	-

B.4. Unit production cost

Description	Unit production costs (£m)		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
Queen Elizabeth	-	3715	1	1
Prince of Wales	-	859	1	1

B.5. Performance against approved Support Cost – not applicable

C Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Queen Elizabeth Class Manufacture	December 2005	December 1998	84

C.2. Planned / Actual Boundaries for introduction of the Capability

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

C.3. In Service Date

C.3.1. Definition

Description	In Service Date
Queen Elizabeth Class	Queen Elizabeth Class ISDs will be declared by the Customer when the ship is ready to proceed to a full test of the operational capability of the vessel at sea. (ISD will be reviewed following the Equipment Examination)

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Queen Elizabeth Class	October 2015	May 2016	+7	+10
Total			**+7**	**+10**

C.3.3. Timescale variation

C.3.3.1. Queen Elizabeth Class

Date	Variation (variation)	Factor	Reason for Variation
January 2009	+12	Budgetary Factors	Ministerial announcement that Queen Elizabeth and Prince Of Wales ISDs will be delayed as a result of the PR09 option
January 2009	-2	Budgetary Factors	Industry and Capital Ship current estimates are that the current schedule contains sufficient flexibility to allow for mitigating actions to be taken.
Historic	-3	Risk Differential	Difference between the approved not to exceed figure (70%) and the approved forecast (50%) at main gate.
Net Variation	**+7**		

C.3.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
Maritime Equipment Systems	January 2009	+6	Budgetary Factors	Ministerial announcement that Queen Elizabeth Class ISDs will be delayed as a result of the PR09 option
Communication Situation Awareness	January 2009	+3	Budgetary Factors	
Naval Electronic Warfare	January 2009	+2	Budgetary Factors	
Type 45 Overhead	January 2009	+63	Budgetary Factors	
Invincible Class run on Costs	January 2009	+49	Budgetary Factors	
Total		**+123**		

C.3.5. Operational Impact of In Service Date variation

Description	
Queen Elizabeth Class	The potential shortfall in this capability is mitigated by the extension of the current Invincible Class of carriers and additional work being carried out to optimise platform availability for Carrier Strike (delivery of full offensive air effort, at medium scale, from the sea) and Littoral Manoeuvre, e.g. amphibious landings.

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
Queen Elizabeth Class	Initial Operating Capability is expected to be declared once the vessel has successfully completed Tier 1 Operational Sea Training and the Operational Readiness Inspection. Operational Sea Training consists of two key phases: Tier 1 – Basic sea safety and survival at the platform level. Training as an individual and collectively to be safe to operate the platform in any condition. Tier 2 – More comprehensive training as a unit to include the basic war-fighting capabilities and more complex emergencies.

C.4.2. Progress against approved Dates – not applicable

C.4.3. Timescale variation – not applicable

C.4.4. Other costs resulting from Timescale variation – not applicable

C.4.5. Operational Impact of Initial Operating Capability variation

Description	
Queen Elizabeth Class	Increased risk to Joint Combat Aircraft Introduction Of Capability (maritime). The potential shortfall in this capability is mitigated by the extension of the current Invincible Class of carriers and additional work being carried out to optimise platform availability for Carrier Strike (delivery of full offensive air effort, at medium scale, from the sea) and Littoral Manoeuvre, e.g. amphibious landings.

C.5. Full Operating Capability

C.5.1. Definition

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

C.5.2. Progress Report

Description	Full Operating Capability
Queen Elizabeth Class	Current forecast date is ***

C.6. Support Contract – not applicable

D Section D: Performance

D.1. Readiness Levels

D.1.1. Project

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	7	The first Main Gate detailed the Technology and System readiness and identified that it was sufficiently mature to proceed. However at the time Technological and System Readiness Levels as a metric were not used.
System	6	

D.2. Performance against Lines of Development

Line of Development		Description	Forecast		
			To be met	At Risk	Not to be met
1.	Equipment	Delivery of two Queen Elizabeth Class Carriers to the required Performance Specification.	Yes		
2.	Training	Provision of individual and collective training both ashore and afloat for Queen Elizabeth Class Carriers that delivers the appropriate level of Operational Capability to meet the Readiness Profiles in the Naval Data Book.	Yes		
3.	Logistics	Provision of Support Solution that enables the operational movement and maintenance of Queen Elizabeth Class Carriers.	Yes		
4.	Infrastructure	Provision of support infrastructure and facilities in the MOD estate to support Queen Elizabeth Class Carriers and their associated equipments and personnel.	Yes		
5.	Personnel	Provision of sufficient, correctly trained and suitably equipped personnel available to participate in commissioning, trials and handover of the ship, then subsequent operation of the ships in service.	Yes		
6.	Doctrine	Provision of framework of practices and procedures to derive the greatest benefit from using the Queen Elizabeth Class Carriers in a range of operations and scenarios.	Yes		
7.	Organisation	Establish a robust and deliverable command structure for Queen Elizabeth Class Carriers with correctly qualified personnel in place in time to support the programme	Yes		
8.	Information	Coherent development of data, information and knowledge requirements for Queen Elizabeth Class Carriers and all processes designed to gather, handle data and exploit information and knowledge.	Yes	Yes	
	Percentage of those measured currently forecast to be met		100%		
	In-Year Change				

D.2.1.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
Historic	Information	Technical factors	Information DLOD remains at risk due to uncertainty over the resolution of Joint Combat Aircraft integration into UK Global Information Infrastructure.

D.3. Performance against Key Performance Measures

D.3.1. Project

D.3.1.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
KUR 1	All	Interoperability – Queen Elizabeth class shall be able to operate with joint/combined forces to deliver a medium scale offensive air effort for power projection, focused intervention and peace enforcement operations.	Yes		
KUR 2		Integration – Queen Elizabeth class shall be able to integrate with all elements of joint/combined forces necessary to conduct Strike operations and support 'agile mission groups'.	Yes		
KUR 3		Availability – Queen Elizabeth class shall provide one platform at High readiness for its principal role of Carrier Strike at medium scale and at very high readiness for Carrier Strike small scale focused intervention.	Yes		
KUR 4		Deployability – Queen Elizabeth class shall be able to deploy for the operations in the core regions as defined in Defence Strategic Guidance 2005.	Yes		
KUR 5		Sustainability – Queen Elizabeth class shall be able to conduct deployments away from port facilities for operations lasting nine months continuously and support air operations for up to 70 days.	Yes		
KUR 6		Aircraft Operations – Queen Elizabeth class shall be able to deploy the full Medium Scale offensive air effort.	Yes		
KUR 7		Survivability – Queen Elizabeth class shall achieve a high probability of protection, survival and recoverability against both natural incidents and those threats identified in the Defence Intelligence Scale Threat Statement (October 2004).	Yes		
KUR 8		Flexibility – The Queen Elizabeth class shall be able to operate and support the full range of defined aircraft and be adaptable such that it could operate air vehicles which require assisted launch/recovery.	Yes		
KUR 9		Versatility – Queen Elizabeth class shall be able to deploy agile Mission groups.	Yes		
Percentage currently forecast to be met			100%		
In-Year Change					

D.3.1.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
-	-	-	-

D.3.1.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-

D.3.2. **Support Contract** – not applicable

Support Vehicles

Project

Support Vehicle

Team Responsible

General Support Vehicles

Single point of accountability for Project Capability

Equipment Capability Expeditionary Logistics and Support

Senior Responsible Officer

Equipment Capability Expeditionary Logistics and Support

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Post Main Investment Decision** - Support Vehicle

A. Section A: The Project

A.1. The Requirement

The Support Vehicle programme will procure the future tri-service cargo and recovery vehicles that will increase the military material lift/distribution and recovery capabilities. The programme will procure a fleet of vehicles consisting of 42 variants but effectively based around the Light, Medium and Heavy Cargo Vehicles (6, 9 and 15 tonnes respectively), the 7,000 litre Unit Support Tanker, the Recovery Vehicle and the Recovery Trailer. These vehicles will replace the in-service 4, 8 and 14 tonnes cargo vehicles and the three in-service recovery vehicle types.

A.2. The Assessment Phase

There was no Assessment Phase. The Support Vehicles programme had its origins as the Future Cargo Vehicle and the Future Wheeled Recovery Vehicle projects. These were launched as potential Private Finance Initiative programmes with advertisements in August 1998 and September 1999 respectively. The Future Cargo Vehicles project progressed through Pre-Qualification and Outline Proposal stages with five 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. Work continued to produce a more robust case but it became clear that confidence in Private Finance Initiative procurement was unlikely to improve. The decision was taken in March 2001 to replace the Private Finance Initiative procurement strategy with a conventional strategy and hold a fresh competition. Furthermore the Future Cargo Vehicles and Future Wheeled Recovery Vehicle programmes were merged into a single procurement and proceeded directly to the main investment decision which was secured in November 2001. The project bypassed the Assessment Phase because it was concluded that the technologies were mature and as the Department had, during the Private Finance Initiative phase of the project, acquired a detailed knowledge of the commercial vehicle sector, the risks were low. It was also necessary to avoid further delays in order to maintain industrial interest in the requirement. The time and cost boundaries were set at Main Gate and following an advertisement placed in the MOD Contracts Bulletin, a short-list of six prime contractors was drawn up.

A.3. Progress

The contract to procure 5,165 vehicles was signed on 31 March 2005 and this original contract was extended by a further 2,077 vehicles in July 2006. These extra vehicles were ordered following a comprehensive investment appraisal (and Review Note approval) which demonstrated it to be considerably cheaper to buy new vehicles rather than run on the best of the in-service fleet. The first 6, 9 and 15 Tonne prototype (quantity 14) vehicles were produced and have undergone formal Military trials which commenced, on schedule, on 30 October 2006.

The total Support Vehicle Programme provides 6,928 Cargo Vehicles, 288 Recovery Vehicles and 69 Recovery trailers, replacing a fleet of just under 15,000 in-service vehicles.

The In-Service date (ISD) is in two stages – the ISD for 161 Cargo Vehicles was achieved, one month early, in June 2007 and the ISD for eight Recovery Vehicles plus two Recovery Trailers was declared in February 2008.

Approximately 2,250 vehicles are now in-service, a number of which have been delivered to theatre to support current operations.£25.4M has been used to produce an Enhanced Palletised Load System (a modified variant of the 15 tonne Support Vehicle) to provide a protected vehicle with a palletised load and container handling facility to meet a capability gap. A further £16.7M has been used to up-rate the protection systems employed by the vehicles to counter the escalating threat levels.

A.4. Capability Risks

The Support Vehicle programme is procuring the tri-service Cargo, Unit Support Tanker and Recovery Vehicles to improve military lift/distribution and recovery capability. It will replace the in-service 4, 8 and 14 Tonne cargo vehicles, the cargo trailer fleet and the in-service recovery vehicles. For cost reasons the quantity of vehicles finally purchased will not be capable of fully supporting Defence Strategic Guidance 2008 Medium Scale enduring, Medium Scale non-enduring and Small Scale non-enduring concurrent commitments - this risk has been accepted by the MOD.

The risks of not procuring the Support Vehicle capability are:
1. The increased costs of running on the obsolescent in-service fleet.
2. The obsolescent in-service fleet does not have the capability to provide the required levels of protection to troops in theatre.

A.5. Associated Projects – not applicable

A.6. Procurement Strategy

Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Support Vehicle	MAN Truck & Bus UK Ltd (previously known as MAN ERF UK Ltd)	Demonstration to In-Service	Firm Price for the first 5 years, then Fixed Price subject to Variation of Price	International competition

A.7. Support Strategy

Contractor Logistic Support				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Support Vehicle	MAN Truck & Bus UK Ltd	Demonstration to In-Service	Firm Price for the first 5 years, then Fixed Price subject to Variation of Price	International competition

Section B: Cost

B.1. Cost of the Assessment Phase – not applicable

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Support Vehicle	1180	1367	1641

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Support Vehicle	1641	1272	-369	-

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. Support Vehicle

Date	Variation (£m)	Factor	Reason for Variation
Historic	-55	Accounting Adjustments and Re-definitions	The cost of warranty, previously included in Demonstration and Manufacture costs, has been transferred to in-service costs (-£64m). 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	-70	Budgetary Factors	Funding for Seating Kits returned to programme (+£9m). Removal of the procurement of new Seating Kits (-£10m). Removal of Bowman Installation Kits from the programme in 2002/03 (-£33m). Change of vehicle Mix (+£20m). Option taken in 2002/03 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 deliveries profile (-£5m). Better estimates of industry costs (+£52m). Change in Cost of Capital Charge due to revised accruals profile (+£10m).
Historic	+36	Changed Capability Requirement	A saving of £19m achieved through negotiation when reducing the number of Recovery vehicles, previously forecast at £18m (-£1m). Addition of Bowman Installation Kits (+£70m). Additional Seating Kits (+£10m). Future revenue spend increased to bring project support requirements into line with the revised programme (+£3m). Reduction in Support Vehicles (Cargo) requirement from the Main Gate approved quantity of 8,231 to 6,928 Support Vehicles(Cargo), together with a reduction in, and re-profiling of, future Capital spend (-£28m). Department review resulting in reduction of Recovery Vehicles and Seating Kits (-£18m).
Historic	-6	Technical Factors	Department trials have been integrated with the contractor's trials resulting in progressive acceptance, reduced trials costs and reducing the amount of technical risk funding in future years of the project.
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).
Net Variation	**-369**		

B.3.2. Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	
Support Vehicle	-

B.4. Unit production cost

Description	Unit production costs (£m)		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
Cargo Vehicle	***	***	8,231	6,928
Recovery Vehicle	***	***	389	288
Recovery Trailer	***	***	69	69

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

Description	Approved Cost (£m)	Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Support Vehicle	1180	324	-	-

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

B.5.1.1 Project

Date	Variation (£m)	Factor	Reason for Variation
Historic	-	Changed Requirement	No variation has been entered because the original Business Case was based on a traditional type support solution at estimated cost of £1180M. In 2005 the strategy adopted was a Contracted Logistic Support arrangement with an estimated cost of £324M. The two approaches are entirely different and a cost comparison is not feasible.
Net Variation	**-**		

B.5.2. Operational Impact of Support / Service / PFI Cost Variations

Description	
Support Vehicle	-

Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Support Vehicle	July 2001	-	-

C.2. Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Support Vehicle	November 2004	September 2005	April 2006

C.3. In Service Date

C.3.1. Definition

Description	In Service Date
Support Vehicle	Achievement of an operational capability with 161 Cargo Vehicles, eight Recovery Vehicles and two Recovery Trailers with the appropriate supporting through-life package.

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Support Vehicle	April 2006	February 2008	+22	0
Total			**+22**	**0**

C.3.3. Timescale variation

C.3.3.1. Project

Date	Variation (months)	Factor	Reason for Variation
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 Support Vehicles 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.
Net Variation	**+22**		

C.3.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
Support costs	March 2003	+29	Procurement Processes	The cost of running on the legacy fleet.
Total		**+29**		

C.3.5. Operational Impact of In Service Date variation

Description	
Support Vehicles	The delayed ISD has resulted in the life of the current equipment being extended, leading to additional support costs and a delay in fielding an increased operational capability.

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
Support Vehicles	No IOC parameters were defined within the original Business Case. Various IOC definitions were agreed with the Customer as the project progressed. These include Cargo Variant ready for Training which was achieved in June 2007.

C.4.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
-	-	-	-	-
Total			**-**	

C.4.3. Timescale Variation – not applicable

C.4.4. Other costs resulting from Timescale variation – not applicable

C.4.5. Operational Impact of Initial Operating Capability variation – not applicable

C.5. Full Operating Capability

C.5.1. Definition

Description	Full Operating Capability
Support Vehicle	All Support Vehicles delivered and Defence Lines of Development in place, Front Line Commands equipped with vehicles. Support Vehicle assets deployed to theatre wholly replacing current in-service assets (Operational Equipment Tables replaced).

C.5.2. Progress Report

Description	Full Operating Capability
Support Vehicle	On track

C.6. Support / Service / PFI Contract

C.6.1. Scope of Support /Service / PFI Contract

Description	
Support Vehicle	The provision of Capital Spares, Warranties, Complete Equipment Schedule, Training Aids, Post Design Services, Publications, Training Courses, Contractor Logistic Support and Repair of Major Assemblies.

C.6.2. Progress against approved Support / Service / PFI Contract Go-Live Date

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Support Vehicle	-	January 2008	0	0

C.6.2.1. Go-Live Date Variation

Date	Variation (months)	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

C.6.3. Progress against approved End of Support / Service / PFI Contract Date

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Support Vehicle	-	-	-	-

C.6.4. Operational Impact of Support / Service / PFI Contract variation

Description	Full Operating Capability
Support Vehicle	-

D. Section D: Performance

D.1. Readiness Levels

D.1.1. Project

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	Not defined	Readiness levels were not required when this project passed through Main Gate..
System	Not defined	System Readiness levels are not currently mandated for approvals

D.2. Performance against Lines of Development

Line of Development	Description	Forecast		
		To be met	At Risk	Not to be met
1. Equipment	Determine mix and number of vehicles, and their fit of Bowman radio, armour, weapon mount and IT/maintenance links.	Yes	Yes	-
2. Training	Training needs analysis, real estate options and training gap between conversion and steady state training identified.	Yes	-	-
3. Logistics	Clarification required over who will conduct Level 4 Maintenance and District Load Maintenance.	Yes		-
4. Infrastructure	Conduct surveys of the potential impact on Defence Estates and undertake any infrastructure works required. Also ensure maintenance policy for Unit Support Tanker is in place.	Yes		
5. Personnel	This line of development is not currently measured.			
6. Doctrine	Support Vehicle Doctrine and Concepts of Use to be produced.	Yes	-	-
7. Organisation	Understand the organisational impact of the introduction of Support Vehicle and changing systems from the current to the Support Vehicle fleet.	Yes	-	-
8. Information	Unit briefings/visits to be conducted prior to roll-out of equipment. There is an aspiration to form a 'Fielding Team' in order to assist with the briefings/visits.	Yes	-	-
Percentage of those measured currently forecast to be met		100%		
In-Year Change		-		

D.2.1.1 Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
Historic	Equipment	Procurement Processes	Funding has not yet been transferred from the Support Vehicle project team to fund the additional cab fittings for Bowman radios.

D.3. Performance against Key Performance Measures[8]

D.3.1. Support Vehicle (Cargo and Recovery)

D3.1.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	Equipment	The Support Vehicle Recovery and Support Vehicle Cargo shall be capable of meeting the Defence Planning Assumptions	-	-	Yes[9]
02	Equipment	Capable of operating in world-wide climatic conditions	-	-	Yes
03	Equipment	Compatible with existing and planned replenishment systems	Yes	-	-
04	Equipment	Capable of completing a 48 hour Battlefield Mission without replenishment	Yes	-	-
05	Equipment	Able to communicate with other units in their formation	Yes	-	-
06	Equipment	Capable of strategic deployment including by sea	Yes	-	-
Percentage currently forecast to be met			67%		
In-Year Change			-		

D.3.1.2 Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
Historic	KPM 01	Budgetary Factors	Relaxed requirement as a result of capability/cost trade off.
Historic	KPM 02	Budgetary Factors	Relaxed requirement as a result of capability/cost trade off.

D.3.1.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-
Total		**-**	

[8] There are 26 KPMs overall; the MPR contains an abbreviated list for simplicity.

[9] This KPM represents two Key Performance Measures, one for the Cargo vehicle and one for the Recovery vehicle. Both KPMs are forecast not to be met, and as a result this is counted twice in the MPR analysis

D.3.2. Support Vehicle (Cargo Only)

D.3.2.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
7.	1	Capable of completing required Battlefield Mission	Yes	-	-
8.	1	Deployable in its operation state by air	Yes	-	-
9.	1	Capable of operating within the same parameters as other vehicles classified as Medium Mobility	Yes	-	-
Percentage currently forecast to be met			100%		
In-Year Change			-		

D.3.2.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
-	-	-	-

D.3.2.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-
Total		-	

D.3.3. Support Vehicle (Recovery only)

D.3.3.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
10.	Equipment	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.	Equipment	Capable of recovering military vehicles in an operational environment (including tactical operations throughout day & night).	Yes	-	-
12.	Equipment	Capable of lifting engines and main assemblies as part of the operational repair process.	Yes	-	-
13.	Equipment	Capable of manoeuvring engines and main assemblies as part of the operational repair process.	Yes	-	-
14.	Equipment	Capable of moving solo over the same terrain, within the same timeframe, as the B vehicles it supports.	Yes	-	-
15.	Equipment	Capable of recovering casualty vehicles from point of failure to a place of repair.	Yes	-	-
Percentage currently forecast to be met			100%		
In-Year Change			-		

D.3.3.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
-	-	-	-

D.3.3.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-
Total		**-**	

D.3.4. Support Contract – not applicable

Terrier

PROJECT SUMMARY SHEET

Project

Terrier

Team Responsible

Manoeuvre Support

Single point of accountability for Project Capability

Director Equipment Capability (Ground Manoeuvre)

Senior Responsible Officer

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Post Main Investment Decision** - Terrier

A. Section A: The Project

A.1. The Requirement

Terrier is required 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 Engineer units. Terrier is being procured to replace the capability provided by the Combat Engineer Tractors.

A.2. 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, where possible integrating 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 the Warrior tracked infantry fighting vehicle, having a crew of two and providing protection against small arms, high explosive fragments and mines. An Invitation to Tender was issued in February 2001 to both companies which sought detailed proposals and prices for all later phases. The Invitation to Tender 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 one Contractor Logistic Support was placed with Royal Ordnance plc on 19 July 2002.

A.3. Progress

Delays in the construction of the Demonstrator Vehicles and slower than expected reliability improvement on the Prototype Vehicle led to BAE Systems entering contractual default in September 2007. The resulting rectification programme submitted by BAE Systems resulted in a slip to In Service Date of 27 months. This was noted by the Investment Appraisal Board in May 2008. BAE Systems adhered to their rectification proposal and successfully completed the work required to support production release (Milestone 12) in August 2008. In parallel with this work the Department and BAE Systems were exploring methods to increase the survivability of the vehicle and reduce the risk of not achieving vehicle reliability within its weight budget. A Review Note to outline programme options was submitted to the Investment

Appraisal Board which instructed the project to explore further the option of increasing vehicle survivability. A mutually agreed 60 day suspension of production release was agreed while BAE Systems carried out a technical, cost and programme feasibility study. This review provided a maximum cost for vehicle modifications which has been managed by a combination of reducing vehicle quantities from 65 to 60, a compensatory adjustment for moving Liquidated Damages in line with a revised delivery programme and an additional £9m programme cost increase. The programme impact of this change is an additional 16 month slip to ISD. Following a further approval, release to production along with a contract amendment agreement to incorporate the survivability and reliability risk reduction measures was signed on 09 December 2008. A final contract amendment converting agreed Maximum prices to Firm was signed off on 27 March 2009 though this had no fundamental impact on the programme costs.

A.4. Capability Risks

The existing capability that Terrier replaces is Combat Engineer Tractor. However, Combat Engineer Tractor was withdrawn from service in 2008 as a savings measure since safety, obsolescence and reliability issues made it unlikely to be deployed on operations. A Capability Investigation conducted by the customer concluded that there was no single equipment available off the shelf or under Urgent Operational Requirement procedures that could be procured to fill the gap between Combat Engineer Tractor's removal from service and the In Service Date of Terrier.

Terrier will provide a highly agile, robust earthmoving capability which will have utility across the continuum of operations from warfighting to peace support. Reported in last years NAO Report, High Mobility Engineering Excavators from JCB will be deployed on current operations as part of the Talisman programme. Talisman will provide a new military capability in support of Combat Logistic Patrols. High Mobility Engineering Excavators were selected for Talisman specifically for their optimal blend of sustained convoy speed and protection levels commensurate with other protected patrol vehicles in the Talisman fleet. High Mobility Engineering Excavators' function within Talisman is limited to the repair and improvement of routes during clearance and proving operations on supply routes, involving long journeys by road between tasks. High Mobility Engineering Excavators' role is specific to the support of Combat Logistic Patrols and is not a requirement that Terrier has been designed for. In particular tracked armoured vehicles such as Terrier are optimised for cross country travel not long journeys by road.

In addition to High Mobility Engineering Excavator, Engineering Plant with enhanced protection are being utilised in lower threat areas where mobility and speed are less essential. Whilst High Mobility Engineering Excavator or other engineering plant may have some utility in other roles their designs fall significantly short of the levels of cross country mobility , protection and functionality designed into Terrier and make them capable of meeting only two of the 11 Key User Requirements (KURs 05 & 06) that Terrier has been designed to meet.

The user has accepted an extended capability gap due to the time required to increase the Terrier platforms' mine protection levels as a result of lessons learnt on current operations. On future operations Terrier will be deployed to support a range of high mobility vehicles such as Challenger 2, Warrior, Viking and Combat Vehicle Reconnaissance Tracked on severe terrain and to open and create routes in high threat environments to allow these vehicles greater flexibility in manoeuvre and engagement.

A.5. Associated Projects – not applicable

A.6. Procurement Strategy

Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Terrier	BAE Systems Land Systems (formally known as Royal Ordnance plc)	Demonstration to Manufacture	Firm/fixed price	United Kingdom competition
Terrier	BAE Systems Land Systems (formally known as Royal Ordnance plc)	Contractor Logistic Support (first five years)	Fixed price	United Kingdom competition

A.7. Support Strategy

The Terrier Support solution is an integral part of the Demonstration & Manufacture contract. The Main Gate Investment Appraisal concluded that Contractor Logistic Support was no cheaper than traditional support but risk transfer to Industry was a significant benefit to the Department. Additionally the incentive for the contractor to meet the reliability requirements for the system was increased due to a large cost element of support being driven by spares consumption and hence system reliability. Elements transferred to industry include System Obsolescence, Safety and Configuration Management of Vehicles, Training Equipment, Technical Documentation & Special Tools. Spares provision and refurbishment of repairable units to meet specified demand levels are also included in a fixed price five year service provision. The Contractor Logistic Support option was taken on the 09 December 2008 along with the Manufacture option.

	Contractor	Contract Scope	Contract Type	Procurement Route
Terrier	BAE Systems	Contractor Logistic Support (first five years)	Fixed Price for first five years	United Kingdom competition

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Terrier	17	17	0	5%	5%

B.2. Cost Boundaries for Demonstration and Assessment Phase/PFI

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Terrier	284	294	304

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Terrier	304	322	+18	+9

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. Terrier

Date	Variation (£m)	Factor	Explanation
December 2008	+9	Changed Requirement	Customer change in requirement for Mine Blast Survivability, revised Bowman fit and architecture to accept Electronic Countermeasures. Trades for reliability
Historic	-3	Accounting Adjustments and Re-definitions	Departmental Review - Inclusion of projected Year End Accruals for the remainder of the project. This change reduces the annual Net Assets balance and the subsequent Cost of Capital Charge.
Historic	+4	Procurement Process	Cost of Capital – Difference between the profile of the Asset Deliveries prior to contract placement and those included in the current forecast cost.
Historic	-17	Procurement Process	Requirements change for Bowman (-£9m) and Training Infrastructure (-£8m) transferred to separate projects.
Historic	+17	Changed Capability Requirement	Requirements for Bowman and Training Infrastructure changed.
Historic	+17	Technical Factors	Residual Terrier cost growth caused by, and remaining after, customer-driven Bowman requirements change. (+£3m) Late delivery of Demonstrator Vehicles combined with failure of Prototype to reach reliability target requires a longer reliability growth period in Demonstration. This has increased the Cost of Capital Charge and the Programme Support Costs. (+£14m)
Historic	-9	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (not to exceed) estimates at Main Gate.
Net Variation	+18		

B.3.2. Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	
Terrier	The operational impact of cost variations has been assessed by the sponsor and is considered not to be material.

B.4. Unit production cost

Description	Unit production costs (£m)		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
Terrier	3.1	2.8	65	60

B.5. Progress against approved Support/PFI Cost

Description	Approved Cost (£m)	Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Terrier	64	63	-1	-

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

B.5.1.1. Project

Date	Variation (£m)	Factor	Reason for Variation
Historic	-1	Procurement Processes	Difference between the contracted cost and the Main Gate approval.
Net Variation	**-1**		

B.5.2. Operational Impact of Support/PFI Cost Variations

Description	
Terrier	The operational impact of cost variations has been assessed by the sponsor and is considered to not be material.

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Terrier	July 2002	August 1998	47

C.2. Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Terrier	July 2008	September 2008	December 2008

C.3. In Service Date

C.3.1. Definition

Description	In Service Date
Terrier	A total of 20 equipments delivered (four to Army Training and Recruiting Agency & 16 to Land Command) and supportable (Logistic Support Date achieved, training in place, 20 crews trained).

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Terrier	December 2008	April 2013	+52	+16
Total			**+52**	**+16**

C.3.3. Timescale variation

C.3.3.1. Terrier

Date	Variation (months)	Factor	Explanation
December 2008	+16	Changed Requirement	Customer change in requirement for Mine Blast Survivability, revised Bowman fit and architecture to accept Electronic Countermeasures. Trades for reliability.
Historic	+27	Technical Factors	Late delivery of Demonstrator Vehicles combined with failure of Prototype to reach reliability target requires a longer reliability growth period in Demonstration.
Historic	+12	Changed Requirement	Customer change in requirements for Bowman.
Historic	-3	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (not to exceed) estimates at Main Gate.
Net Variation	+52		

C.3.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
	-	-	-	
Total	**-**	**-**	**-**	**-**

C.3.5. Operational Impact of In Service Date variation

Description	
Terrier	Terrier will provide a highly agile, robust earthmoving capability which will have utility across the continuum of operations from warfighting to peace support. Terrier replaces the Combat Engineer Tractor which was removed from service in March 2008 despite further delays to the Terrier programme. Restrictions on the Combat Engineer Tractor, primarily due to Bowman system safety concerns, reliability and industrial obsolescence had, in effect, already initiated a capability gap as Combat Engineer Tractor is not deployed on current operations. The subsequent delay to Terrier's ISD extends the capability gap and removes contingent capability manoeuvre support until 2013. Modifications to the vehicle to meet current mine threats will significantly increase crew survivability in current theatres of operation. The User acknowledges the operational risk of the ISD variation and accepts the delay to the Terrier programme.

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
Terrier	The IOC is the same as the ISD.

C.4.2. Progress against approved Dates – not applicable

C.4.3. Timescale variation – not applicable

C.4.4. Other costs resulting from Timescale variation – not applicable

C.4.5. Operational Impact of Initial Operating Capability variation – not applicable

C.5. Full Operating Capability

C.5.1. Definition

Description	Full Operating Capability
Terrier	No Full Operating Capability Defined in Approval

C.5.2. Progress Report – not applicable

C.6. Support Contract

C.6.1. Scope of Contract

Description	
Terrier	Supply Support, regeneration of line replaceable units, obsolescence and configuration management, maintenance of Training and Support and Test Equipment, and Fleet and equipment support management. Although the costs for support were approved at Main Gate, no specific contract start and end dates were approved. The support contract will start on delivery of the first vehicle.

C.6.2. Progress against approved Contract Go-Live Date – not applicable

C.6.2.1. Go-Live Date Variation – not applicable

C.6.3. Progress against approved End of Contract Date – not applicable

C.6.3.1. End of Contract Date Variation – not applicable

C.6.4. Operational Impact of Support Contract variation – not applicable

D. Section D: Performance

D.1. Readiness Levels

D.1.1. Project

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	-	Readiness levels were not measured when this project passed through Main Gate.
System	-	System Readiness levels are not currently mandated for approvals

D.2. Performance against Lines of Development

Line of Development		Description	Forecast		
			To be met	At Risk	Not to be met
1.	Equipment	Deliver 60 Terrier vehicles to Land along with 13 Surface Mine Clearance Device interfaces, route marker and remote control systems.	Yes		
2.	Training	Deliver Terrier User and Maintainer training solution at Armour Centre	Yes		
3.	Logistics	Deliver and maintain the Terrier Logistic support solution utilising Contractor Logistic Support.	Yes		
4.	Infrastructure	Ensure infrastructure is available for fielding and use of Terrier.	Yes		
5.	Personnel	Ensure sufficient Crew and Maintainers are available to meet Terrier availability requirements.	Yes		
6.	Doctrine	Utilise current Combat Engineer Tractor doctrine.	Yes		
7.	Organisation	Utilise current Combat Engineer Tractor organisation.	Yes		
8.	Information	Utilise current Combat Engineer Tractor information systems.	Yes		
	Percentage of those measured currently forecast to be met		100%		
	In-Year Change				

D.2.1.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
-	-	-	-

D.3. Performance against Key Performance Measures

D.3.1. Project

D.3.1.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01		User shall be able to dig vehicle slots.	Yes	Yes	-
02		User shall be able to dig, carry and load spoil & rubble.	Yes	Yes	-
03		User shall be able to dig trenches.	Yes	Yes	-
04		User shall be able to grapple, grab and carry items weighing no more than two 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 without failure.	Yes	-	-
10		User shall have a 13.5% probability of completing a battlefield mission without basic failure.	Yes	-	-
11		User should be able to maintain required capabilities while operating in climatic categories A2 to C1.	Yes	-	-
Percentage currently forecast to be met			100%		
In-Year Change			-		

D.3.1.2. Key Performance Measures Variation

Date	Key Requirement	Factor	Explanation
December 2008	KPM 01 KPM 02 KPM 03	Technical Factors	The Investment Approvals Board have approved an increase in time to perform digging tasks for these KPMs. This does not remove the functionality to perform the specified task. Instead, the approval allows BAE Systems the flexibility to manage reliability issues in future phases of Demonstration, by reducing mechanical stresses in the system. As yet, this flexibility to increase time to perform digging tasks for these KPMs has not been utilised. As a result these KPMs have been classed as at risk
September 2008	KPM 06	Technical Factors	The definitions of KPMs 5 and 6 have been revised. Route Marker System has been removed from the vehicle definitions of KPM 5 (Battleweight) and KPM 6 (Deployable by Air). The system is being procured as a fitted for but not with item (optional) and should not be considered as an integral part of the vehicle. This was accepted by Customer.
Historic	KPM 06	Technical Factors	The air transportability of Terrier has been successfully addressed by the A400M Integrated Project Team through the placing of a contract amendment with Airbus Military Sociedad Limitada for a Locally Reinforced Cargo Floor. Terrier must be air transportable. Verification criteria requires this to be demonstrated in A400M. The A400M cargo floor loading study shows that it is possible to modify the floor to take Terrier.

D.3.1.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
KUR 06	-	-	No variation only definition change
KUR 01 /KUR 02/ KUR03	-	-	No Variation as options not yet taken
Total		**-**	

D.3.2. Support Contract – not applicable

Type 45 Destroyer

Project

Type 45 Destroyer

Team Responsible

Destroyers Directorate

Single point of accountability for Project Capability

Director of Equipment Capability (Above Water Effect)

Number of Projects / Increments 2

Current Status of Projects / Increments

- **Post Main Investment Decision** - Type 45 Destroyer
- **Support/Service/PFI** - Type 45 Initial Industrial Investment and Long Lead Spares

A. Section A: The Project

A.1. The Requirement

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

A.2. The Assessment Phase

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

A.3. Progress

BAE Systems Electronics was appointed Prime Contractor for the Type 45 in November 1999 and a contract for Demonstration and First of Class Manufacture for the first three ships was placed in December 2000. A contract for a further three Type 45 hulls was placed with the Prime Contractor in February 2002. The ships are being built under sub-contract by BVT Surface Fleet Ltd (a joint venture company formed in 2008 between BAE Systems Surface Fleet Solutions and Vosper Thorneycroft Shipbuilding). The Demonstration & Manufacture contract was amended to reflect the Investment Approvals Board Six-Ship Approval gained in August 2007. This change has introduced a staged acceptance process for each ship which commences with Acceptance off Contract, thereby giving control of the vessel to the MOD to undertake a further period of trials and acceptance activity leading to the declaration of In-Service Date.

The past year has seen significant progress in the manufacture of the six ships. All ships are now in production. The fourth ship (Dragon) was launched in November 2008. The second ship (Dauntless) completed her first set of Sea Trials in December 2008. The First of Class (Daring) was Accepted off Contract from the Prime Contractor in December 2008. Successful test firings of the Principal Anti-Air Missile System took place in June 2008 and February 2009.

It was announced in June that as part of the Department's 2008 Planning Round the decision was taken not to take up the option to proceed with Type 45 Ships 7 and 8.

A.4. Capability Risks

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

A.5. Associated Projects

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only	
Description	**Procurement Route**
-	-

Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Type 45 Warship	BVT Surface Fleet Ltd (BAE Systems Electronics Ltd Farnborough)	Full development and production	Target Cost Incentive Fee Shareline	Single source
Principal Anti-Air Missile System	EURO PAAMS	Full scale engineering development and initial production including missiles for initial use.	Fixed price	Collaborative with France and Italy
Principal Anti-Air Missile System	EURO PAAMS	Follow-on ships production	Fixed price for five follow-on equipments	Collaborative with France and Italy
Principal Anti-Air Missile System	EUROSAM & UKAMS[10]	Production of missiles	Fixed price	Collaborative with France and Italy through Organisation Conjointe de Coopération en matière d'Armement

[10] UKAMS is a wholly owned company of MBDA

A.7. Support Strategy

There are three broad layers to Type 45 Destroyer support:

a. Interim Support covers the period from the First of Class (Daring) Acceptance off Contract to ISD. The change to ship acceptance approved as part of wider programme re-approval in August 2007 advances the date that the First of Class is accepted off contract, consequently requiring interim support arrangements to be put in place until ISD. Funding for Interim Support was approved under the Six Ship Approval and costs are reported against the Demonstration & Manufacture phase costs for Type 45, hence this element is not reported further within the Support section. Interim support arrangements could be extended to mitigate any delay in the delivery of Full Support, but at a potential cost increase of £1 million per ship per month.

b. Type 45 Initial Industrial Investment and Long Lead Spares. Purchase of long-lead spares and industrial mobilisation activities for which contracts need to be placed ahead of the Type 45 Full Support Solution (see c. below) in order to be available for ISD. The Approval did not set any time limits for contract end dates, therefore only progress against cost boundaries is reported within the support section.

c. Full Support. The intention is to deliver a class wide Type 45 Support Solution through a single source incentivised contract with BVT Surface Fleet Ltd as the support integrator for Type 45 and a separate single source incentivised contract with MBDA (UK) for the support to the Principal Anti-Air Missile System for up to the first seven years. Following this initial support period, Type 45 support is expected to migrate to the Surface Ship Support Programme, and support for the Principal Anti-Air Missile System to a wider Team Complex Weapons commercial arrangement. Confirmation of Main Gate Business Case Approval for the Full Support solution was only received 13 March 2009, hence this element is not reported further within the Support section.

	Contractor	Contract Scope	Contract Type	Procurement Route
Type 45 Initial Industrial Investment and Long Lead Spares	BVT Surface Fleet Ltd	Purchase of long lead time spares and industrial mobilisation activities	Mix of fixed and firm price	Single source

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Type 45 Destroyer	213	232	+19	3.2%	3.5

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Type 45 Destroyer	-	5000	5475

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Type 45 Destroyer	5475	6464	+989	0

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. Project

Date	Variation (£m)	Factor	Explanation
March 2009	-46M	Technical Factors	Benefits of earlier delivery of Platforms through reduced trials support costs (-£30M) & reduced cost of capital charges (-£20M), but offset by an increase in programme costs identified through the annual financial planning process (+£4M).
March 2009	+44M	Exchange Rate	Increase in the Principal Anti-Air Missile System in-year costs due to Exchange Rates (+£23M) and an increase in the Principal Anti-Air Missile System Planning Round 2009 costs for Exchange Rates (+£21M).
March 2009	+2M	Inflation	Additional Type 45 Ship costs due to higher than anticipated escalation of contractual Variation On Price indices (+£2M).
Historic	-49	Accounting Adjustments and Re-definitions	As a direct result of a move of ship build from Barrow to Clyde, in line with Maritime Industrial Strategy principles, there has been an increase in overheads for the 'Six Ship Proposal' price that is not directly attributable to this project (-£78m). Reduction in cost of capital (-£9m) due to lower than expected cash expenditure in 2005/06 (closing accrual higher than estimated). Transfer to Maritime Training Systems Integrated Project Team (-£35m) and associated Cost of Capital (-£1m). Difference in variation figures due to revision of Cost of Capital Charge (-£24m). Adjustment to previous years Cost of Capital figures due to system error (+£98m).
Historic	-38	Budgetary Factors	Equipment Programme 2007 savings measure to reduce the quantity of the Principal Anti-Air Missile System missiles (-£30m).A combination of Equipment Plan Options plus internal adjustments, 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

Date	Variation (£m)	Factor	Explanation
			scope of the Principal Anti-Air Missile System missile buy and costs of shipbuilders' premium (+£91m). Increases to the Principal Anti-Air Missile System contract and additional funding and increases in delay and dislocation money (+£177m). Incremental Acquisition Programme re-profiling and Incremental Acquisition Programme upgrade deleted (-£238m). Equipment Plan Options re-profiling costs for ships five and six and deferring ships seven and eight (+£2m) and the associated Cost of Capital (+£12m). Correction to forecast: costs wrongly attributed to ships seven & eight (+£26m). The Principal Anti-Air Missile System increased cost of Longbow mooring (+£4m). Cost of Capital associated with estimated cost growth of ship Batch 2 reported at MPR04 (+£54m). Cost of Capital relating to the Principal Anti-Air Missile System increased cost (exchange rate) and re-profiling (+£10m). Savings in ships capability (performance) to bring costs back to Equipment Programme 2005 baseline; Combat Systems risk provision (-£60m), Whole Life Support (support solution study) (-£21m) and Incremental Acquisition Programme (-£64m). Revised estimate of Westinghouse Rolls-Royce 21 engine concept/assessment phase (-£1m).
Historic	+1460	Procurement Process	Estimated increase in ship build cost based on an assessment of the 'Six Ship Proposal' price from the Prime Contractor (+£462m).Estimated increase in ship build cost (+£184m) and associated cost of capital (+£18m). Costs omitted from Equipment Programme 2005 and MPR05 relating to increase in ship build cost (+£52m) and associated cost of capital (+£5m). Higher than expected costs for the Principal Anti-Air Missile System Production Equipment (+£124m). Corrections to Warship costs (+£13m). Expected increase in costs of elements of batch two ships which are yet to be negotiated (+£250m). Corrections and adjustments to forecast costs (+£97m). The Principal Anti-Air Missile System

Date	Variation (£m)	Factor	Explanation
			missiles re-instated (+£173m). Increase in Cost of Capital due to corrections to Principal Anti-Air Missile System (+£82m).
Historic	+55	Exchange Rate	Pound to Euro rate worse than originally forecast (+£47m). The Principal Anti-Air Missile System exchange rate (impact of rate at Equipment Programme 2005) (+£8m).
Historic	+36	Technical Factors	Issues arising from migrating from Skynet 4 to Skynet 5 and to implement system growth (+£3m). Increase in Cost of Capital resulting from ISD slippage (+£33m).
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	+989		

B.3.2. Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	

B.4. Unit production cost

Description	Unit production costs (£m)		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
Type 45 Destroyer	582	661	6	6

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

Description	Approved Cost (£m)	Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Type 45 Initial Industrial Investment and Long Lead Spares	14	14	0	0

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

Date	Variation (£m)	Factor	Reason for Variation
-	-	-	-
Net Variation	**0**		

B.5.2. Operational Impact of Support / Service / PFI Cost Variations

Description	
-	-

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Type 45 Destroyer	July 2000	July 1991	108 [11]

C.2. Planned / Actual Boundaries for introduction of the Capability

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

C.3. In Service Date

C.3.1. Definition

Description	In Service Date
Type 45 Destroyer	The date to which the First of Class will meet the Customer's minimum operational requirement.

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Type 45 Destroyer	November 2007	July 2010	+32	- 4
Total			+32	- 4

C.3.3. Timescale variation

C.3.3.1. Project

Date	Variation (months)	Factor	Explanation
March 2009	- 4	Technical Factors	Retirement of programme risk (e.g. two successful Principal Anti-Air Missile System missile firings, Daring Accepted off Contract) now reflected in latest Timescale Risk Analysis which indicates ISD achievable four months earlier than previously anticipated.
Historic	+24	Procurement Processes	Longer than expected design phase plus an acknowledgement that a number of other factors which had impacted earlier in the programme had injected unrecoverable delay. These factors were principally related to delays in agreeing the original industrial strategy; problems associated with managing parallel and dependant development programmes and a better understanding of the

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

Date	Variation (months)	Factor	Explanation
			programme to deliver ISD. (MPR02 +6 months; MPR04 +18 months).
Historic	+18	Technical Factors	Latest Timescale Risk Analysis founded on data from Six Ship Proposal from BAE Systems (+11 months). Refinement of timescale risk analysis shows that there are a number of opportunities in the programme which support a most likely date of December 2009. Principal among these is the opportunity for parallel working that is not yet fully exploited within industry's plan and the potential to use the second ship to demonstrate elements of First of Class capability (-1 month). Impact of slippage to SAMPSON programme and measures taken to mitigate the full impact of that delay (+3 months). Assessment based on full timescale risk analysis (conducted jointly with BAE Systems) which gave a most likely date of March 2010, based on baseline programme. Agreement reached with company and Customer One, however, on how Stage two trials programme can be de-scoped thereby giving a Most Likely date of October 2009 (+ 2 months). Latest assessment based on timescale risk analysis of most up to date programme reflecting de-scoping of trials programme (+3 months).
Historic	-6	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimate at Main Gate (-6 months).
Net Variation	+32		

C.3.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
Type 45 Destroyer	March 2009	- 4		Improved estimate as a result of recent studies
Type 45 Destroyer	Historic	+2		Additional maintenance periods required to run-on Type 42 Destroyer for 11 months[12]
Type 45 Destroyer	Historic	+1		Additional maintenance periods required to run-on Type 42 Destroyer for 7 months.
Type 45 Destroyer	Historic	+196		Additional Type 42 run-on costs due to Type 45 slippage.
Total		**+195**		

C.3.5. Operational Impact of In Service Date variation

Description	
Type 45 Destroyer	Delay in ISD further extends the period before a capability to defeat multiple attacks by sea-skimming missiles will be available, as well as the capability for Royal Navy escorts to provide tactical control of combat aircraft.

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
Type 45 Destroyer	The Type 45 Destroyer programme does not have an IOC Approval, but as currently defined the capability requirements for IOC will be met at each ship's ISD.

C.4.2. Progress against approved Dates – not applicable

C.4.3. Timescale variation – not applicable

C.4.3.1. Project – not applicable

C.4.4. Other costs resulting from Timescale variation – not applicable

C.4.5. Operational Impact of Initial Operating Capability variation – not applicable

[12] Relates to slippage in ISD of Type 45 First of Class only, to align with the definition of ISD at Section 3a.

C.5. Full Operating Capability

C.5.1. Definition

Description	Full Operating Capability
Type 45 Destroyer	Full Operating Capability will occur when all systems are at Full System Acceptance, the Principal Anti-Air Missile System Full Capability has been delivered and all environmental trials are complete. For Ship One Full Operating Capability will occur after ISD.

C.5.2. Progress Report – not applicable

C.5.3. Timescale variation – not applicable

C.5.4. Other costs resulting from Timescale variation – not applicable

C.5.5. Operational Impact of Full Operating Capability variation – not applicable

C.6 Support / Service / PFI Contract

C.6.1 Scope of Contract

Description	
Type 45 Initial Industrial Investment and Long Lead Spares	Contract for purchase of long lead time spares and industrial mobilisation activities

C.6.2 Progress against approved Contract Go-Live Date

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Type 45 Initial Industrial Investment and Long Lead Spares	June 2008	June 2008	0	0

C.6.2.1 Go-Live Date Variation

Date	Variation (months)	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

C.6.3 Progress against approved End of Contract Date – not applicable

C.6.4 Operational Impact of Support Contract variation – not applicable

Section D: Performance

D.1 Readiness Levels

Readiness Levels		
Readiness Area	**At Main Gate Level**	**Comments**
Technology	-	Readiness levels were not required when this project passed through Main Gate.
System	-	System Readiness levels are not currently mandated for approvals

D.2 Performance against Lines of Development

Line of Development		Description	Forecast		
			To be met	At Risk	Not to be met
1.	Equipment	Type 45 Platform including the Principal Anti-Air Missile System.	Yes	Yes	
2.	Training	Provision of First of Class and Steady State Training for: Weapons Engineer; Marine Engineer; Warfare and the Principal Anti-Air Missile System. Also provision of Collective Training.	Yes	Yes	
3.	Logistics	Investment Approval Board Submission; Unit Maintenance Management System; Technical Documents.; Initial Provision Lists and First Outfit; Tooling; Support Data Pack; Support Solution Envelope; Principal Anti-Air Missile System & Long Range Radar; Information Management System.	Yes		
4.	Infrastructure	Appropriate facilities for Type 45 to be available at the following: Her Majesty's Naval Base Portsmouth; Her Majesty's Naval Base Devonport; Her Majesty's Naval Base Clyde; Defence Storage and Distribution Agency Gosport.	Yes	Yes	
5.	Personnel	Provision of Manpower Tranches for all six ships.	Yes		
6.	Doctrine	Enable Type 45 to undertake assigned operations; Enable Type 45 Air Defence activity; Tactical advice for use of the Principal Anti-Air Missile System Command and Control, Aster missile system and Combat Management System; Capability upgrades are enabled through platform life.	Yes		
7.	Organisation	Maintenance of Type 45 ISD and Type 42 paying off plan.	Yes		
8.	Information	Included within the Equipment Defence Lines of Development for Type 45.	Yes		
	Percentage of those measured currently forecast to be met		100%		
	In-Year Change		0		

D.2.1.1. Defence Lines of Development Variation

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

Performance against Key Performance Measures

D.3.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01		**Principal Anti-Air Missile System**. The Type 45 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 Type 45 shall be able to assess the Air Warfare Tactical Situation of 1000 air real world objects against a total arrival and/or departure rate of 500 air real world objects per hour.	Yes	-	-
03		**Aircraft Control**. The Type 45 shall be able to provide close tactical control to at least four fixed wing aircraft, or four groups of aircraft in single speaking units, assigned to the force.	Yes	-	-
04		**Aircraft Operation**. The Type 45 shall be able to operate both one organic Merlin (Anti-Submarine Warfare and Utility variants) and one organic Lynx Mk8 helicopter, although not simultaneously.	Yes	-	-
05		**Embarked Military Force**. The Type 45 shall be able to operate an Embarked Military Force of at least 30 deployable troops.	Yes	-	-
06		**Naval Diplomacy**. The Type 45 shall be able to coerce potential adversaries into compliance with the wishes of Her Majesty's Government or the wider international community through the presence of a Medium Calibre Gun System of at least 114mm.	Yes	-	-
07		**Range**. The Type 45 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 Type 45 capability shall be able to be upgraded to incorporate new capabilities or to enhance extant capabilities through displacement Margins of at least 11.5%.	Yes	-	-
09		**Availability**. The Type 45 shall have a 70% availability to contribute to Maritime Operations over a period of at least 25 years, of which at least 35% shall be spent at sea.	Yes	-	-
Percentage currently forecast to be met			100%		
In-Year Change			0		

D.3.1.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
Historic	KUR 02	Technical Factors	When MPR07 was compiled the extant version of Combat Management System software had insufficient capability to fully satisfy Key User Requirements 2 and 3. The decision was made during MPR08 reporting period to upgrade the Combat Management System software, which increased functionality and fully satisfied Key User Requirements 2 and 3
Historic	KUR 02	Budgetary Factors	Revised programme to achieve earliest possible ISD leads to a lower level of Combat Management System functionality at ISD
Historic	KUR 03	Technical Factors	When MPR07 was compiled the extant version of Combat Management System software had insufficient capability to fully satisfy Key User Requirements 2 and 3. The decision was made during MPR08 reporting period to upgrade the Combat Management System software, which increased functionality and fully satisfied Key User Requirements 2 and 3
Historic	KUR 03	Budgetary Factors	Revised programme to achieve earliest possible ISD leads to a lower level of Combat Management System functionality at ISD
Historic	KUR 04	Technical Factors	Integrated Project Team & Director of Equipment Capability agreed to conduct "First of Class Flying Trials" with a Merlin. This will remove the expectation that at ISD only Lynx capability will have been demonstrated. Ability to operate Lynx but not Merlin will be demonstrated by Full Operating Capability ISD. Merlin will be demonstrated beyond ISD

D.3.1.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-

D.3.2. Support Contract – not applicable

Typhoon

PROJECT SUMMARY SHEET

Project

Typhoon

Team Responsible

Typhoon

Single point of accountability for Project Capability

Director Equipment Capability (Theatre Airspace)

Senior Responsible Officer

-

Number of Projects / Increments 3

Current Status of Projects / Increments

- **Post Main Investment Decision –** Typhoon, Typhoon Future Capability Programme
- **Support/Service/PFI -** Typhoon Support

A. Section A: The Project

A.1. The Requirement

Typhoon

Typhoon, formerly known as Eurofighter, is an agile multi-role combat aircraft. Originally designed primarily, but not exclusively, for air superiority the aircraft is also capable of delivering a precision ground attack capability. Typhoon has the flexibility to respond to the uncertain demands of the current strategic environment and is progressively replacing the Tornado F3 and Jaguar aircraft.

The aircraft is being developed, produced and supported in a collaborative project with Germany, Italy and Spain. The project is managed on behalf of the four partner nations by the NATO Eurofighter and Tornado Management Agency. The contract for the first Tranche of 148 aircraft, of which 55 are for the UK, was signed in September 1998. The contract for the second Tranche comprising 236 aircraft, 89 of which are for the UK, was placed in December 2004. The estimated current cost of Typhoon was classified in MPR05 and remains so in MPR09, in order to protect the UK's ability to negotiate for the third Tranche. This classification remains in place while the Tranche 3 negotiations are ongoing.

Typhoon Future Capability Programme

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

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

Subsequent phases of the Future Capability Programme are under consideration in parallel with negotiations on the third Tranche purchase of Typhoon.

A.2. The Assessment Phase

Typhoon

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

Typhoon Future Capability Programme

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

A.3. Progress

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

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

Initial deliveries of Tranche 2 aircraft commenced in October 2008. Negotiations are continuing with industry and nations on procurement of the third tranche of the Typhoon aircraft. The Typhoon Availability Service contract with BAE Systems was signed in March 2009, which is part of the strategy to transform support arrangements through partnering with UK industry.

A.4. Capability Risks

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

A.5. Associated Projects – not applicable

A.6. Procurement Strategy – Typhoon

Post-Main Investment Decision Projects / Increments only			
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 price elements for Airframe and equipments have been converted to a Limit of Liability cost reimbursement without profit.	Non-competitive but with international sub-contract competitive elements, the value of which amounts to some 30% of the overall value of the Prime Contract.
Eurojet Turbo GmbH Engine consortium comprising: Avio (formerly FIAT Avio), ITP, MTU, Rolls Royce	Development	Firm Price (Avio, ITP, MTU) Fixed Price (Rolls-Royce) for propulsion systems	Non-competitive but with international sub-contract competitive elements, the value of which amounts to some 10% of overall value of the Prime Contract.
Eurofighter GmbH Airframe consortium (see details under development above).	Production Investment/ Production	Overall Maximum Prices for Production Investment and Production of Airframes for all 232 UK Aircraft (Fixed prices for production of 1st and 2nd Tranche Airframe). Fixed Prices for all Production Investment and Production of Aircraft Equipment.	Non-competitive but with international sub-contract competitive elements, the value of which amounts to some 30% of the overall value of the Prime Contract.
Eurojet Turbo GmbH Engine consortium (see details under development above).	Production Investment/ Production	Overall Maximum Prices for Production Investment and Production of Engines for all 232 UK aircraft. Firm Price (Avio, ITP, MTU) Fixed Price (Rolls-Royce) for Tranche 1 and Tranche 2 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.

A.7. Procurement Strategy – Typhoon Future Capability Programme

Post-Main Investment Decision Projects / Increments only			
Contractor(s)	**Contract Scope**	**Contract Type**	**Procurement Route**
Eurofighter GmbH Airframe consortium comprising: Alenia, BAE Systems, EADS(CASA), EADS(Deutschland)	Design, development, demonstration, qualification and production clearance of the first batch of enhancements	Overall Max Price to be converted to UK Firm Price	Collaborative. Non-competitive but with international competitive sub-contract elements.

A.8. Support Strategy

Typhoon's partnered support strategy was originally approved in 2000. Its principles were reinforced by the results of a 2004 Support Review.

The partnered support strategy – referred to as Typhoon Future Support - will be delivered through the letting of long-term contracts against five areas of support: for the Typhoon Availability Service on BAE Systems; for the propulsion availability service on Rolls-Royce; for Avionics via the NATO Eurofighter and Tornado Management Agency; and for international Technical Support Services, also via the NATO Eurofighter and Tornado Management Agency. Valuable experience has already been gained through the letting of incremental contracts to transform Typhoon support, the first of which was the initial phase of the engine availability contract with Rolls-Royce in 2005.

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

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Typhoon	87	78	-9	0.5%	0.4%
Typhoon Future Capability Programme	44	44	0	9%	9%
Total	**131**	**122**	**-9**	**9.5%**	**9.4%**

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Typhoon	-	16671	-
Typhoon Future Capability Programme	372	444	458

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Typhoon	16671	17526	+855	-54
Typhoon Future Capability Programme	458	436	-22	0
Total	**17129**	**17926**	**+833**	**-54**

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. Typhoon

Date	Variation (£m)	Factor	Explanation
January 2009	+60	Exchange Rate	Changes to planning round assumptions for exchange rates and weakening of the Pound against the Euro and US Dollar during 2008/09 together with the associated impact on cost of capital
January 2009	-72	Technical Factors	Reassessment of Development cost (-£83m). Reassessment of Production cost (+£36m). Cost of Capital resulting from reduced CDEL (-£25m)
January 2009	-42	Budgetary Factors	Saving measures taken in PR09 (-£38m) Cost of Capital resulting from reduced CDEL (-£4m).
Historic	-131	Budgetary Factors	Reduced provision for modifications (-123m). Reduced quantity of Role Equipment(-5m). Cost of Capital resulting from reduced CDEL and accrual profile (-£3m).
Historic	-4	Technical Factors	Development revised cost (+£55m)

Date	Variation (£m)	Factor	Explanation
			as a result of revised assessment of change proposals and risk. Tranche 1 production revised cost (+£50m) as a result of refined assessment of retrofit programme and interoperability modifications. Tranche 2 production revised cost (-£5m) as a result of revised assessment of change proposals. Revised assessment of UK contribution to Eurofighter, EuroJet and NATO Eurofighter and Tornado Management Agency admin costs (+£18m). Cost of Capital resulting from changes to CDEL, asset delivery and accrual profiles identified in Planning Round 08, IRDEL(-£122m).
Historic	+53	Inflation	More accurate calculation of inflation based on advice from NATO Eurofighter and Tornado Management Agency (+£53m).
Historic	-18	Exchange rate	Revised Euro Rate advised for Planning Round 08 (-£18m).
Historic	-36	Technical Factors	Re-assessment of Tranche 2 estimated cost (-£418m). Revised assessment of Tranche 2 aircraft production contract (+385m). Revised assessment for cost of Tranche 2 engine production contract (-£45m). Revised provision for future changes to production standards (-£35m). Revised estimate for retrofitting early Tranche 1 aircraft to final production standard (+£37m). Revised estimate for the precision air to ground capability (+£42m). Reduction in value of Role equipment required for multi role Squadrons (-£17m) Revised assessment of cost of NATO Eurofighter and Tornado Management Agency and industry management fees (+£25m). Reduction in forecast for cost of release to service support (-£10m).
Historic	-482	Procurement Process	Transfer to Future Capability Programme.
Historic	+442	Technical Factors	Interest on Capital due to revised cost and profiling of cost and deliveries
Historic	+13	Technical Factors	Interest on Capital due to reprofiling of consumption and delivery
Historic	+65	Technical Factors	Correction of omission of transferred cost in MPR05 calculation
Historic	+19	Procurement Process	Industry restructuring.
Historic	-1355	Changed Capability Requirement	Removal of provision for new weapons and Tranche 1 to Tranche 2 retrofit to create separate Typhoon Future Capability project; subject to

Date	Variation (£m)	Factor	Explanation
			approval by Investment Approvals Board (-£377m). Separation of Tranche 3 (-£978m).
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 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 2 & 3 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 Cost of Capital Charge (-£45m). 9 Month deferral of beneficial use date (+£132m Cost of Capital Charge).
Historic	+290	Changed Capability Requirement	Provision for integration of new weapons and sensors not contained within original approval (includes Conventionally Armed Stand-Off Missile, Advanced Anti-Armour Weapon, Low-Level Laser Guided Bomb, thermal imaging airborne laser designator) (+£239m) & the retrofit of Tranche 1 aircraft to Tranche 2 standard (+£117m).Deletion of requirements for gun (-£32m), 1500L fuel tank (-£16m), CRV7 Rocket (-£2m) & Air Launched Anti Radiation Missile (-£21m). Conventionally Armed Stand-Off Missile integration assets (+£5m).
Historic	-13	Budgetary Factors	Reprofiling of expenditure, reducing asset balances and thereby reducing Cost of Capital Charge (-£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	Procurement Process	Reprofiling and adjustment of anticipated Tranches 2 and 3 Airframe, Equipment and Engine prices (+£103m). Introduction of benefits to be assumed from planned implementation of SMART Procurement processes (-£165m).

Date	Variation (£m)	Factor	Explanation
			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 Process	German withdrawal from certain equipments (+£106m).Reorientation Development Assurance Programme to bridge gap between Development and Production Investment (+£28m); extension of Integrated Logistic Support programme (+£45m); Eurofighter/Eurojet GmbH management costs (+£30m); contract price increases (+£87m); risk provision (+£117m).
Historic	+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 Cost of Capital Charge resulting from changes in accounting treatment of the delivery of assets (+£27m). A redefinition of Beneficial Use of Typhoon has resulted in the Defence Procurement Agency incurring additional 1 year's Cost of Capital Charge on development expenditure (+£222m). Difference in variation figures due to revision of Cost of Capital Charge (£-92m).
Net Variation	**+855**		

B.3.1.2. Typhoon Future Capability Programme

Date	Variation (£m)	Factor	Explanation
January 2009	+7	Exchange Rate	Changes to planning round assumptions for exchange rates and weakening of the Pound against the Euro and US Dollar during 2008/09 together with the associated impact on cost of capital
July 2008	-7	Technical Factors	Reduction in cost due to reprofiling of activity into later years reflecting latest programme forecast.
Historic	-8	Technical Factors	Reduction in CDEL achieved at contract negotiation (-£2m). Reduction in Cost of Capital due to reduced CDEL and more robust forecast accrual (-£6m)
Historic	-14	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (not to exceed) estimates at Main Gate
Net Variation	**-22**		

B.3.2. Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	
Typhoon	None
Typhoon Future Capability Programme	None

B.4. Unit production cost

Description	Unit production costs (£m)		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
Typhoon	-	69.7[13]	232	232
Typhoon Future Capability Programme[14]	-	-	-	-

B.5. Performance against approved Support/PFI Cost

Description	Approved Cost (£m)	Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Typhoon	13100	13100	0	0

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

Date	Variation (£m)	Factor	Reason for Variation
-	-	-	-
Net Variation	**0**		

B.5.2. Operational Impact of Support/PFI Cost Variations

Description	
	-

C. Section C: Timescale

C.1. Duration of the Assessment Phase

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

C.2. Planned/Actual Boundaries for introduction of the Capability

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

[13] 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.

[14] The project has been classified as a Development programme and as such there is no Unit Production Cost

C.3. In Service Date

C.3.1. Definition

Description	In Service Date
Typhoon	Date of Delivery of first aircraft to the RAF
Typhoon Future Capability Programme	Delivery to the RAF of autonomous precision Air to Surface military capability in 12 Tranche 2 aircraft

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Typhoon	December 1998	June 2003	+54	-
Typhoon Future Capability Programme	June 2012	June 2012	-	-
Total			**+54**	**-**

C.3.3. Timescale variation

C.3.3.1. Typhoon

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 Process	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**		

C.3.4. Other costs resulting from Timescale variation

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

C.3.5. Operational Impact of In Service Date variation

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

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
Typhoon	When Squadron Pilots begin training they start to contribute to Defence Outputs.
Typhoon Future Capability Programme	IOC is the same as ISD

C.4.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Typhoon	-	July 2005	-	-

C.4.3. Timescale variation – not applicable

C.4.4. Other costs resulting from Timescale variation – not applicable

C.4.5. Operational Impact of Initial Operating Capability variation– not applicable

C.5. Full Operating Capability

C.5.1. Definition

Description	Full Operating Capability
Typhoon	A declaration by Director Equipment Capability (Theatre Airspace) that the full strength Military Capability has been achieved.
Typhoon Future Capability Programme	A declaration by Director Equipment Capability (Theatre Airspace) that Swing-role military capability has been achieved.

C.5.2. Progress Report

Description	Full Operating Capability
Typhoon	On track
Typhoon Future Capability Programme	On track

C.6. Support Contract

C.6.1. Scope of Contract

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

C.6.2. [15]Performance against approved Contract Go-Live Date – not applicable

C.6.3. Performance against approved End of Contract Date – not applicable

C.6.4. Operational Impact of Support Contract variation – not applicable

D. Section D: Performance

D.1. Readiness Levels

D.1.1. Typhoon

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	-	Readiness levels were not required when this project passed through Main Gate.
System	-	System Readiness levels are not currently mandated for approvals

D.1.2. Typhoon Future Capability Programme

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	-	Readiness levels were not measured when this project passed through Main Gate..
System	-	System Readiness levels are not currently mandated for approvals

[15] The Typhoon partnered support strategy comprises the five areas detailed at C.6.1 above which are delivered through several contracts with varying approvals, start and end dates.

D.2. Performance against Lines of Development

Not required for pre-Main Investment Decision Projects				
Line of Development	**Description**	**Forecast**		
		To be met	**At Risk**	**Not to be met**
1. Equipment	Delivery of Typhoon, Typhoon Future Capability Programme and associated weapons.	Yes	Yes	
2. Training	The timely provision of sufficient, capable and motivated personnel to deliver Defence outputs, now and in the future.	Yes	Yes	
3. Logistics	The provision of maintenance and support to the Typhoon fleet, including the operation of support activities such as supply chain.	Yes	Yes	
4. Infrastructure	The acquisition, development, management and disposal of all fixed, permanent buildings and structures, land, utilities and facility management services in support of the Typhoon capability.	Yes		
5. Personnel	The timely provision of sufficient, capable and motivated personnel to deliver the Typhoon capability, now and in the future.	Yes		
6. Doctrine	Doctrine is an expression of the principles by which military forces guide the use of Typhoon.	Yes		
7. Organisation	Relates to the operational and non-operational organisational relationships of people. It typically includes military force structures, MOD civilian organisational structures and Defence contractors providing support.	Yes		
8. Information	Relates to the production and validation of all mission support data for Operations, Trials and Training.	Yes	Yes	
Percentage currently forecast to be met				
In-Year Change				

D.2.1.1. Defence Lines of Development Variation:

Project:

Date	Line of Development	Factor	Reason for Variation
March 2009	Equipment	Budgetary Factors	There are currently insufficient resources available at the right time to integrate weapons systems, such as BVRAAM, onto the Typhoon platform.
March 2009	Training	Changed Capability Requirements	The requirement to provide additional training as a result of exports has adversely affected the UK's Typhoon training capacity.
March 2009	Logistics	Changed Capability Requirements	The requirement to provide additional spares provisioning as a result of exports has adversely affected the UK's ability to deliver full logistics support.
March 2009	Information	Changed Capability Upgrades	The equipment required to generate, verify and validate mission dependent data for elements of the weapons system lags aircraft development by up to 2 years and is currently not fit for purpose. Therefore, mission dependent data production is reliant on interim industry equipment which does not permit validation or verification testing of this data to MOD quality assurance standards until January 2010 at the earliest. Mitigations are in place to manage this risk against Typhoon's tasks over the next 3 years, but this area will require further investment as Typhoon's tasks grow in accordance with extant Defence Planning Assumptions.

Performance against Key Performance Measures

D.2.2. Typhoon

D.2.2.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	1	Take off Distance	Yes	-	-
02	1	Landing Distance	-	-	Yes
03	1,2,3, 5	Attributable Failures per 1000 Flying Hours	Yes	-	-
04	1,3	Life (Flying Hours)	Yes	-	-
05	1	Sustained Minimum Turn Radii at Sea Level, Max Reheat	Yes	-	-
06	1	Maximum speed at sea level	Yes	-	-
07	1	Maximum speed at 36,000 ft	Yes	Yes	-
08	1	Acceleration Time at Sea level from 200 knots to Mach 0.9	Yes	-	-
09	1	Instantaneous Turn Rate Sea Level, Max Reheat	Yes	-	-
10	1	Sustained Turn Rate at Mach 0.9 at 5000ft, Max Dry	Yes	-	-
Percentage currently forecast to be met			90%		
In-Year Change			0		

D.2.2.2. Key Performance Measures Variation

Date	Key Requirement	Factor	Explanation
Historic	KUR 07	Technical Factors	Industry flight trials to extend the aircraft performance envelope have identified acoustic vibration within the engine intake which is causing the intake to resonate at very high speeds. This has potential long term fatigue implications. Trials are ongoing by Eurofighter GmbH as part of the main development contract.
Historic	KUR 02	Technical Factors	Refined modelling carried out to support the 1994 reorientation submission indicated that in the most adverse conditions the specified landing distance would not be achieved – this was accepted by the Equipment Approvals Committee.

D.2.2.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-

D.2.3. Typhoon Future Capability Programme

D.2.3.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	1-8	To engage a defined set of targets.	Yes		
02	1-8	To complete Air Policing duties.	Yes		
03	1-8	To maintain Typhoon rates of effort.	Yes		
04	1-8	To satisfy Communication and Information Systems interoperability requirements.	Yes		
05	1-8	To complete a mission in zero visibility.	Yes		
06	1-8	To complete the mission from zero to bright sunlight.	Yes		
07	1-8	To maintain the Typhoon supportability.	Yes		
Percentage currently forecast to be met			100%		
In-Year Change			-		

D.2.3.2. Key Performance Measures Variation

Date	Key Measure)	Factor	Reason for Variation
-	-	-	-

D.2.3.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-

D.2.4. Support Contract

D.2.4.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
1.	3	Forward Available Fleet: Measured as a percentage of the average number of available Forward Available Fleet aircraft against the planned number of Forward Available Fleet aircraft for the accounting period	Yes	-	-
2.	3	Operational Aircraft: Measured as the number of operational aircraft within the appropriate readiness timescale.	Yes	-	-
3.	2	Pilots: Measured as the percentage of productive pilots available for tasking against the planned number of pilots for the accounting period.	Yes	-	-
Percentage currently forecast to be met			100%		
In-Year Change					

D.2.4.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
-	-	-	-

D.2.4.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-

UK Military Flying Training System

Project

United Kingdom Military Flying Training System

Team Responsible

United Kingdom Military Flying Training System

Single point of accountability for Project Capability

Director Equipment Capability (Theatre Airspace)

Senior Responsible Officer

Capability Manager (Precision Attack)

Number of Projects / Increments 11

Current Status of Projects / Increments

- **Pre Main Investment Decision** - Rear Crew Training Stage 1, Advanced Jet Trainer Interim Support Solution
- **Post Main Investment Decision** - Training System Partner, Advanced Jet Trainer design, development and production, Advanced Jet Trainer Operational Capability 2, Combined Headquarters
- **Other – yet to proceed to Initial Gate stage** - Elementary Flying Training, Rear Crew Stage 2, Rotary Wing, Basic Trainer, Multi-Engine Pilot training

A. Section A: The Project

A.1. The Requirement

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

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

Advanced Jet Trainer

The MOD requires an Advanced Jet Trainer for pre-operational training of fast-jet pilots. This task is currently fulfilled by the Hawk T Mk1 aircraft, which will need to be replaced in the tactical weapons training role from 2010 onwards. The full range of skills required for aircrew to fly front-line aircraft cannot now be gained using the current Advanced Jet Trainer, so more training on operational aircraft has to be undertaken. The introduction of Typhoon and the future Joint Combat Aircraft exacerbates this training gap such that the required standard for Typhoon aircrew is not achievable with Hawk T Mk1.

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

A.2. The Assessment Phase

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

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

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

Advanced Jet Trainer

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

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

Main Gate approval was achieved in August 2006 for a Not to Exceed figure of £497m at 80% confidence, compared to Initial Gate approval of £611m at 90%. This approval set the aircraft build standard, definition of In-Service Date, Key System Requirements and aircraft numbers.

In May 2008 a contract was placed with BAE Systems to extend the initial demonstration and manufacturing phases to deliver the incremental capability (Operational Capability 2). The upgrade is primarily a software upgrade that adds synthetic simulation for radar, Category 5 missiles and surface to air missile threats.

An initial support contract was placed in July 2008 to provide limited support capability for the aircraft at RAF Valley until November 2009 when the main In Service Contract will be let.

A.3. Progress

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

Advanced Jet Trainer
The combined Operational Capability 0 and Operational Capability 2 development programme is progressing to plan. On the production programme, BAE Systems are behind the contract delivery dates but deliveries are well within Approval. Initial Spares have been delivered to RAF Valley, maintainers have been trained, and aircraft are expected in April 2009. Negotiations are underway with BAE Systems to agree the follow on In Service Support contract between November 2009 and April 2015.

A.4. Capability Risks

The current training system is unable to train aircrew to the standard required, or to provide sufficient aircrew to meet manning requirements. Unless the training system is equipped to provide the skills provided, operational effectiveness will be seriously degraded. The legacy training aircraft are fast approaching their Out of Service dates with support being more costly and difficult. There is a belief that from 2007 the current system will be unable to sustain the front line. Additionally the introduction of a tri-service system will enable efficiencies in time and cost, reducing the amount of time in training and increasing aircrew time in active service.

The Advanced Jet Trainer (Increment A) delivers the Phase Four training element into the United Kingdom Military Flying Training System project. There is a dependency on the United Kingdom Military Flying Training System Project for the provision of Ground Based Training Environment to achieve IOC.

A.5. Associated Projects – not applicable

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only	
Description	**Procurement Route**
United Kingdom Military Flying Training System – Assessment Phase	Competition
Increment D – Rear Crew Stage 1	-
Increment E – Rear Crew Stage 2	-
Increment F – Multi-Engine	-
Increment G – Basic Trainer	-
Increment H – Rotary Wing	-
Increment J – Elementary Flying Training	-

Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Increment A - Advanced Jet Trainer	BAE Systems, Warton	Assessment to Demonstration	Cost plus incentive fee, subject to a maximum price	No Acceptable Price No Contract
Increment A - Advanced Jet Trainer	BAE Systems, Warton	Manufacture to In-Service	Target Cost Incentive Fee	No Acceptable Price No Contract
Increment B – Advanced Jet Trainer Operational Capability 2	BAE Systems, Warton	Demonstration to Manufacture	Target Cost Incentive Fee	No Acceptable Price No Contract
Increment C – Training System Partner (United Kingdom Military Flying Training System)	Ascent (consortium Lockheed Martin & VT Group)	Assessment to In Service	PFI	Competition

A.7. Support Strategy

	Contractor	Contract Scope	Contract Type	Procurement Route
United Kingdom Military Flying Training System	-	-	-	-
Increment A – Advanced Jet trainer (Interim Support)	BAE Systems Salmesbury	Provide shakedown flying (flight testing of the aircraft under operational conditions to ensure fit for purpose) and to manage the Initial Provision of Spares package	Target Cost Incentive Fee	Under existing Hawk Integrated Operational Support contract
Increment B – Advanced Jet Trainer Operational Capability 2				
Increment C – Training System Partner (United Kingdom Military Flying Training System Headquarters)	VT Support Services	Provision of Headquarters building	Lease	VT hold Head Lease, MOD have licence to underlet.
Increment D – Rear Crew Stage 1	-	-	-	-
Increment E – Rear Crew Stage 2	-	-	-	-
Increment F – Multi-Engine	-	-	-	-
Increment G – Basic Trainer	-	-	-	-
Increment H – Rotary Wing	-	-	-	-
Increment J – Elementary Flying Training	-	-	-	-

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
United Kingdom Military Flying Training System	39	33	-6	-	-
Increment A - Advanced Jet Trainer	75	75	-	14%	14%
Increment B – Advanced Jet Trainer Operational Capability 2	2	2	-	-	-
Increment C – Training System Partner	-	-	-	-	-
Increment D – Rear Crew Stage 1	-	-	-	-	-
Increment E – Rear Crew Stage 2	-	-	-	-	-
Increment F – Multi-Engine	-	-	-	-	-
Increment G – Basic Trainer	-	-	-	-	-
Increment H – Rotary Wing	-	-	-	-	-
Increment J – Elementary Flying Training	-	-	-	-	-
Total	**116**	**110**	**-6**	**14%**	**14%**

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
United Kingdom Military Flying Training System	6517	-	6893
Increment A - Advanced Jet Trainer	472	490	497
Increment B – Advanced Jet Trainer Operational Capability 2	39	43	43
Increment C – Training System Partner (Advanced Jet Trainer – Ground based training Environment)	340	344	344
Increment D – Rear Crew Stage 1			
Increment E – Rear Crew Stage 2			
Increment F – Multi-Engine			
Increment G – Basic Trainer			
Increment H – Rotary Wing			
Increment J – Elementary Flying Training			

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
United Kingdom Military Flying Training System	-	-	-	-
Increment A - Advanced Jet Trainer	497	458	-39	-9
Increment B - Advanced Jet Trainer Operational Capability 2	43	39	-4	-1
Increment C – Training System Partner (Advanced Jet Trainer – Ground based training Environment)	344	344	-	-
Increment D – Rear Crew Stage 1	-	-	-	-
Increment E – Rear Crew Stage 2	-	-	-	-
Increment F – Multi-Engine	-	-	-	-
Increment G – Basic Trainer	-	-	-	-
Increment H – Rotary Wing	-	-	-	-
Increment J – Elementary Flying Training	-	-	-	-
Total	**884**	**841**	**-43**	**-10**

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. United Kingdom Military Flying Training System

Date	Variation (£m)	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

B.3.1.2. Increment A - Advanced Jet Trainer

Date	Variation (£m)	Factor	Explanation
March 2009	-9	Accounting Adjustments & Redefinitions	Completion of design and development contract (Operational Capability 0) activities at less than forecast (-£6m) adjustment to Indirect RDEL (-£5m) from MPR08 and minor changes to other cost estimates (+£2m)
Historic	-8	Technical Factors	Changes between Production Contract Award and Planning round submission, including changes to production support estimates (-£4m), transfer of risk to UK Military Flying Training System (-£8m), increase in demonstration costs (+£2m) and changes in Cost of Capital (-£1m). Additional Assessment work on an enhancement capability, Operational Capability 2. Including design and development contract increases (+£4m), support costs increases (+£1m) and reduction in the cost of capital (-£2m).
Historic	-15	Procurement Processes	Change in BAE Systems labour rates from approval to the agreed contract price as a result of the agreement of rates between the MOD and BAE Systems.
Historic	-7	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (80%) estimates at Main Gate.
Net Variation	**-39**		

B.3.1.3. Increment B – Advanced Jet Trainer Operational Capability 2

Date	Variation (£m)	Factor	Reason for Variation
November 2008	-1	Technical Factors	Reduction in Contractor estimate for security accreditation
Historic	-2	Accounting Adjustments & Re-definitions	Approved Budgetary Level included the maximum value. As Operational Capability 2 is a Target Cost Incentive Fee arrangement the forecast reflects the target value.
Historic	-1	Accounting Adjustments & Re-definitions	Reduction in project costs reflecting Approval Authority change to Approved Budgetary level (to £43m)
Net Variation	**-4**		

B.3.1.4. Increment C – Training System Partner

Date	Variation (£m)	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

B.3.1.5. Increment D – Rear Crew Stage 1 – not applicable

B.3.1.6. Increment E – Rear Crew Stage 2 – not applicable

B.3.1.7. Increment F – Multi Engine – not applicable

B.3.1.8. Increment G – Basic Trainer – not applicable

B.3.1.9. Increment H – Rotary Wing – not applicable

B.3.1.10. Increment J – Elementary Flying Training – not applicable

B.3.2. Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	
United Kingdom Military Flying Training System	-
Increment A - Advanced Jet Trainer	There is no operational impact from this variation.
Increment B - Advanced Jet Trainer Operational Capability 2	None – the cost variation does not prevent delivery
Increment C – Training System Partner (Advanced Jet Trainer – Ground based training Environment)	None – the Training System Partner is a firm priced deal over 25 years with the interest rate set at Financial Close.
Increment D – Rear Crew Stage 1	-
Increment E – Rear Crew Stage 2	-
Increment F – Multi-Engine	-
Increment G – Basic Trainer	-
Increment H – Rotary Wing	-
Increment J – Elementary Flying Training	-

B.4. Unit production cost

Description	Unit production costs (£m)		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
United Kingdom Military Flying Training System	-	-	-	-
Increment A - Advanced Jet Trainer	13.1	12.7	28	28
Increment B – Advanced Jet Trainer Operational Capability 2	-	-	-	-
Increment C – Training System Partner (Advanced Jet Trainer – Ground based training Environment)	-	-	-	-
Increment D – Rear Crew Stage 1	-	-	-	-
Increment E – Rear Crew Stage 2	-	-	-	-
Increment F – Multi-Engine	-	-	-	-
Increment G – Basic Trainer	-	-	-	-
Increment H – Rotary Wing	-	-	-	-
Increment J – Elementary Flying Training	-	-	-	-

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

Description	Approved Cost	Forecast cost	Variation	In-Year Variation
United Kingdom Military Flying Training System	-	-	-	-
Increment A - Advanced Jet Trainer (Interim Support)	8	2	-6	-1
Increment B - Advanced Jet Trainer Operational Capability 2	-	-	-	-
Increment C – United Kingdom Military Flying Training System (Training System Partner and Headquarters)	307	306	-1	+1
Increment D – Rear Crew Stage 1	-	-	-	-
Increment E – Rear Crew Stage 2	-	-	-	-
Increment F – Multi-Engine	-	-	-	-
Increment G – Basic Trainer	-	-	-	-
Increment H – Rotary Wing	-	-	-	-
Increment J – Elementary Flying Training	-	-	-	-
Total	**315**	**308**	**-7**	**-**

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

B.5.1.1. United Kingdom Military Flying Training System

Date	Variation (£m)	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

B.5.1.2. Increment A – Advanced Jet Trainer (Interim Support)

Date	Variation (£m)	Factor	Reason for Variation
September 2008	-1	Technical Factors	Reduction in contract cost at the point of incorporation.
Historic	-5	Technical Factors	Provision for BAES accrual not required.
Net Variation	**-6**		

B.5.1.3 Increment B – Advanced Jet Trainer Operational Capability 2

Date	Variation (£m)	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

B.5.1.4 Increment C – United Kingdom Military Flying Training System (Training System Partner and Headquarters)

Date	Variation (£m)	Factor	Reason for Variation
March 2009	+2	Procurement Processes	Option to delay infrastructure rebuild leads to additional costs being built in for future years.
November 2008	-1	Technical Factors	Costs to refurbish building ready for occupation, less than forecast.
Historic	-2	Procurement Processes	Delays in securing the building.
Net Variation	**-1**		

B.5.1.5 Increment D – Rear Crew Stage 1 – not applicable

B.5.1.6 Increment E – Rear Crew Stage 2 – not applicable

B.5.1.7 Increment F – Multi Engine – not applicable

B.5.1.8 Increment G – Basic Trainer – not applicable

B.5.1.9 Increment H – Rotary Wing – not applicable

B.5.1.10 Increment J – Elementary Flying Training – not applicable

B.5.2. Operational Impact of Support/Service/PFI Cost Variations – not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
United Kingdom Military Flying Training System	July 2013	September 2003	118
Increment A – Advanced Jet Trainer	August 2006	November 2004	21
Increment B – Advanced Jet Trainer Operational Capability 2	February 2008	November 2004	39
Increment C – Training System Partner (Advanced Jet Trainer Ground Based Training Environment – Ready For Training Use (RFTU) 1 & 2)	February 2008	September 2003	53
Increment D – Rear Crew Stage 1	-	-	-
Increment E – Rear Crew Stage 2	-	-	-
Increment F – Multi Engine	-	-	-
Increment G – Basic Trainer	-	-	-
Increment H – Rotary Wing	-	-	-
Increment J – Elementary Flying Training	-	-	-

C.2. Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
United Kingdom Military Flying Training System	-	-	-
Increment A – Advanced Jet Trainer	April 2010	September 2010	February 2010
Increment B – Advanced Jet Trainer Operational Capability 2	-	-	-
Increment C – Training System Partner (Advanced Jet Trainer Ground Based Training Environment – Ready For Training Use (RFTU) 1 & 2)	-	-	July 2010
	-	-	September 2010
Increment D – Rear Crew Stage 1	-	-	-
Increment E – Rear Crew Stage 2	-	-	-
Increment F – Multi Engine	-	-	-
Increment G – Basic Trainer	-	-	-
Increment H – Rotary wing	-	-	-
Increment J – Elementary Flying Training	-	-	-

C.3. In Service Date

C.3.1. Definition

Description	In Service Date
United Kingdom Military Flying Training System	-
Increment A –Advanced Jet Trainer	ISD is defined as the date where Hawk 128 can be used for the development of the future Phase 4 training syllabus. This will require Initial Logistic Support Date to be achieved, delivery of four aircraft to Operational Capability 0 standard, six pilots converted to type and at least a Part Task Trainer.
Increment B – Advanced Jet Trainer Operational Capability 2	Operational Capability 2 is an incremental part of the design and development of the Hawk T Mk2. As a software upgrade to the aircraft systems, Operational Capability 2 has no specific ISD but instead contributes to the overall Full Operating Capability of the Hawk T Mk 2.
Increment C – United Kingdom Military Flying Training System (Advanced Jet Trainer Ground Based Training Environment)	There are two approved Ready for Training Use dates. Ready For Training Use 1 is for provision of a Part Task Trainer device to support the Advanced Jet Trainer In Service date. Ready For Training Use 2 is for the provision of Infrastructure at RAF Valley.
Increment D – Rear Crew Stage 1	-
Increment E – Rear Crew Stage 2	-
Increment F – Multi Engine	-
Increment G – Basic Trainer	-
Increment H – Rotary Wing	-
Increment J – Elementary Flying Training	-

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
United Kingdom Military Flying Training System	-	-	-	-
Increment A - Advanced Jet Trainer	February 2010	July 2010	+5	+8
Increment B - Advanced Jet Trainer Operational Capability 2	-	-	-	-
Increment C – United Kingdom Military Flying Training System (Advanced Jet Trainer Ground based training Environment)	July 2010	April 2010	-3	+8
	September 2010	November 2010	+2	+8
Increment D – Rear Crew Stage 1	-	-	-	-
Increment E – Rear Crew Stage 2	-	-	-	-
Increment F – Multi Engine	-	-	-	-
Increment G – Basic Trainer	-	-	-	-
Increment H – Rotary Wing	-	-	-	-
Increment J – Elementary Flying Training	-	-	-	-
Total			**+4**	**+24**

C.3.3. Timescale variation

C.3.3.1. United Kingdom Military Flying Training System

Date	Variation	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

C.3.3.2. Increment A - Advanced Jet Trainer

Date	Variation (months)	Factor	Explanation
March 2009	+8	Technical Factors	Re-planning by Training System Partner of Ready For Training Use dates for Ground Based Training Environment as a result of delay in Training System Partner Contract Award.
Historic	+4	Technical Factors	Risk increase in late delivery of a dependency resulting in a four month slip to the ISD noted at Main Gate.
Historic	-7	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (80%) estimates at Main Gate.
Net Variation	**+5**		

C.3.3.3. Increment B – Advanced Jet Trainer Operational Capacity 2

Date	Variation (months)	Factor	Explanation
-	-	-	-
Net Variation	**-**		

C.3.3.4. Increment C Ready for Training Uses Date 1– United Kingdom Military Flying Training System (Advanced Jet Trainer Ground based training Environment)

Date	Variation (months)	Factor	Explanation
March 2009	+8	Procurement Processes	Re-planning by Training System Partner of Ready For Training Use 1 for Ground Based Training Environment as a result of delay in Training System Partner Contract Award.
Historic	-6	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (70%) dates for Ground Based Training Environment Ready For Training Use 1 at Main Gate Business Case
Net Variation	**+2**		

C.3.3.5. Increment C Ready for Training Uses Date 2– United Kingdom Military Flying Training System (Advanced Jet Trainer Ground based training Environment)

Date	Variation (months)	Factor	Explanation
March 2009	+8	Procurement Processes	Re-planning by Training System Partner of Ready For Training Use 2 for Ground Based Training Environment as a result of delay in Training System Partner Contract Award.
Historic	-11	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (75%) dates for Ground Based Training Environment Ready For Training Use 2 in the Main Gate Business case.
Net Variation	-3		

C.3.3.6. Increment D – Rear Crew Stage 1 – not applicable

C.3.3.7. Increment E – Rear Crew Stage 2 – not applicable

C.3.3.8. Increment F – Multi Engine – not applicable

C.3.3.9. Increment G – Basic Trainer – not applicable

C.3.3.10. Increment H – Rotary Wing – not applicable

C.3.3.11. Increment J – Elementary Flying Training – not applicable

C.3.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
Increment A - Advanced Jet Trainer	Historic	-4	Procurement Processes	Reflects the anticipated change in BAE Systems estimates for supporting Hawk 128
Increment A - Advanced Jet Trainer	Historic	+4	Budgetary Factors	Additional cost of further support to Hawk T Mk1 Training Fleet
Total	**-**	**0**	**-**	**-**

C.3.5. Operational Impact of In Service Date variation

Description	
United Kingdom Military Flying Training System	-
Increment A - Advanced Jet Trainer	There is no operational impact as the Hawk T Mk1 Out of Service Date has been extended such that the continuity of Flying training will be maintained.
Increment B - Advanced Jet Trainer Operational Capability 2	-
Increment C – United Kingdom Military Flying Training System (Advanced Jet Trainer Ground based training Environment)	-
Increment D – Rear Crew Stage 1	-
Increment E – Rear Crew Stage 2	-
Increment F – Multi Engine	-
Increment G – Basic Trainer	-
Increment H – Rotary Wing	-
Increment J – Elementary Flying Training	-

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
United Kingdom Military Flying Training System	-
Increment A - Advanced Jet Trainer	Operational Capability is defined as the point where the first ab-initio (no previous flying training) student training on Hawk-128 can commence. This will require ISD plus delivery of the Ground Based Training Environment (two Full Mission Simulators), Full Syllabus Development complete, sufficient Instructors trained, and Squadron/Maintenance Infrastructure delivered and accepted
Increment B - Advanced Jet Trainer Operational Capability 2	Operational Capability 2 is an incremental part of the design and development of the Hawk T Mk2. Consequently it has no IOC but contributes to FOC.
Increment C – United	The Advanced Jet Trainer Ground Based Training Environment, Ready

Kingdom Military Flying Training System (Advanced Jet Trainer Ground based training Environment)	For Training Use 2 contributes to the IOC of Increment A.
Increment D – Rear Crew Stage 1	-
Increment E – Rear Crew Stage 2	-
Increment F – Multi Engine	-
Increment G – Basic Trainer	-
Increment H – Rotary Wing	-
Increment J – Elementary Flying Training	-

C.4.2. Progress against approved Dates – not applicable

C.4.3. Timescale variation – not applicable

C.4.4. Other costs resulting from Timescale variation – not applicable

C.4.5. Operational Impact of Initial Operating Capability variation

Description	
United Kingdom Military Flying Training System	-
Increment A - Advanced Jet Trainer	There is no operational impact as the Hawk T Mk1 Out of Service Date has been extended such that the continuity of Flying training will be maintained.
Increment B - Advanced Jet Trainer Operational Capability 2	-
Increment C – United Kingdom Military Flying Training System (Advanced Jet Trainer Ground based training Environment)	-
Increment D – Rear Crew Stage 1	-
Increment E – Rear Crew Stage 2	-
Increment F – Multi Engine	-
Increment G – Basic Trainer	-
Increment H – Rotary Wing	-
Increment J – Elementary Flying Training	-

C.5. Full Operating Capability

C.5.1. Definition

Description	Full Operating Capability
United Kingdom Military Flying Training System	-
Increment A - Advanced Jet Trainer	Full Operating Capability will occur when all student courses are being trained on the Hawk-128 aircraft at the Operational Capability 2 standard.
Increment B - Advanced Jet Trainer Operational Capability 2	Full Operating Capability will occur when all student courses are being trained on the Hawk-128 aircraft at the Operational Capability 2 standard.
Increment C – United Kingdom Military Flying Training System (Advanced Jet Trainer Ground based training Environment)	-
Increment D – Rear Crew Stage 1	-
Increment E – Rear Crew Stage 2	-
Increment F – Multi Engine	-
Increment G – Basic Trainer	-
Increment H – Rotary Wing	-
Increment J – Elementary Flying Training	-

C.5.2. Progress Report

Description	Full Operating Capability
United Kingdom Military Flying Training System	-
Increment A - Advanced Jet Trainer	FOC is dependent upon delivery of the Advanced Jet Trainer Ground Based Training Environment and Infrastructure under the main Training System Partner agreement.
Increment B - Advanced Jet Trainer (Operational Capability 2)	FOC is dependent upon delivery of the Advanced Jet Trainer Ground Based Training Environment and Infrastructure under the main Training System Partner agreement.
Increment C – United Kingdom Military Flying Training System (Advanced Jet Trainer Ground based training Environment)	Training System Partner programme plan in place. IPT plan to incorporate Authority dependencies to be completed by end March 2009.
Increment D – Rear Crew Stage 1	-
Increment E – Rear Crew Stage 2	-
Increment F – Multi Engine	-
Increment G – Basic Trainer	-
Increment H – Rotary Wing	-
Increment J – Elementary Flying Training	-

C.6. Support/Service/PFI Contract

C.6.1. Scope of Support/Service/PFI Contract

Description	
United Kingdom Military Flying Training System	-
Increment A - Advanced Jet Trainer	To provide shakedown flying (flight testing of the aircraft under operational conditions to ensure fit for purpose) and management of Initial Spares package.
Increment B - Advanced Jet Trainer (Operational Capability 2)	-
Increment C – United Kingdom Military Flying Training System (Training System Partner and Headquarters)	To provide a combined headquarters building for MOD and Ascent (the Training System Partner).
Increment D – Rear Crew Stage 1	-
Increment E – Rear Crew Stage 2	-
Increment F – Multi Engine	-
Increment G – Basic Trainer	-
Increment H – Rotary Wing	-
Increment J – Elementary Flying Training	-

C.6.2. Performance against approved Support/Service/PFI Contract Go-Live Date

Description	Approved Date	Actual/Forecast Date	Variation (months)	In-Year Variation (months)
United Kingdom Military Flying Training System	-	-	-	-
Increment A - Advanced Jet Trainer (Initial Support)	-	July 2008	-	-
Increment B - Advanced Jet Trainer Operational Capability 2	-	-	-	-
Increment C – United Kingdom Military Flying Training System (Training System Partner and Headquarters)	March 2008	November 2008	+8	+8
Increment D – Rear Crew Stage 1	-	-	-	-
Increment E – Rear Crew Stage 2	-	-	-	-
Increment F – Multi Engine	-	-	-	-
Increment G – Basic Trainer	-	-	-	-
Increment H – Rotary Wing	-	-	-	-
Increment J – Elementary Flying Training	-	-	-	-

Increment C Go-Live Date Variation

Date	Variation (months)	Factor	Reason for Variation
April 2008	+8	Procurement Processes	Negotiations for a Headquarters Building lease were delayed when the landlord opted to negotiate with a higher bidder.
Net Variation	**-**		

C.6.3. Performance against approved End of Support/Service/PFI Contract Date

Description	Approved Date	Actual/Forecast Date	Variation (months)	In-Year Variation (months)
United Kingdom Military Flying Training System	-	-	-	-
Increment A - Advanced Jet Trainer	-	-	-	-
Increment B - Advanced Jet Trainer Operational Capability 2	-	-	-	-
Increment C – United Kingdom Military Flying Training System (Training System Partner and Headquarters)	March 2013	November 2013	+8-	+8
Increment D – Rear Crew Stage 1	-	-	-	-
Increment E – Rear Crew Stage 2	-	-	-	-
Increment F – Multi Engine	-	-	-	-
Increment G – Basic Trainer	-	-	-	-
Increment H – Rotary Wing	-	-	-	-
Increment J – Elementary Flying Training	-	-	-	-

C.6.3.1. End of Contract Date Variation

Date	Variation (months)	Factor	Reason for Variation
United Kingdom Military Flying Training System	-	-	-
Increment A - Advanced Jet Trainer	-	-	-
Increment B - Advanced Jet Trainer Operational Capability 2	-	-	-
Increment C – United Kingdom Military Flying Training System (Training System Partner and Headquarters)	+8	Procurement Processes	Negotiations for a Headquarters Building lease were delayed when the landlord opted to negotiate with a higher bidder.
Increment D – Rear Crew Stage 1	-	-	-
Increment E – Rear Crew Stage 2	-	-	-
Increment F – Multi Engine	-	-	-
Increment G – Basic Trainer	-	-	-
Increment H – Rotary Wing	-	-	-
Increment J – Elementary Flying Training	-	-	-
Net Variation	**+8**		

C.6.4. Operational Impact of Support/Service/PFI Support Contract variation – not applicable

D. Section D: Performance

D.1. Readiness Levels

D.1.1. United Kingdom Military Flying Training System

Readiness Levels		
Readiness Area	**At Main Gate Level**	**Comments**
Technology	-	Readiness levels were not measured when this project passed through Main Gate.
System	-	System Readiness levels are not currently mandated for approvals

D.1.2. Increment A – Advanced Jet Trainer

Readiness Levels		
Readiness Area	**At Main Gate Level**	**Comments**
Technology	8	
System	4	7

D.1.3. Increment B – Advanced Jet trainer Operational Capability 2

Readiness Levels		
Readiness Area	**At Main Gate Level**	**Comments**
Technology	3	
System	4	

D.1.4. Increment C Training System Partner

Readiness Levels		
Readiness Area	**At Main Gate Level**	**Comments**
Technology	-	Readiness levels were not measured when this project passed through Main Gate.
System	-	System Readiness levels are not currently mandated for approvals

D.1.5. Increment D – Rear Crew Stage 1 – not applicable

D.1.6. Increment E – Rear Crew Stage 2 – not applicable

D.1.7. Increment F – Multi Engine – not applicable

D.1.8. Increment G – Basic Trainer – not applicable

D.1.9. Increment H – Rotary Wing – not applicable

D.1.10. Increment J – Elementary Flying Training – not applicable

D.2. Performance against Lines of Development

Line of Development	Description	Forecast		
		To be met	At Risk	Not to be met
1. Equipment	Aircraft, Initial Provisioning Ground Support Equipment Ground Based Training Environment.	Yes	Yes	
2. Training	Training Service Provider on contract August 2008	Yes		
3. Logistics	Spares and maintenance support	Yes		
4. Infrastructure	Involves Authority dependencies at RAF Valley	Yes		
5. Personnel	Transition will place additional demands on instructor cadre	Yes		
6. Doctrine	Concept Employment and Concept Use in place. Concept Operations in production	Yes		
7. Organisation	Division of Responsibility	Yes		
8. Information	Defence Information Infrastructure (Future)	Yes		
Percentage of those measured currently forecast to be met		100%		
In-Year Change				

D.2.1.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
January 2009	Equipment	Technical Factors	Data drop (technical information to support development of Ground Based Training Environment) delays from BAE Systems.

D.3. Performance against Key Performance Measures

D.3.1. United Kingdom Military Flying Training System

D.3.1.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
1	-	United Kingdom Military Flying Training System shall be able to design the training for selected Tri-Service personnel to meet defined standards.	Yes	Yes	-
2	-	United Kingdom Military Flying Training System shall be able to inculcate Tri-Service personnel with military ethos throughout their periods of training.	Yes	Yes	-
3	-	United Kingdom Military Flying Training System shall be able to provide for progressive implementation of new training systems without any shortfall to the required throughput of trained aircrew to the Operational Conversion Units.	Yes	Yes	-
4	-	United Kingdom Military Flying Training System shall be able to deliver trained selected Tri-Service personnel to Operational Conversion Units who meet the required input standards.	Yes	Yes	-
5	-	United Kingdom Military Flying Training System shall be able to deliver trained selected Tri-service personnel to Operational Conversion Units in the required quantities.	Yes	Yes	-
6	-	United Kingdom Military Flying Training System shall be able to deliver trained selected Tri-service personnel to Operational Conversion Units in the required timescales.	Yes	Yes	-
7	-	United Kingdom Military Flying Training System shall be able to reallocate the capacity of the system to react to requirement changes at minimum cost and time.	Yes	Yes	-
8	-	United Kingdom Military Flying Training System shall be able to ensure the system is sustainable for a period of at least 25 years from the date of Initial Service Provision.	Yes	Yes	-
Percentage currently forecast to be met			100%		
In-Year Change			-		

D.3.1.2. Key Performance Measures Variation

Date	Key Measure	Factor	Reason for Variation
March 2009	1-8	Technical Factors	Work to develop realistic and achievable plans for the remainder of the United Kingdom Military Flying Training System increments is ongoing. Risk will remain against all the system-wide KPMs until these plans are fully mature.

D.3.1.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation

D.3.2. Increment A - Advanced Jet Trainer

D.3.2.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01		SR-396 The System shall be powered by a jet engine or engines	Yes	-	-
02		SR-475 The System platform shall incorporate primary flying controls that are fully operable from both cockpits.	Yes	-	-
03		SR-513 The System platform shall incorporate a Stores Management System to allow the selection, firing/release and jettison of simulated weapon.	Yes	-	-
04		SR-558 The System platform shall present Artificial Intelligence radar data to allow search, location, tracking and engagement of real, simulated and synthetic airborne targets.	-	-	Yes
05		SR-604 The System platform shall perform representative Basic Fighter Manoeuvres.	Yes	-	-
06		SR-649 The System platform shall complete a low level evading route of at least 45 mins at a speed of at least 420 knotts.	Yes	-	-
07		SR-636 The System platform shall present automatic steering for planned attacks on surface targets involving target position correction in-flight and updating of the targeting system to ensure accurate attacks.	Yes	-	-
08		SR-677 To the maximum extent possible, the System shall embody technology transparency in order to accommodate Platform upgrades without redesign of functionally unrelated areas.	Yes	-	-
09		SR-998 The platform shall be Reliable and Maintainable.	Yes	-	-
Percentage currently forecast to be met			89%		
In-Year Change					

D.3.2.2. Key Performance Measures Variation

Date	Key Requirement	Factor	Explanation
Historic	04	Technical	At Main gate the KPMs were endorsed noting that the operational capability of the aircraft would be delivered incrementally. Following further assessment work KPM 4 was revised to reflect the new requirement. This was endorsed in Operational Capability 2 approval. The revised KPM 4 is forecast to be met.

D.3.2.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-

D.3.3. Increment B – Advanced Jet Trainer Operational Capability 2

D.3.3.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01	-	SR961 The system platform present threats from simulated airborne emitters generated by "real" aircraft on a Radar Warning Receiver display with associated visual & audio warnings.	Yes	-	-
02	-	SR 1003 The system platform shall select simulated radar guided missiles via a Short Messaging System interface.	Yes	-	-
03	-	SR962 The system shall represent the effects of correct radar countermeasure employment by causing the attacking radar or system to break lock.	Yes	-	-
04	-	SR-513 The System platform shall incorporate a Stores Management System to allow the selection, firing/release and jettison of simulated weapon.	Yes	-	-
05	-	SR-558 The System platform shall present Artificial Intelligence radar data to allow search, location, tracking and engagement of real, simulated and synthetic airborne targets.	-	-	Yes
Percentage currently forecast to be met			80%		
In-Year Change			-		

D.3.3.2. Key Performance Measures Variation

Date	Key Measure)	Factor	Reason for Variation
Historic	04	Technical	At Main gate the KPMs were endorsed noting that the operational capability of the aircraft would be delivered incrementally. Following further assessment work KPM 4 was revised to reflect the new requirement. This was endorsed in Operational Capability 2 approval. The revised KPM 4 is forecast to be met.

D.3.3.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-

D.3.4. Increment C – Training System Partner

D.3.4.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
			-	-	-
Percentage currently forecast to be met			-		
In-Year Change			-		

D.3.4.2. Key Performance Measures Variation

Date	Key Measure)	Factor	Reason for Variation
-	-	-	-

D.3.4.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-

D.3.5. Increment D – Rear Crew Stage 1 – not applicable

D.3.6. Increment E – Rear Crew Stage 2 – not applicable

D.3.7. Increment F – Multi engine – not applicable

D.3.8. Increment G – Basic Trainer – not applicable

D.3.9. Increment H – Rotary Wing – not applicable

D.3.10. Increment J – Elementary Flying Training – not applicable

Watchkeeper

Project

Watchkeeper

Team Responsible

Unmanned Air Systems Project Team

Single point of accountability for Project Capability

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

Senior Responsible Officer

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

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Post Main Investment Decision** - Watchkeeper

A. Section A: The Project

A.1. The Requirement

Watchkeeper will provide the operational commander with a 24 hour, all weather, intelligence, surveillance, target acquisition and reconnaissance capability supplying accurate, timely and high quality imagery to support decision making. The system will consist of unmanned air vehicles, sensors, data links and ground control stations. Watchkeeper is planned to be delivered through an incremental programme to allow the system to benefit from both existing and developing sensors and air vehicle technology.

A.2. The Assessment Phase

Watchkeeper is a consolidation of the Sender and Spectator projects. Initial Gate approval was received for Sender in November 1999 and approval for a joint Assessment Phase for both projects was given in July 2000.

The acquisition strategy has been based on selecting Unmanned Air Vehicle systems to suit a defined capability requirement rather than an air vehicle-centred approach. Through evaluation and system concept demonstration, the Assessment Phase has driven down technical and schedule risks and derived the whole life costs associated with the proposed options. User and System Requirements were identified and revalidated. Trade-off activity was undertaken, taking full account of the impact across all Lines of Development and supported by balance of investment studies.

Alternative acquisition options have been considered. 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. There is continuing dialogue with and between allied nations on matters of requirement definition, technology, operational experience and acquisition. The need for significant system integration with the emerging Network Enabled Capability requirements led the Defence Procurement Agency and the potential contractors to adopt an incremental approach to delivery. This approach also supports the Force Readiness Cycle which provides for a phased uplift of capability at discrete intervals.

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

Following a competitive process, Thales (UK) was announced as preferred bidder in July 2004. The programme completed the Assessment Phase of the acquisition cycle in July 2005, when Main Gate approval was given to proceed to the Demonstration and Manufacture phase.

A.3. Progress

In July 2005, following an international competition, Thales (UK) was awarded the Watchkeeper Demonstration and Manufacture phase contract as prime contractor. Major project milestones completed to date include the System Design Review in December 2005, the Preliminary Design Review in July 2006 and the Critical Design Review of the air vehicle in December 2006. The System Critical Design Review was conducted in May 2007 and finalised in September 2007 with the completion of the de-icing Critical Design Review

.

Watchkeeper's maiden flight took place on 16 April 2008 in Israel and was followed by the successful achievement of the Automatic Take Off & Landing System demonstration in July 2008. The programme is on target to progress capability to the UK at the end of 2009, where test and evaluations will be conducted at Parc Aberporth in South Wales. Negotiations to ensure that Watchkeeper Initial Operating Capability remains on schedule have jointly been identified and successfully contracted. Watchkeeper Support Solution is expected to be on contract by the end of 2009.

A.4. Capability Risks.

Watchkeeper replaces the capability previously provided by Pheonix Unmanned Air Vehicle which reached its Out of Service Date in April 2008. The Hermes 450 Unmanned Air Vehicle has been contracted on a service based provision to provide continued capability and cover an Urgent Operational Requirement in Iraq and Afghanistan prior to Watchkeeper being delivered into service. If the capability is not acquired, UK forces in Multi National Division (South East) will face a critical shortfall in the provision of formation level persistent Intelligence, Surveillance, Target Acquisition & Reconnaissance

A.5. Associated Projects

Description	Critical to achievement of IOC	
	Project Title	Forecast IOC
Watchkeeper	Bowman and Common Battlefield Application Toolset, Digitisation Battlespace Land Infrastructure and Platform Battlefield Information System Application Programme 5	2008

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only	
Description	**Procurement Route**
Project	-

Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Watchkeeper	Thales Defence Ltd, Weybridge	Demonstration to Manufacture	Firm price	International competition
Watchkeeper	UAV Tactical Systems Limited, Leicester	Demonstration to Manufacture	Firm Price	Non Competitive

A.7. Support Strategy – not applicable

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Watchkeeper	52	65	+13	6%	7%

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Watchkeeper	881	907	920

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Watchkeeper	920	895	-25	-3

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. Watchkeeper

Date	Variation (£m)	Factor	Explanation
March 2009	-1	Accounting Adjustments and Re-definitions	Reduction of Cost Of Capital figure due to accrual re-profiling.
March 2009	-2	Budgetary Factors	Option taken to change Watchkeeper runway from hardened to grass surface.
Historic	+2	Budgetary Factors	Increase in Cost due to re-profiling of funding as result of Options.
Historic	-10	Accounting Adjustments and Re-definitions	Reduction in Cost of Capital figure due to a revision in accruals included within the forecast cost(-5m). Reduction in Cost of Capital figure due to re-profiling of funding as result of Options(-5m).
Historic	-1	Change in Associated Project	Delay in start date of Defence Estates tasks into 2007/08.
Historic	-13	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (70%) estimates at Main Gate.
Net Variation	**-25**		

B.3.2. Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	
Watchkeeper	The Option was taken to use the existing grass strip at Upavon rather than build a purpose built runway for Watchkeeper. Repetitive use of a grass strip during take-off and landing, whilst training, will increase air vehicle fatigue. Regular deployment to an airfield with a hardened strip and adjacent range facilities such as Boscombe Down or Aberporth is planned to minimise this impact.

B.4. Unit production cost

Description	Unit production costs (£m)		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
Watchkeeper	-	0.943	54	54

B.5. Progress against approved Support/PFI Cost – not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Watchkeeper	July 2005	November 1999	68

C.2. Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Watchkeeper	February 2010	June 2010	February 2011

C.3. In Service Date

C.3.1. Definition

Description	In Service Date
Watchkeeper	One sub-unit trained and equipped to support a Medium Scale of Effort deployment.

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Watchkeeper	February 2011	December 2010	-2	0

C.3.3. Timescale variation

C.3.3.1. Watchkeeper

Date	Variation (months)	Factor	Reason for Variation
March 2009	+2	Procurement Process	Impact of Israeli conflict being assessed.
February 2009	-1	Technical Factors	Risk Mitigation and Technology Readiness Level improvement emanating from trials programme.
January 2009	+1	Technical Factors	Increased risk to software programme and impact of Israel Conflict.
December 2008	-1	Technical Factors	Improved progress with trials in Israel.
December 2008	-3	Technical Factors	De-risked Initial Operating Capability agreement has now been contracted.
October 2008	+1	Technical Factors	Delays to trials programme in Israel.
September 2008	+1	Technical Factors	Delays to trials in Israel.
August 2008	-1	Technical Factors	Reduced duration of Technical Field Trials has reduced risk on Trials Programme.
July 2008	+2	Technical Factors	Trials delays in Israel.
April 2008	-1	Technical Factors	Continued risk Mitigation has improved the forecast.
Historic	-1	Procurement Process	Agreement to provide underpinning design data has reduced airworthiness and Release To Service risks.
Historic	+7	Technical Factors	Changes to the planned trials site have caused delays to Trials and Evaluation (+9m) Alternative Trials arrangements now contracted(-2m).
Historic	-8	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (90%) estimates at Main Gate.
Net Variation	**-2**		

C.3.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
-	-	-	-	-
Total	-	-	-	-

C.3.5. Operational Impact of In Service Date variation

Description	
	-

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
	IOC is the same as that for ISD

C.4.2. Progress against approved Dates – not applicable

C.4.3. Timescale variation – not applicable

C.4.4. Other costs resulting from Timescale variation – not applicable

C.4.5. Operational Impact of Initial Operating Capability variation – not applicable

C.5. Full Operating Capability – not applicable

C.5.1. Definition

Description	Full Operating Capability
Watchkeeper	The complete provision of capability to support one large scale Warfighting operation of duration six months, or a scale of effort of two concurrent operations (one medium Scale Peace Enforcement, one medium Scale Peace Keeping [one duration six months and one enduring]) in different operational theatres, both across the full spectrum of natural and environmental conditions.

C.5.2. Progress Report

Description	Full Operating Capability
Watchkeeper	On target to deliver FOC in ***

C.6. Support Contract – not applicable

D. Section D: Performance

D.1. Readiness Levels

D.1.1. Project

Readiness Levels		
Readiness Area	At Main Gate Level	Comments
Technology	-	Readiness levels were not required when this project passed through Main Gate.
System	-	System Readiness levels are not currently mandated for approvals

D.2. Performance against Lines of Development

Line of Development		Description	Forecast		
			To be met	At Risk	Not to be met
1.	Equipment	The contract with Thales and the attendant Government Furnished Assets will deliver the requisite capability within the approved timescale.	Yes	Yes	-
2.	Training	The Watchkeeper training programme remains deliverable with attendant infrastructure and manpower in line with deliverable requirements.	Yes	Yes	
3.	Logistics	Internal Defence Equipment & Support Investment Board scrutiny is underway to put in place a Business Case for Investment Approvals Board submission. A coherent strategy has been agreed, is being pursued and will be in place to meet Initial Operating Capability.	Yes	Yes	-
4.	Infrastructure	All Initial Operating Capability dependant infrastructure is in place with minor building works required at Upavon and some facilities for later build at Larkhill.	Yes	Yes	
5.	Personnel	Establishment table for 32 Regiment Royal Artillery endorsed and internal restructuring underway.	Yes	-	-
6.	Doctrine	Draft Concept of use issued. Tactics, Techniques and Procedures to be developed during UK trials.	Yes	-	-
7.	Organisation	Regimental structure has been established and the roles and equipment scaling agreed. This includes Technical Assistance support.	Yes	-	-
8.	Information	Bowman deployment at IOC has been agreed, with equipment provision agreed with field army. Provision of Interactive Electronic Technical Publications and training are being vigorously pursued.	Yes	Yes	-
	Percentage of those measured currently forecast to be met			100%	
	In-Year Change			-	

D.2.1.1. Defence Lines of Development Variation

Date	Line of Development	Factor	Reason for Variation
March 2009	Equipment	Technical Factors	Testing and evaluation of the contractor deliverable system is at risk for a number of reasons, but the current phase of trials is due for completion on schedule. The contributing risks include recent activities in Israel and resources dedicated to test and evaluation by sub contractors not being as they should to ensure delivery of scheduled test and evaluation. Issues are further compounded by

			the maturity of the client server software (which impacts upon test and evaluation). Trials mitigation strategy is under review. Mitigation action for the software was taken as part of the overall de-risking Initial Operating Capability package.
March 2009	Training	Technical Factors	Training facility building in place with internal infrastructure being integrated for delivery on time. User revised conversion programme agreed with Thales. Courseware development remains an area of concern and is dependent upon the successful review and delivery of the data modules
March 2009	Logistics	Procurement Process	The scope of the Contract Logistic Support contract is currently under negotiation. However the Project Team is confident that a solution will be reached and contract placed with the Prime Contractor.
March 2009	Infrastructure	Technical Factors	Technical accommodation available. Runway options progressing with plans to use both Upavon (tactical strip) and Boscombe Down (tarmac strip). Change proposal for additional airspace over Salisbury Plain Training Area going through Public Consultation.
March 2009	Information	Technical Factors	The requirement to disseminate Watchkeeper product across the battlespace has grown beyond the capacity of Bowman. There is now a need to interoperate with the deployed UK Core network (Defence Information Infrastructure Future Deployed, Defence Information Infrastructure Current Deployed, Falcon, Cormorant and Reacher) to allow exploitation via the Dabinett program and Urgent Operational Requirements that will provide early capability such as Attacker. This is put at risk by dependency on other programmes as well as a required change to the Watchkeeper approach to exchange of information. The need to ensure that Watchkeeper Full Motion Video will be accessible by Remote Video Terminal users is being addressed by a Planning Round enhancement option to achieve initial delivery by the fourth quarter of 2010.

D.3. Performance against Key Performance Measures

D.3.1. Project

D.3.1.1. Performance against Key Performance Measures

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
01		Watchkeeper shall have at least a 95% probability of detecting all five of five static NATO standard tank targets within an open area of 4 km^2 in no more than eight minutes.	Yes	-	-
02		In support of unit operations Watchkeeper shall have at least a 95% probability of identifying all five of five static NATO standard tank targets within a 4 km^2 area within 30 minutes of receipt of tasking.	Yes	-	-
03		To concurrently support two Medium Scale operations (one of six months duration and one enduring), Watchkeeper shall provide imagery and imagery intelligence concurrently to at least eight Headquarters comprising a total of at least 10 Tasking Users throughout the battlespaces of two disparate operational theatres.	Yes	-	-
04		Watchkeeper shall satisfy its tasking, world-wide, day and night, under climatic conditions A2, A3, B1, B2, B3, C0 and C1 as defined in Defence Standard 00-35 and Defence Standard 00-970.	Yes	-	-
05		Watchkeeper shall satisfy its tasking, world-wide, day and night, on surface targets located at up to 4000m altitude Above Mean Sea Level International Standard Atmosphere.	Yes	-	-
06		Watchkeeper shall be transportable by two C130J Mk 4 to support theatre entry force operations for one Battlefield Misson.	Yes	-	-
07		Watchkeeper shall not constrain the tactical mobility of its Users.	Yes	-	-
08		Watchkeeper shall satisfy its tasking for 24 hours per day for a period of at least 14 days with an Operational Availability of at least 85%.	Yes	-	-
09		Watchkeeper shall enable training for War fighting Operations.	Yes	-	-
10		Watchkeeper shall exchange data with Bowman and dependent Battlefield Information System Applications to at least NATO interoperability level 3 (seamless sharing of data).	-	-	Yes
11		Watchkeeper shall provide the location of static targets to within an absolute targeting error not exceeding 10m in the horizontal circular error (at 90% confidence levels).	Yes	-	-
Percentage currently forecast to be met			91%		
In-Year Change			-		

D.3.1.2. Key Performance Measures Variation

Date	Key Requirement	Factor	Explanation
December 2008	KPM 11	Technical Factors	No longer considered at risk - Quantities of Electro Optical/Infra-Red sensors with laser range finders have now been re-negotiated at nil additional cost, to the satisfaction of all.
Historic	KPM 10	Technical Factors	The data exchange in the KPM is of a tactical nature (i.e. reports on tasking, intelligence, airspace etc), rather than Unmanned Air Vehicle control at NATO Interoperability level 3 which is not required or sensible and requires amendment – the revised KPM is currently on target to be met.
Historic	KPM 11	Technical Factors	Quantities of Electro Optical/Infra-Red sensors with laser range finders require re-negotiation. Minor risk, expected to be resolved for Initial Operating Capability.

D.3.1.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
KUR 10	March 2009	Not To be met	No operational impact

D.3.2. Support Contract – not applicable

Part C – Pre-Main Investment Decision

Dabinett

Team Responsible

Intelligence Surveillance Target Acquisition and Reconnaissance Systems Engineering and Programme Organisation

Single point of accountability for Project Capability

Director Equipment Capability Intelligence Surveillance Target Acquisition and Reconnaissance

Senior Responsible Officer

Director Equipment Capability Intelligence Surveillance Target Acquisition and Reconnaissance

Number of Projects / Increments 1

Current Status of Projects / Increments

- Pre Main Investment Decision - Dabinett

A. Section A: The Project

A.1. The Requirement

Defence requires an effective and efficient end-to-end Intelligence, Surveillance, Target Acquisition and Reconnaissance service including a UK-commanded deep and persistent collection capability. This will provide actionable information and intelligence to inform decision makers through a capability that is interoperable in a joint, inter-agency, and multi-national environment, in support of an agreed range of Military Tasks out to 2035. Dabinett has identified capability gaps in two areas: Direct, Process and Disseminate relating to the integrated delivery of Intelligence; and Deep and Persistent relating to collection of intelligence. The Dabinett programme was established in order to significantly improve the efficiency, effectiveness, quality and timeliness of intelligence delivered to the commander primarily by making better use of legacy systems but also through the introduction of new capability across all the Defence Lines of Development.

Background

Dabinett was originally scoped as a replacement to the Canberra PR9 aircraft used for tactical reconnaissance and photographic mapping. In 2005 the Acquisition for Network Enabled Capability and Dabinett Programme Integrated Project Team was formed to deliver the £1.3bn project. Lessons identified from theatre at this time, continued to focus on the inefficient use of the Intelligence, Surveillance, Target Acquisition and Reconnaissance inventory. Furthermore, analysis from Operation Telic indicated that information was already available to answer 80- 90% of the collection requirements raised. This led to more emphasis being placed on Dabinett to improve the Intelligence, Surveillance, Target Acquisition and Reconnaissance process, Direct, Collect, Process and Disseminate rather than merely replacing a tactical reconnaissance and photographic mapping aircraft. However, the requirement to replace the Canberra remained and was, therefore, satisfied by funding being released from Dabinett to part-fund the acquisition of the Reaper Unmanned Air Vehicle.

A.2. The Assessment Phase

The Programme is in a continuous Assessment Phase that will initiate a number of projects, with their own lifecycles, over a series of phases to deliver the full capability identified for Dabinett.

Background

In May 2005, the Dabinett Concept Phase began. Initially this was planned to result in the delivery of a single Initial Gate Business Case for a monolithic Category A project. As the complexity of Dabinett became clear, it was apparent that the Dabinett capability would need to be managed through a programme approach that would coherently deliver a series of projects across all Defence Lines of Development. This change of approach and an extension to the Concept Phase was approved in June 2007. One aspect of this new approach was the adoption of a programme that would remain in continual assessment delivering benefits through a variety of projects. Initial Gate for the Programme was approved by the Investment Approvals Board in March 2008. This approval launched Dabinett, and the Concept Phase for the first set of projects was also initiated.

The Programme consists of both equipment and non-equipment Defence Lines of Development projects. Each equipment project is expected to go through a normal equipment project cycle with funding provided from the Dabinett line.

A unique element of the Initial Gate approval was the formulation of the Project Categorisation and Initiation Board. As approved in the Initial Gate Business Case, the establishment of this board will enable all future Dabinett projects to obtain approval to be initiated without the need for a full submission. This mechanism enables a more flexible and efficient approach to delivering the Programme and is intended to sit annually to continue momentum.

A.3. Progress

Initial Gate approval was granted in March 2008 and a programme office was established to provide support and drive forward the Programme in line with the Office of Government Commerce best practice guidance.

The four Phase I projects were initiated with the intention of transferring full project management activities to delivery Integrated Project Teams after the projects had passed through Initial Gate. However, resource restrictions across Defence Equipment and Support resulted in the programme office having to continue with full project management of these activities. This led to a re-scheduling of resources and uplifts to supporting contracts in order to retain the requisite levels of effort necessary to maintain work to the Programme plan.

In October 2008 the inaugural Project Categorisation and Initiation Board was held and saw the initiation of the Phase II projects, to be managed by the programme office Project Managers. This coincided with MOD review of its equipment programme in the light of emerging and changing priorities. This review has prioritised more resources to those capabilities that support current operations and helped bring the defence equipment programme more closely into balance. As part of the review, only one of the four Phase I projects met the immediate requirement for support to current operations. As a result, the Initial Gate Business Cases for the other three, the concept phase for the Phase II projects and the refresh of the contract support to Dabinett's Programme Support Office were put on hold.

In December 2008 the sponsor directed that the programme office revise the Delivery Strategy to the effect that Dabinett will be delivered in three phases, the first of which must deliver by ******* in order to maximise the immediate operational benefit to the Front Line Commands. Phase II is to build on the output delivered in Phase I, thereby minimising the resource expended on developmental effort . This is to be achieved without change to the agreed user requirement or consume additional funds. The prioritisation of capability delivered is to meet the users' requirements based on the Dabinett benefits model.

A.4. Capability Risks

The focus of the Dabinett Programme is on improving the efficiency and effectiveness of the Intelligence Surveillance Target Acquisition and Reconnaissance processes and capabilities. Without Dabinett, collector assets will continue to be tasked to answer requests for Information and Intelligence that already exist within the intelligence community. Dabinett will meet the de-confliction and prioritisation shortfalls of the current UK Intelligence Surveillance Target Acquisition and Reconnaissance capability.

The delivery of an enhanced End to End UK Intelligence Surveillance Target Acquisition and Reconnaissance capability is fundamental to the success of future Military operations. Information and intelligence is essential in all aspects of modern operations and thus provides the bedrock for decision making. Dabinett will ensure that information and intelligence is effectively and efficiently available for exploitation at all levels of command.

A.5. Associated Projects

Description	Critical to achievement of IOC	
	Project Title	Forecast IOC
A secure and coherent information infrastructure for Defence	Defence Information Infrastructure (Future) Secret and Above Secret	***
One assured, fully integrated and efficient core communications network and infrastructure for Defence.	Future Core Networks	

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only	
Description	**Procurement Route**
Contractor support to the Programme Support Office, will be re-competed in 2009.	Competitive
RJD Technology Ltd – Provide technical support to the Joint Mission Support Centre Concept Capability Demonstrator. This will complete in 2009.	Non-competitive
Vega Group – Specifically provide direct support to the Requirement Manager. This will be competed in 2009.	Non-competitive
Communications – Electronics Security Group.	Non competitive
Detica .	Non-competitive

Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Phase 1	-	-	-	-
Phase 2	-	-	-	-
Phase 3	-	-	-	-

A.7. Support Strategy – not applicable

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Programme Support Office (first four years)	8	8	-	-	-

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

Description	Lowest Forecast / Approved (£m)	Budgeted For (Post-Main Investment Decision Projects only)(£m)	Highest Forecast / Approved (£m)
Programme	***	-	-

B.3. Cost of the Demonstration and Manufacture (D&M) Phase – not applicable

B.4. Unit production cost – not applicable

B.5. Progress against approved Support/PFI Cost – not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Programme Support Office (first four years)		March 2008	

C.2. Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Phase 1	***		
Phase 2	***		
Phase 3	***		

C.3. In Service Date – not applicable

C.4. Initial Operating Capability – not applicable

C.5. Full Operating Capability – not applicable

C.6. Support Contract – not applicable

D. Section D: Performance

D.1. Readiness Levels – not applicable

D.2. Performance against Lines of Development – not applicable

D.3. Performance against Key Performance Measures – not applicable

Future Integrated Soldier Technology

Team Responsible

Dismounted Soldier Systems

Single point of accountability for Project Capability

Director Equipment Capability (Ground Manoeuvre)

Senior Responsible Officer

Number of Projects / Increments 2

Current Status of Projects / Increments

- Pre Main Investment Decision - Increment 1A , Increment 1B

A. Section A: The Project

A.1. The Requirement

The Future Integrated Soldier Technology programme aims to integrate both current and emerging key technologies that British dismounted soldiers require for them to maintain their position in the forefront of capability. The programme will ensure the future soldier has equipment that optimises 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. The programme will consider the dismounted soldier as a system, and the eight-man section as a virtual platform. This 'system of systems' approach, demonstrated successfully during the Concept Phase, will fundamentally improve the capabilities of troops engaged in dismounted close combat. It will deliver an integrated suite of equipment encompassing the NATO domains of command, control, communications, computers and information, lethality, mobility, survivability and sustainability.

A.2. The Assessment Phase

Initial Gate approval was achieved in August 2001. Four companies submitted tenders for the Assessment Phase prime contract, two of whom were selected to take part in a competitive planning phase starting in August 2002. The selection of Thales UK Ltd as the Assessment Phase prime contractor was announced on 12 March 2003.

A number of factors caused the duration of the Assessment Phase to be extended. Critical trials planned for summer 2004 were delayed by three months due to commitment of troops to operations overseas. Problems were encountered on a subsequent major trial held in autumn 2005, as some systems proved to be short of the required levels of technical readiness and insufficiently robust to allow adequate data to be collected to inform the Main Gate Business Case. Consequently, more time was needed to mature understanding of the requirement and of the final technical solution. Successful Combined Operational Effectiveness and Investment Appraisal trials followed and produced the required data. At the start of 2007/08 work on the main programme was suspended for five months (although the impact on the date of Main Gate was not commensurate) to allow Thales to deliver two Urgent Operational Requirements using technology arising out of Future Integrated Soldier Technology, which will provide an early benefit to troops engaged on current operations.

As a consequence of the problems experienced on the autumn 2005 trials, a new incremental procurement strategy was adopted, allowing technology to be exploited as it matures, thereby de-risking the programme while not losing sight of the aim of an integrated suite of equipment. Each increment will have its own Main Gate approval, preceded by an Assessment Phase, meaning there is now considerably more Assessment work overall in Future Integrated Soldier Technology than was forecast when only a single Main Gate was envisaged. The first increment is divided into two parallel elements, one addressing the area of Surveillance and Target Acquisition (increment 1a), the other looking at command, control, communications, computers and information (increment 1b). Further increments are

anticipated but have not yet been approved at Initial Gate. The Assessment Phase for the first increment includes pre-Main Gate competitions at sub-system level, the results of which will be reflected in the Main Gate Business Cases. Thales are currently under contract until 30 September 2009.

A.3. Progress

Towards the end of 2008 both elements of the first increment were reprofiled, partly in response to operational demand for increased quantities of Surveillance and Target Acquisition equipment, with the result that the Main Gate Business Cases have been amended and revised price quotations obtained from Thales and their supply chain. This has delayed formal submission of the Main Gate Business Cases.

Once each increment has been approved at Main Gate, detailed contractual arrangements will be negotiated with the prime contractor, who will then undertake a programme of demonstration and manufacture resulting in the delivery of equipment. Work on the Assessment Phase of a second increment is expected to commence during 2010, subject to approval.

A.4. Capability Risks

The dismounted close combat environment requires that the individual infantry soldier contribute to a fully complementary, flexible and balanced capability. The Future Integrated Soldier Technology package will permit the dismounted soldier to conduct core functions, 24 hours a day, both rapidly and effectively, in order to defeat the enemy with the weapon systems at his disposal. The Assessment Phase has demonstrated that a suite of capabilities and technologies is required in order to fill the identified capability gaps. Failure to proceed would perpetuate the capability shortfall and the associated operational risk, while also failing to provide a long term solution to the evolving sophistication of the threat to those personnel engaged in dismounted close combat. As a consequence, increased risk would be incurred when embarking on future operations due to Defence being inadequately prepared to meet emerging threats. The dismounted soldier would therefore be severely disadvantaged through this unplanned approach.

A.5. Associated Projects – not applicable

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only				
Description	**Procurement Route**			
Future Integrated Soldier Technology	It is intended that the Assessment Phase prime contractor will continue in that role to deliver the first increment, with competition at sub-contractor level where possible.			
Increment 1A	As above			
Increment 1B	As above			
Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
	-	-	-	-

A.7. Support Strategy

Increment 1a: The preferred support solution for new to service items, subject to Main Gate approval, is a Contractor Logistic Support Asset Availability Service, under which the contractor will be contracted to provide a specified level of equipment availability, although the strategy does recognise that certain solutions may be treated as commodity items. Existing support arrangements for In-Service systems would be extended appropriately. The support contract will commence from the Logistic Support Date and will include spares management and re-supply, obsolescence management, software support, technical documentation, repairs, storage and maintenance.

Increment 1b: The support solution will be determined when the Main Gate Business Case is produced.

	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
	-	-	-	-

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Increments 1A & 1B	26	38	-	-	-
Increments 2 & 3		104	-	-	-
Future Integrated Soldier Technology	**26**[16]	**142**[17]	**+116**	**-**	**-**

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Increment 1A	***	-	***
Increment 1B	***	-	***
Future Integrated Soldier Technology	***	-	***

B.3. Cost of the Demonstration and Manufacture (D&M) Phase – not applicable

B.4. Unit production cost – not applicable

B.5. Progress against approved Support / Service / PFI Cost – not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Future Integrated Soldier Technology	-	August 2001	-
Increment 1A	***	August 2001	***
Increment 1B	***	August 2001	***

C.2. Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Future Integrated Soldier Technology	-	-	-
Increment 1A	***	-	***
Increment 1B	***	-	***

[16] Approval for Assessment Phase 1 only. Due to the incremental nature of this programme, this approval does not include further Assessment Phases.

[17] Represents total forecast cost for Assessment Phases 1-3.

C.3. In Service Date – not applicable

C.4. Initial Operating Capability – not applicable

C.5. Full Operating Capability – not applicable

C.6. Support / Service / PFI Contract – not applicable

D. Section D: Performance

D.1. Readiness Levels – not applicable

D.2. Performance against Lines of Development – not applicable

D.3. Performance against Key Performance Measures – not applicable

Future Rapid Effect System

Team Responsible

Future Rapid Effect System Integrated Project Team

Single point of accountability for Project Capability

Director of Equipment Capability (Ground Manoeuvre)

Senior Responsible Officer

Capability Manager (Battlespace Manoeuvre)

Number of Projects / Increments

Current Status of Projects / Increments

- **Pre Main Investment Decision -** Future Rapid Effect System Utility Vehicle, Future Rapid Effect System Specialist Vehicle

A. Section A: The Project

A.1. The Requirement

The Ministry of Defence has outlined a two track approach to meeting its armoured fighting vehicle requirement. In the short term it has an urgent need to upgrade the current fleet. In the longer term it needs to equip United Kingdom Armed Forces with a medium weight capability that would be able to project power world-wide rapidly. Future Rapid Effect System is the response to this longer-term requirement.

Future Rapid Effect System will deliver a new, medium weight armoured vehicle fleet with higher levels of deployability and survivability than the current fleet, with the potential to grow its capability as new technology becomes available. The current planning assumption is to deliver over 3,000 vehicles. The original requirement was for 1,757 vehicles but this was increased in 2004 under an equipment programme option when the Total Fleet Requirement had been established.

Future Rapid Effect System will be part of a balanced force consisting of Heavy, Medium and Light brigades giving the ability to deploy forces rapidly with higher levels of firepower, protection and mobility than Light Forces can achieve, but with deployability and agility that cannot be achieved by Heavy Forces. The current threat on operations, particularly from rocket propelled grenades, heavy machine guns and mines/improvised explosive devices, has reinforced the need for adequately protected armoured vehicles.

Future Rapid Effect System will replace the Army's obsolescent Saxon, FV 430 and Combat Vehicle Reconnaissance (Tracked) vehicles.

A.2. The Assessment Phase

The Future Rapid Effect System fleet will encompass 16 roles. The total capability is expected to comprise five families of vehicles: Utility, Reconnaissance, Medium Armour, Manoeuvre Support and Basic Capability Utility. An incremental approach to capability delivery is envisaged with an Initial Operating Capability comprising the first elements of the Reconnaissance family followed by a phased approach to delivering the full capability in planned increments thereafter. The initial Assessment Phase was approved in April 2004 and has focused primarily on those roles that will make up the Initial Operating Capability. The Assessment Phase has involved analysing the options for meeting the requirement, managing the programme of technical risk reduction work and developing the acquisition strategy for future phases.

Options for meeting the Utility Vehicle requirement included solutions currently available off the shelf, existing development programmes and new start options. Vehicles currently available off the shelf were assessed to be unable, now or in the future, to carry the weight necessary to meet the Future Rapid Effect System protection requirements. New start options were considered too long and too costly and therefore both off the shelf and new start options were discounted. An assessment of platforms currently in development indicated that they have the potential to operate at the weight necessary to provide

adequate protection. The potential of current development vehicles to meet the Future Rapid Effect System requirement was the basis of our more detailed assessment of the candidate designs in 2007.

The Acquisition Strategy was approved by the Minister of State for Defence Procurement and the Investment Approvals Board in June 2007. The approved approach was to establish an alliance led by the Department, supported by a strong and independent industrial player acting in the role of System of Systems Integrator. The strategy includes a strong competitive element with the Utility Vehicle Design, the System of Systems Integrator and the Utility Vehicle Integrator to be selected by competition.

Regarding the Specialist Vehicle roles of Reconnaissance, Medium Armour, and Manoeuvre Support, emerging findings to date highlight a similar direction of travel, in that pure commercial off the shelf vehicles do not meet the user requirement and new build or the restart of previous programmes such as Tracer would be prohibitively costly and time consuming. Assessment work is therefore directed accordingly and a number of study contracts have been let with industry.

A.3. Progress

Utility Vehicle Design Competition: On 8 May 2008 the Minister of State for Defence Equipment and Support announced that Piranha V had been provisionally selected as the preferred Utility Vehicle Design. However, following senior level discussions with General Dynamics (UK) Ltd, aimed at resolving a number of commercial issues, the Ministry of Defence terminated General Dynamics (UK)'s provisionally preferred bidder status in December 2008. This was announced by the Secretary of State as part of the Equipment Examination announcement on 11 December 2008.

System of Systems Integrator Competition: The contract for the initial phase of System of Systems Integrator support was awarded to the team of Thales and Boeing on 24 January 2008.

Utility Vehicle Integrator competition. The Utility Vehicle Integrator competition has reached the Pre Qualification Questionnaire downselect stage and is held pending decisions on the way forward for the Utility Vehicle programme.

Following the Equipment Examination in December 2008, the equipment priority for the Army shifted from the Utility Vehicle to the Warrior Capability Sustainment Programme and the Future Rapid Effect System Scout/ Reconnaissance Block 1. The impact of the Equipment Examination has delayed the programme. The associated Utility Vehicle expenditure of £133m also supported activities that have developed Future Rapid Effect System requirements. The Department believes this has increased technological maturity and enhanced the project community knowledge and these aspects have been captured/retained for the future benefit of the programme.
The Specialist Vehicle element of the Future Rapid Effect System programme continues to make good progress and secured Investment Approvals Board and Ministerial approval in June 2008 for funding to conduct the Assessment Phase. The Ministry of Defence expects to announce its Acquisition Strategy in the coming months and the programme is expected thereafter to move into the Demonstration Phase of its Acquisition Cycle.

A.4. Capability Risks

Strategic Defence Review New Chapter 2002 and Defence White Paper 2003 set out the need for expeditionary focused, balanced and rapidly deployable medium weight forces. Defence Strategic Guidance 2005 directed that medium forces should be based on Armoured Fighting Vehicles optimised for rapid effect, a theme continued in Defence Strategic Guidance 2008. Medium weight Armoured Fighting Vehicles currently in service are obsolescent and have significant capability shortfalls on operations.

Future Rapid Effect System will deliver a fleet of new medium weight armoured vehicles which will provide better protection, operational mobility and firepower than light forces; but without the logistic footprint of a heavy force. Future Rapid Effect System forces will be effective across the operational spectrum, conducting operations from peacekeeping to war fighting. Future Rapid Effect System equipped forces will form the backbone of the Land component of the Joint Medium Weight Capability and contribute significantly to the Army's Balanced Force.

Failure to proceed would therefore put at risk the timely provision of a new flexible, rapid intervention capability. Concurrently, those in-service vehicles (e.g. Saxon, Combat Vehicle Reconnaissance

(Tracked)) due to be replaced by Future Rapid Effect System would incur increasing support costs and obsolescence.

A.5. Associated Projects – not applicable

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only				
Description	**Procurement Route**			
Future Rapid Effect System Utility Vehicle	Acquisition Programme with full and open competition			
Future Rapid Effect System Specialist Vehicle	Acquisition Programme with full and open competition			
Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
-	-	-	-	-

A.7. Support Strategy – not applicable

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	**Approved Cost (£m)**	**Actual / Forecast Cost (£m)**	**Variation (£m)**	**Post-Main Investment Decision Projects only**	
				Approved cost as a proportion of total estimated procurement expenditure (%)	**Actual Cost as a proportion of total estimated procurement expenditure (%)**
Future Rapid Effect System Assessment Phase	113	182	+69	-	-
Future Rapid Effect System Specialist Vehicles Assessment Phase	109	138	+29	-	-
Total	**222**	**320**	**+98**	**-**	**-**

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

Description	**Lowest Forecast / Approved**	**Budgeted For (Post-Main Investment Decision Projects only)**	**Highest Forecast / Approved**
Future Rapid Effect System Utility Vehicle	***	-	***
Future Rapid Effect System Specialist Vehicles	***		***

B.3. Cost of the Demonstration and Manufacture (D&M) Phase – not applicable

B.4. Unit production cost – not applicable

B.5. Progress against approved Support / Service / PFI Cost – not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Future Rapid Effect System Utility Vehicle	***	May 2004	***
Future Rapid Effect System Specialist Vehicles	***	June 2008	***

C.2. Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Future Rapid Effect System Utility Vehicle	***	-	***
Future Rapid Effect System Specialist Vehicles	***	-	***

C.3. In Service Date - not applicable

C.4. Inital Operating Capability - not applicable

C.5. Full Operating Capability - not applicable

C.6. Support / Service / PFI Contract - not applicable

D. Section D: Performance

D.1. Readiness Levels – not applicable

D.2. Performance against Lines of Development – not applicable

D.3. Performance against Key Performance Measures – not applicable

Helix

Team Responsible

Nimrod

Single point of accountability for Project Capability

Director Equipment Capability - Intelligence Surveillance Target Acquisition & Reconnaissance

Senior Responsible Officer

Director Equipment Capability - Intelligence Surveillance Target Acquisition & Reconnaissance

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Pre Main Investment Decision** - Helix

A. Section A: The Project

A.1. The Requirement

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

A.2. The Assessment Phase

The original concept of the Project was for the procurement of a modern mission system to fit into existing Nimrod R1 aircraft, ground analysis facilities, training facilities and established support solution to the planned Out of Service Date of 2025.

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

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

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

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

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

A.3. Progress

The Assessment Phase is nearing completion. As at March 2009 there are three possible options, the earliest of these options allows for an introduction of capability in ***. It is intended to submit a Main Gate Business Case for approval before ***.

A.4. Capability Risks

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

A.5. Associated Projects – not applicable

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only				
Description	**Procurement Route**			
Helix	Competitive Assessment Phase - expanded to consider other options.			
Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
-	-	-	-	-

A.7. Support Strategy – not applicable

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	**Approved Cost (£m)**	**Actual / Forecast Cost (£m)**	**Variation (£m)**	**Post-Main Investment Decision Projects only**	
				Approved cost as a proportion of total estimated procurement expenditure (%)	**Actual Cost as a proportion of total estimated procurement expenditure (%)**
Helix	44	41	-3	-	-

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

Description	**Lowest Forecast / Approved**	**Budgeted For (Post-Main Investment Decision Projects only)**	**Highest Forecast / Approved**
Helix	***	***	***

B.3. Cost of the Demonstration and Manufacture (D&M) Phase – not applicable

B.4. Unit production cost – not applicable

B.5. Progress against approved Support / Service / PFI Cost – not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Helix		August 2003	

C.2. Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
-	***	-	-

C.3. In Service Date - not applicable

C.4. Initial Operating Capability - not applicable

C.5. Full Operating Capability - not applicable

C.6. Support / Service / PFI Contract - not applicable

D. Section D: Performance

D.1. Readiness Levels – not applicable

D.2. Performance against Lines of Development – not applicable

D.3. Performance against Key Performance Measures – not applicable

Indirect Fire Precision Attack

Project

Indirect Fire Precision Attack

Team Responsible

Indirect Fire Precision Attack Project Team

Single point of accountability for Project Capability

Director Equipment Capability (Deep Target Attack)

Senior Responsible Officer

Indirect Fire Precision Attack Integrated Project Team Leader

Number of Projects / Increments 5

Current Status of Projects / Increments

- **Pre Main Investment Decision** - Loitering Munitions, Guided Shell, Guided Multiple Launcher Rocket System, Large Long Range Rocket
- **Post Main Investment Decision** - Ballistic Sensor Fuzed Munition

A. Section A: The Project

A.1. The Requirement

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

The capability required under Indirect Fire Precision Attack will be delivered through a structured programme of Assessment, Demonstration and Manufacture phases. To support the incremental nature of the programme an overarching Assessment Phase is providing the evidence to support decisions on individual components via a series of Main Gate Business Cases.

The Assessment Phase is indicating that the Indirect Fire Precision Attack capability is likely to be achieved by a mixture of guided rockets, enhanced artillery shells and Loitering Munitions. They will carry a variety of payloads. Indirect Fire Precision Attack munitions will make use of a number of in-service platforms such as the Multiple Launch Rocket System and the AS90 self-propelled howitzer. It is assumed that Loitering Munitions may require their own platform or could use the Multiple Launch Rocket System launcher. The mix of munitions procured under the programme will have a range of In-Service Dates: this multi-solution approach is being managed through an incremental procurement strategy.

A Main Gate Business Case for the first component, a 155mm Ballistic Sensor Fuzed Munition, was approved in July 2007, with a target In Service Date of September 2011. The second component will be the Loitering Munition. Loitering Munitions are unmanned and designed to fly to a re-programmable location and remain in a holding pattern until given a target. They will be controlled by a man-in-the-loop who will have a real-time image of the intended target.

A.2 The Assessment Phase

The Initial Gate Business Case for Indirect Fire Precision Attack was approved in May 2001. Following competition using a Capability Based Questionnaire, an Assessment Phase contract was awarded in May 2002 to a consortium of companies led by BAE Systems Strategic Capability Solutions (now BAE Systems Future Systems). This first Assessment Phase was designed to provide, and iteratively update, a 'Route Map' to achieving the full Indirect Fire Precision Attack capability with recommendations about the type, quantities and mix of munitions.

In line with the approved Indirect Fire Precision Attack strategy for an incremental programme, a series of Assessment Phases will be conducted, each being approved by a separate Review Note. A contract for the second Assessment Phase was placed with the BAE Systems led consortium in January 2007. This included the Loitering Munition Capability Demonstration programme, which completed in December 2008.

In light of the incremental procurement strategy, procurement of components will be approved via a series of Main Gate Business Cases. After each component receives Main Gate approval, it will be managed as a separate programme in its own right. However, each capability will continue to be included in the ongoing operational analysis work, so that the overall mix and quantity of munitions to be procured can be refined as the programme progresses. In the case of Loitering Munitions, further Assessment Phase work is required in the short term which will be delivered as part of the Complex Weapons Assessment Phase. This was approved by the Investment Approvals Board in June 2008.

A contract for the Demonstration and Manufacture of the first component, Ballistic Sensor Fuzed Munition, was placed with Gesellschaft für Intelligente Wirksysteme mbH in September 2007.

A.3 Progress

An information note was submitted on the Ballistic Sensor Fuzed Munition Programme in April 2009 due to a change in the requirement. A review note is planned for submission in summer 2009. A Main Gate submission for Loitering Munitions in planned for ***

A.4 Capability Risks

The impact of not having Indirect Fire Precision Attack is that the Land Component would have no organic capability to attack with precision, targets beyond the range of direct fire weapons such as tanks and anti-tank guided weapons. In this respect Attack Helicopters are considered as direct fire weapons as the helicopter crew have to be able to see the target. This means that the indirect fire systems can only suppress or neutralise enemy forces beyond the range of direct fire weapons by using un-guided munitions. This results in large wastage and a very significant collateral damage problem which is unacceptable. The two benefits of having Indirect Fire Precision Attack, therefore, are the ability to destroy targets that UK Forces could previously only suppress and that UK Forces can do so without causing significant collateral damage. That Indirect Fire Precision Attack is organic to the Land Component is important because of the persistence and responsiveness of organic capabilities. Whilst aircraft can deliver precision weapons against targets beyond the range of direct fire weapons they lack persistence and are generally not responsive; they have to be pre-planned or booked and can only stay on station for a short period.

A.5 Associated Projects – not applicable

A.6 Procurement Strategy

Pre-Main Investment Decision Projects / Increments only	
Description	**Procurement Route**
Increment 2 – Loitering Munitions	Non-competitive contract – Team Complex Weapons
Increment 3 - Guided Shell	Not yet known
Increment 4 - Guided Multiple Launcher Rocket System	Non-competitive as already in-service therefore off the shelf buy
Increment 5 - Large Long Range Rocket	Not yet known

Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Increment 1 – Ballistic Sensor Fuzed Munition	Gesellschaft fur Intelligente Wirksysteme GmbH	Demonstration & Manufacture	Firm Price	International competition

A.7 Support Strategy

-			
Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Increment 1 – Ballistic Sensor Fuzed Munition	Support funding is in place for this programme but this will be handed over to Defence General Munitions Project Team to manage under an existing arrangement as this is a military off the shelf buy. It has therefore been excluded from this Project Summary Sheet.		

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	**Approved Cost (£m)**	**Actual / Forecast Cost (£m)**	**Variation (£m)**	**Post-Main Investment Decision Projects only**	
				Approved cost as a proportion of total estimated procurement expenditure (%)	**Actual Cost as a proportion of total estimated procurement expenditure (%)**
Project – Indirect Fire Precision Attack (Assessment Phase 1)	24	48	-2		
Project – Indirect Fire Precision Attack (Assessment Phase 2)	26				
Increment 1 – Ballistic Sensor Fuzed Munition	-	-	-	-	-
Increment 2 – Loitering Munitions	39	36	-3		
Increment 3 – Loitering Munition Capability Demonstration	23	18	-5		
Total	**112**	**102**	**-10**		

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

Description	**Lowest Forecast / Approved**	**Budgeted For (Post-Main Investment Decision Projects only)**	**Highest Forecast / Approved**
Increment 1 – Ballistic Sensor Fuzed Munition	117	119	122
Increment 2 – Loitering Munitions	***	-	-

B.3. Cost of the Demonstration and Manufacture (D&M) Phase

Description	Approved Cost (£m)	Actual / Forecast cost (£m)	Variation (£m)	In-Year Variation (£m)
Increment 1 – Ballistic Sensor Fuzed Munition	122	106	-16	-
Total	**122**	**106**	**-16**	**-**

B.3.1. Cost Variation against approved Cost of the D&M Phase

B.3.1.1. Increment 1

Date	Variation (£m)	Factor	Reason for Variation
Historic	-13	Technical Factors	Risk reduction work resulted in a reduction in the amount of funding required outside the main contract.
Historic	-3	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (80%) estimate in Main Gate.
Net Variation	**-16**		

B.3.1.2. Increment 2

Date	Variation (£m)	Factor	Reason for Variation
-	-	-	-
Net Variation	**-**		

B.3.2. Operational Impact of Cost Variations of the Demonstration and Manufacture (D&M) Phase

Description	
Increment 1	-
Increment 2	-

B.4. Unit production cost

Description	Unit production costs (£m)		Quantities required	
	At Main Investment Decision	Currently	At Main Investment Decision	Currently
Increment 1 – Ballistic Sensor Fuzed Munition	0.06	0.06	1920	1920

B.5. Performance against approved Support/PFI Cost – not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Project – Indirect Fire Precision Attack (Assessment Phase 1)	-	May 2001	Ongoing
Project – Indirect Fire Precision Attack (Assessment Phase 2)	-	July 2006	Ongoing
Increment 1 – Ballistic Sensor Fuzed Munition	July 2007	-	-
Increment 2 – Loitering Munition	***	June 2008	***
Increment 3 – Loitering Munition Capability Demonstration	-	July 2006	-

C.2. Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Increment 1 – Ballistic Sensor Fuzed Munition	Mar 2011	Sept 2011	Mar 2012
Increment 2 – Loitering Munition	***	-	***

C.3. In Service Date

C.3.1. Definition

Description	In Service Date
Increment 1 – Ballistic Sensor Fuzed Munition	In Service Date can occur when the main capability defined in the contract is assessed as available for operational use. In Service Date will be declared when the agreed quantity of rounds (366) is available to support a medium scale war-fighting operation and a battery of six guns are equipped, sustained and are fully trained to fire Ballistic Sensor Fuzed Munition.

C.3.2. Progress against approved Dates

Description	Approved Date	Actual / Forecast Date	Variation (months)	In-Year Variation (months)
Increment 1 – Ballistic Sensor Fuzed Munition	March 2012	March 2012	0	+3
Total			**0**	**0**

C.3.3. Timescale variation

C.3.3.1. Ballistic Sensor Fuzed Munition

Date	Variation (months)	Factor	Reason for Variation
March 2009	+3	Procurement Strategy	Uncertainty over Review Note approval outlining the way forward for this increment.
Historic	+3	Contracting Process	Delay in contract placement
Historic	-6	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (85%) estimate in Main Gate.
Net Variation	**0**		

C.3.4. Other costs resulting from Timescale variation

Description	Date	£m (+ Cost / - Saving)	Factor	Reason for expenditure or saving
-	-	-	-	-
Total	**-**	**-**	**-**	**-**

C.3.5. Operational Impact of In Service Date variation

Description	
	-

C.4. Initial Operating Capability

C.4.1. Definition

Description	Initial Operating Capability
Increment 1 – Ballistic Sensor Fuzed Munition	Initial Operating Capability is the same as In Service Date.

C.4.2. Progress against approved Dates – not applicable

C.4.3. Timescale variation – not applicable

C.4.4. Other costs resulting from Timescale variation – not applicable

C.4.5. Operational Impact of Initial Operating Capability variation – not applicable

C.5. Full Operating Capability – not applicable

C.5.1. Definition

Description	Full Operating Capability
Increment 1 – Ballistic Sensor Fuzed Munition	Full Operating Capability will be declared when the agreed full quantity of rounds have been manufactured, lot acceptance tested and delivered to the authority.

C.5.2. Progress Report – not applicable

C.6. Support Contract

C.6.1. Scope of Contract

Description	
Increment 1 – Ballistic Sensor Fuzed Munition	This programme when it achieves In Service Date will be delivered to the Defence General Munitions Project Team who will be responsible for the In Service Support. At this time, the funding currently held by the Indirect Fire Precision Attack Team will be transferred.

C.6.2. Performance against approved Contract Go-Live Date – not applicable

C.6.3. Performance against approved End of Contract Date – not applicable

C.6.4. Operational Impact of Support Contract variation – not applicable

D. Section D: Performance

D.1. Readiness Levels – not applicable

D.2. Performance against Lines of Development – not applicable

D.3. Performance against Key Performance Measures

D.3.1. Increment 1 – Ballistic Sensor Fuzed Munition

D.3.1.1. Performance against Key Performance Measures - Key System Requirements

KPM	LOD	Description	Forecast		
			To be met	At Risk	Not to be met
1	-	The fuze shall be induction settable in accordance with STANAG 4369 and AOP22	Yes	-	-
2	-	The maximum range of the munition fired from AS90 39 calibre shall be no less than ***	Yes	-	-
3	-	The munition's sub-munitions shall individually achieve a kill probability at least ***against main battle tanks under normal conditions	Yes	-	-
4		The munition shall be compatible with the UK I-series charge system	Yes	-	-
5		The munition shall be capable of being fired from the UK in-service AS90 39 calibre platform	Yes	-	-
6	-	The munition's calibrated fire control model (data), suitably formatted for integration into the NATO Armaments Ballistic Kernel, shall be supplied	Yes	-	-
7		The munition's data shall be integrated into Fire Control Application	Yes	-	-
8		The munition on delivery to service shall, when fired, have a probability of correct dispensing and functioning of all submunitions of no less than 90%	Yes		
9		The munition shall be supplied in packaging conforming to Def Stan 08-8, Packaging of Ammunition and Explosives	Yes		
10		The munition shall be capable of use in the following climatic categories (as defined by STANAG 2895): A2, A3, B1, B2, C0 & C1	Yes		
11		Having failed to find a valid target, the submunitions shall each have a self-destruct function	Yes		
12		The munition shall be capable of being rendered safe in accordance with UK render safe procedures	Yes		
13		The munition shall be Insensitive Munition compliant as defined in STANAG 4439 and AOP39.			Yes
Percentage currently forecast to be met			92%		
In-Year Change			-		

D.3.1.2. Key Performance Measures Variation

Date	Key Measure)	Factor	Reason for Variation
-	-	-	-

D.3.1.3. Operational Impact of variation

KPM	Date	Status	Operational impact of variation
-	-	-	-

Joint Military Air Traffic Services

PROJECT SUMMARY SHEET

Project

Joint Military Air Traffic Services

Team Responsible

Air Command and Control Systems Delivery Team

Single point of accountability for Project Capability

Director Equipment Capability (Command, Control & Information Infrastructure)

Senior Responsible Officer

-

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Pre Main Investment Decision** - Joint Military Air Traffic Services

A. Section A: The Project

A.1. The Requirement

The Joint Military Air Traffic Services project seeks to sustain the provision of Terminal Air Traffic Management at MOD Airfields and Air Weapons Ranges through the provision of Mode S Secondary Surveillance Radar data, addressing equipment obsolescence in the air traffic inventory and through the more efficient delivery of support services. The project will provide air traffic services to military and civilian aircraft arriving at, departing from and operating within the immediate vicinity, or confines of, MOD aerodromes (United Kingdom and overseas permanent and deployed) and at air weapons ranges.

A.2. The Assessment Phase

The Assessment Phase of the Joint Military Air Traffic Service is being conducted in two parts. The first part (Assessment Phase 1) was approved on 17 January 2008. Its purpose is essentially to both express the provision of military air traffic services in output terms through the development of an output based specification and to determine the most appropriate and cost effective delivery solution for this service. In addition, the project is capturing data on the condition of the existing air traffic control infrastructure (control towers, radar towers, radio masts etc) as well as the number of people employed in supporting the service. This aspect of the Assessment Phase is planned to culminate in the submission of a Review Note in October 2009.

This approval is planned to initiate part two of the Assessment Phase enabling formal industry engagement. The intention is to use the Competitive Dialogue process to determine the preferred bidder and solution to deliver the services defined in the Output Based Specification within the delivery framework developed during Assessment Phase 1.

A.3. Progress

Initial Gate Approval was obtained 17 January 2008 and Assessment Phase 1 is on track to complete on time and cost with the submission of the Review Note Industry Engagement in October 2009. This will seek the approval of an additional £6M to provide specialist technical support and external assistance to the competitive dialogue process.

A.4. Capability Risks

Much of the equipment that currently provides air traffic services to MOD airfields and ranges is in excess of 20 years old and is obsolete. Increasing regulation of UK airspace requires the implementation of Mode S Secondary Surveillance Radar. Failure to invest in this capability will ultimately reduce the level of air traffic service provision to these locations. This will reduce the ability of all three Services to train and fly and hence the ability to project air power whenever it is required.

A.5. Associated Projects – not applicable

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only	
Description	**Procurement Route**
Project	Public Private Partnership such as Strategic Partnering. Delivery partner and solution to be sought through competitive dialogue.
Assessment Phase 1	Value for money assessment of Public Private Partnership option.
Assessment Phase 2	Solution determination and selection of preferred bidder.

Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**

A.7. Support Strategy

The current planning assumption is for a full Air Traffic Management Service Provision where the provider determines and is responsible for the composition and delivery of the support element required to maintain the service, with an embedded military core to support deployed operations.

	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
	-	-	-	-

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	**Approved Cost (£m)**	**Actual / Forecast Cost (£m)**	**Variation (£m)**	**Post-Main Investment Decision Projects only**	
				Approved cost as a proportion of total estimated procurement expenditure (%)	**Actual Cost as a proportion of total estimated procurement expenditure (%)**
Assessment Phase 1	3	2	-1		

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

Description	**Lowest Forecast / Approved**	**Budgeted For (Post-Main Investment Decision Projects only)**	**Highest Forecast / Approved**
Joint Military Air Traffic Services	***		***

B.3. Cost of the Demonstration and Manufacture (D&M) Phase – not applicable

B.4. Unit production cost – not applicable

B.5. Progress against approved Support/Service/PFI type arrangements Costs – not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase - REST COM.

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Assessment Phase	***	January 2008	***

C.2. Planned/Actual Boundaries for Introduction of Capability

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Joint Military Air Traffic Services	***	-	-

C.3. In Service Date - not applicable

C.4. Initial Operating Capability - not applicable

C.5. Full Operating Capability - not applicable

C.6. Support / Service / PFI Contract - not applicable

D. Section D: Performance

D.1. Readiness Levels – not applicable

D.2. Performance against Lines of Development – not applicable

D.3. Performance against Key Performance Measures – not applicable

Maritime, Airborne, Surveillance & Control

Team Responsible

Sea King Integrated Project Team

Single point of accountability for Project Capability

Director Equipment Capability (Intelligence Surveillance Target Acquisition & Reconnaissance)

Senior Responsible Officer

Capability Manager (Precision Attack)

Number of Projects / Increments 3

Current Status of Projects / Increments

- **Pre Main Investment Decision** - Mode S for Sea King Mk7, Sea King Mk7 Capability Sustainment Programme, Maritime Airborne Surveillance & Control Future Solution

A. Section A: The Project

A.1. The Requirement

The requirement is to continue the provision of airborne surveillance and battle management capability for Carrier Strike (delivery of full offensive air effort, at medium scale, from the sea) as currently provided by the Sea King Mk7 Airborne Surveillance and Control variant. This capability will support naval operations and shipping, especially the Future Aircraft Carrier; and land operations in littoral regions, e.g. amphibious landings. The system will conduct surveillance of air and surface targets, with the concurrent battle management capability allowing the command of assigned assets such as future UK Joint Combat Aircraft. This capability enables the protection of UK assets from attack and enhances the ability to conduct offensive operations.

A.2. The Assessment Phase

The project passed Initial Gate in 2005, entering a planned two stage Assessment Phase, for which the Initial Gate approved Assessment Phase Stage 1.

Assessment Phase Stage 1 studied a focused set of solutions, having deselected a number at Initial Gate. Stage 1 included an assessment of extending the service of the current Sea King Mk7 aircraft. This extension of service was considered in conjunction with the adoption of a new airframe and mission system combination, as opposed to the previous programme assumption for the transfer of the Sea King Mk7 mission system to a new build rotary wing airframe. Assessment Phase 1 concluded that an incremental approach to acquisition offered the most cost effective route to the delivery of the capability, which was formalised during the Department's Planning Round 2008 process. The first increment of the capability will extend the life of the Sea King Mk7 and maintain the operational capability of the mission system via a Capability Sustainment Programme. Assessment Phase Stage 1 was approved at an expected cost of £10m and a Not to Exceed cost of £13m, however due to the application of an innovative contracting structure and the non-emergence of anticipated risks, Stage 1 was concluded for £7m.

Assessment Phase 2, which received approval to proceed in mid 2008 (although funding release was subsequently delayed), will de-risk the Sea King Mk7 Capability Sustainment Programme to a Main Gate in 2010 at a cost of £7m. As a result of the decision to revise the programme assumptions in Planning Round 2008, activity against the second increment of the capability to replace the Sea King Mk7 was put on hold. A further Assessment Phase Stage 3 will be required early in the next decade to consider the route to delivery for the Future Solution of the capability.

A.3. Progress

Comparative studies were made of the options to deliver the capability. The options ranged from extending the service of the existing Sea King Mk7, through migrating the Sea King Mk7 mission system to a new build rotary wing platform, to replacing the Sea King Mk7 with a new platform, mission system, and radar. This analysis concluded that the most cost effective delivery route is to extend the Sea King Mk7 to an Out of Service Date of 2022 and introduce a Future Solution at this time. A Capability Sustainment Programme for the Sea King Mk7 is planned, with a Main Gate in 2010, and an IOC in 2014. It is then planned that a Future Solution comprising a new platform, mission system, and radar will replace the Sea King Mk7 in 2022.

A.4. Capability Risks

The Maritime Airborne Surveillance and Control capability provides Force Protection for the Carrier Strike (delivery of full offensive air effort, at medium scale, from the sea) and Amphibious Task Groups from which the capability operates by providing an assured surveillance capability to detect inbound threats to the Task Group. Without this capability the Task Group will have reduced situational awareness of air and surface targets at range, and will have reduced warning time to counter any inbound threats.

A.5. Associated Projects – not applicable

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only	
Description	**Procurement Route**
Increment A: Mode S for Sea King Mk7	Single source to existing airframe (AgustaWestland) and mission system (Thales) suppliers.
Increment B: Sea King Mk7 Capability Sustainment Programme	Single source to existing airframe (AgustaWestland) and mission system (Thales) suppliers.
Increment C: Maritime Airborne Surveillance & Control Future Solution	Competitive selection.

Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Project	-	-	-	-
Increment A: Mode S for Sea King Mk7	-	-	-	-
Increment B: Sea King Mk7 Capability Sustainment Programme	-	-	-	-
Increment C: Maritime Airborne Surveillance & Control Future Solution	-	-	-	-

A.7. Support Strategy

Sea King Mk7 support is currently managed through the Sea King Integrated Operational Support contract with AgustaWestland as Prime Contractor, with Selex and Thales providing the other elements of the Industry Alliance team. The Sea King Integrated Operational Support contract will support the platform out to March 2018, with a price negotiation for the second pricing period due in 2013. The Sea King Mk7 Capability Sustainment Programme will determine the impact of the new aircraft modifications on the extant support contract and also determine the most likely support solution for the period 2018-2022.

	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
Project	-	-	-	-

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Assessment Phase 1 (Maritime Airborne Surveillance and Control)	13	7	-6	-	-
Assessment Phase 2 (Mode S for Sea King Mk7)	1	1	0	-	-
Assessment Phase 2 (Sea King Mk7 Capability Sustainment Programme)	7	7	0	-	-
Total	**21**	**15**	**-6**	**-**	**-**

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Increment A: Mode S for Sea King Mk7	***	-	-
Increment B: Sea King Mk7 Capability Sustainment Programme	***	-	-
Increment C: Maritime Airborne Surveillance & Control Future Solution	***	-	-

B.3. Cost of the Demonstration and Manufacture (D&M) Phase –not applicable

B.4. Unit production cost –not applicable

B.5. Progress against approved Support Costs–not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Assessment Phase 1 (Maritime Airborne Surveillance and Control)	-	July 2005	-
Assessment Phase 2 (Mode S for Sea King Mk7)	***	September 2008	***
Assessment Phase 2 (Sea King Mk7 Capability Sustainment Programme)	***	June 2008	***

C.2. Planned / Actual Boundaries for Introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast/ Approved
Increment A: Mode S for Sea King Mk7	***		-
Increment B: Sea King Mk7 Capability Sustainment Programme	***		-
Increment C: Maritime Airborne Surveillance and Control Future Solution	***		-

C.3. In Service Date - not applicable

C.4. Initial Operating Capability - not applicable

C.5. Full Operating Capability - not applicable

C.6. Support / Service / PFI Contract - not applicable

D. Section D: Performance

D.1. Readiness Levels – not applicable

D.2. Performance against Lines of Development – not applicable

D.3. Performance against Key Performance Measures – not applicable

Military Afloat Reach and Sustainability

Project

Military Afloat Reach and Sustainability

Team Responsible

Afloat Support

Single point of accountability for Project Capability

Director Equipment Capability (Expeditionary Logistics & Support)

Senior Responsible Officer

Director Equipment Capability (Expeditionary Logistics & Support)

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Pre Main Investment Decision** - Military Afloat Reach and Sustainability

A Section A: The Project

A.1. The Requirement

The Military Afloat Reach and Sustainability programme will provide afloat logistic support to UK and allied maritime task groups at sea and their amphibious components operating ashore. Although not strictly a one-for-one replacement programme, new vessels will incrementally replace much of the existing Royal Fleet Auxiliary flotilla, as ships enter and leave service respectively.

The Military Afloat Reach and Sustainability capability is designed to support three distinct types of maritime task group: Carrier Strike, Littoral Manoeuvre and Maritime Security. The demands of each differ significantly, but are all composed of three common elements:

Bulk Consumables - fuel and potable water which are transferred by hose.
Non-bulk consumables - Food, ammunition and general stores. Solid cargo which is transferred in unit loads, either ship-ship or ship-shore.
Forward Aviation Support - The provision of helicopter basing and operating facilities to accommodate some of the task group's aircraft or to provide operational flexibility during a campaign.

An early decision was taken to base the system solution on three classes of ship:
Fleet Tanker - Bulk consumables and Forward Aviation Support for all task groups. Limited non-bulk consumables capacity to support the small Maritime Security groups.
Fleet Solid Support Ship - Non-bulk consumables and Forward Aviation Support, optimised for the Carrier Strike group.
Joint Sea-Based Logistics Ship - Non-bulk consumables and Forward Aviation Support, optimised for the Littoral Manoeuvre group.

The Military Afloat Reach and Sustainability capability will be in service until around 2047 and as such the solution will be designed to accommodate the requirements of current and known future force structures, including, Type 45, the Queen Elizabeth Class aircraft carriers, Joint Strike Fighter and Future Surface Combatant.
The capability to be provided is essential to the evolving logistic support needs of the Royal Navy. The proposed procurement profile of Military Afloat Reach and Sustainability ships has been matched to this need, the initial focus being on the double-hulled Fleet Tankers which are required in order to comply with International Maritime environmental standards.

A.2. The Assessment Phase

The Military Afloat Reach and Sustainability programme received formal approval to enter its Assessment Phase in July 2005 based on an Alliance strategy.

Between March and September 2007, the Military Afloat Reach and Sustainability procurement strategy was reviewed to reflect the need to procure the Fleet Tanker element of the programme in order to comply with International Maritime legislation. The Alliance strategy and the competition to choose an Integrator was terminated in May 2007. In December 2007, Ministerial approval was given for a new strategy based on a 'Competitive and Adaptive' approach and an open competition was launched for the design and build of up to six Fleet Tankers. In addition to this approval, Minister approved the designation and delegation of the Heavy Replenishment at Sea project as a separate Category D project. Fleet Solid Support and Joint Sea Based Logistics ships will now form a separate strategy to be considered with wider UK industrial interests.

The approved budget for the Military Afloat Reach and Sustainability Assessment Phase is £44m and the current forecast for the Assessment Phase, including early design and requirement work for Fleet Solid Support and Joint Sea Based Logistics vessels ******* (Fleet *****,** Fleet Solid Support*******and Joint Sea Based Logistics *******.

Due to the planned phased nature of the project, support and oversight for Fleet Tankers and further design work on subsequent classes will take place after the Fleet Tanker main investment decision, and the current total forecast for this later work is ******* (Fleet Tanker *******Fleet Solid Support *******and Joint Sea Based Logistics vessels *******bringing the total expected cost of Assessment work and later design for future classes to *******

A.3. Progress

In May 2008, the Secretary of State for Defence announced that four bidders had been down selected for the next stage of the competition. They were Navantia (Spain); Fincantieri (Italy), Hyundai Heavy Industries (Republic of Korea) and a consortium led by BVT (UK) with BMT and Daewoo Shipbuilding and Marine Engineering (Republic of Korea). Initial bids were received.

Between May and December 2008 the Department carried out an examination of its equipment programme. As a result of this examination the Secretary of State for Defence announced that there was scope for considering alternative approaches for the Military Reach and Sustainability programme likely to involve the deferral of the Fleet Tanker element. The competition was formally closed in March 2009. A review of the requirements and procurement strategy is underway.

A.4. Capability Risks

The Military Afloat Reach and Sustainability programme will deliver future Royal Fleet Auxiliary ships, replacing the current capability, to support the future Royal Navy. Without the support of these ships, the ability of the Royal Navy to carry out global operations would be severely restricted. Double hulled naval tankers are required as soon as is practicable to comply with international maritime legislation; the Royal Fleet Auxiliary currently operates two double hulled tankers and six single hulled tankers under exemption from legislation. All Royal Fleet Auxiliary ships are maintained to UK regulatory and classifications standards; should this certification be withdrawn for single hulled tankers, their operation would cease leading to operational limitations. Foreign nations may decide to deny port access for single hulled tankers as a result of an environmental incident. Programming for operations takes account of environmental restrictions as well as limitations on ships due to their material state; some of the older ships being unable to operate in colder climates due to their hulls being made of 'brittle steel'. These ships will be replaced as part of this programme.

A.5. Associated Projects – not applicable

A.6. Procurement Strategy – not applicable

A.7. Support Strategy – not applicable

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
Military Afloat Reach and Sustainability	44	***	***	-	-

B.2. Cost Boundaries for Demonstration and Manufacture Phase

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Military Afloat Reach and Sustainability	***		***

B.3. Cost of the Demonstration and Manufacture (D&M) Phase – not applicable

B.4. Unit production cost – not applicable

B.5. Performance against approved Support Cost – not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Military Afloat Reach and Sustainability	***	July 2005	-

C.2. Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Military Afloat Reach and Sustainability	***		***

C.3. In Service Date - not applicable

C.4. Initial Operating Capability - not applicable

C.5. Full Operating Capability - not applicable

C.6. Support / Service / PFI Contract - not applicable

D. Section D: Performance

D.1. Readiness Levels – not applicable

D.2. Performance against Lines of Development – not applicable

D.3. Performance against Key Performance Measures – not applicable

Search & Rescue Helicopter

PROJECT SUMMARY SHEET

Project

Search & Rescue Helicopter

Team Responsible

Search and Rescue Helicopter Project Team

Single point of accountability for Project Capability

Director (Battlespace Manoeuvre)

Senior Responsible Officer

Head of Air & Littoral Manoeuvre Capability & Maritime and Coastguard Agency Director of Corporate Support

Number of Projects / Increments 1

Current Status of Projects / Increments

- Pre Main Investment Decision - Search and Rescue Helicopter

A. Section A: The Project

A.1. The Requirement

Search and Rescue – Helicopter is a joint Ministry of Defence and Maritime and Coastguard Agency (an Agency of the Department for Transport) programme. It seeks to replace the current Search and Rescue capability, provided around the UK (and potentially the Falkland Islands) by the Royal Air Force and the Royal Navy, using Sea King Helicopters, and through the Maritime and Coastguard Agency service contract. It is planned to introduce the new service progressively in the next decade, when the Maritime and Coastguard Agency contract expires and the Sea Kings come to the end of their planned lives. Following Ministry of Defence and Department for Transport Ministerial approvals to enter Assessment Phase 2, a competition under the PFI, was launched in May 2006 under European Union procurement regulations using the competitive dialogue process.

A.2. The Assessment Phase

The Search and Rescue – Helicopter Assessment Phase was approved in two Phases – Assessment Phase 1 and Assessment Phase 2. Assessment Phase 1 considered the range of procurement options as outlined in the Search and Rescue – Helicopter Initial Gate approval, resulting in a recommendation for a joint Ministry of Defence/Maritime and Coastguard Agency competitive PFI procurement strategy. Ministry of Defence Ministerial approval for Assessment Phase 2 to implement the joint Ministry of Defence/Maritime and Coastguard Agency competitive PFI procurement strategy was gained via the Future Rotorcraft Capability Initial Gate Business Case and followed by Department for Transport Minister approval of a parallel Business Case. A joint Ministerial announcement of the PFI Procurement Strategy was made in May 2006 and the competition was launched through the Official Journal of the European Union.

Four consortia were down selected following assessment of their Pre Qualification Questionnaires in November 2006: Augusta Westland; CHC Scotia Ltd/Thales UK Ltd (now known as “Soteria”); AirKnight (Lockheed Martin UK Ltd/VT Group Ltd/British International Helicopters Ltd); and UK Air Rescue (Bristow Helicopters Ltd/FBH Ltd/Serco Ltd). The Competitive Dialogue with industry formally commenced in February 2007. In October 2007 Augusta Westland withdrew as an independent participant from the competition. Westland Helicopters Ltd was subsequently admitted to the UK Air Rescue consortium in January 2008 following the submission of a Pre Qualification Questionnaire addendum. Industry’s costed solutions for the first round of bidding were submitted in January 2008, and, following the withdrawal, for commercial reasons, of the UK Air Rescue consortium in September 2008, the two remaining consortia submitted their second round bids, against a refined requirement for a 12 base solution, in November 2008.

In February 2009, the two consortia issued respective press releases proposing their Search and Rescue - Helicopter aircraft solutions: the Airknight consortia have selected a single fleet of Eurocopter EC225s; the Soteria consortia have selected a single fleet of Sikorsky S-92s.

A.3. Progress

Detailed evaluation of bidder proposals is ongoing and is planned to conclude with concurrent Main Gate submissions to IAB and Maritime and Coastguard Agency's Executive Committee in *** placement is planned for ***

A.4. Capability Risks

The UK Search and Rescue organisation is derived from the UK Governments adherence to various National and International maritime conventions dating from 1944 to 1979. Failure to replace the current service would risk contravening this established legal and moral duty. Consequently, the two organisations are combining their aviation acquisition expertise to plan a joint, harmonised replacement for the current service.

A.5. Associated Projects – not applicable

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only				
Description	**Procurement Route**			
Search and Rescue Helicopter	Competitive PFI			
Assessment Phase 1	Assessment of five procurement strategy options			
Assessment Phase 2	Competitive PFI			
Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**

A.7. Support Strategy

Under the PFI deal, it is anticipated that the supplier will be responsible for providing support				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	**Approved Cost (£m)**	**Actual / Forecast Cost (£m)**	**Variation (£m)**	**Post-Main Investment Decision Projects only**	
				Approved cost as a proportion of total estimated procurement expenditure (%)	**Actual Cost as a proportion of total estimated procurement expenditure (%)**
Assessment Phase 1	1.3	0.4	-0.9		
Assessment Phase 2	9.9	7.0	-2.9		
Total	**11.2**	**7.4**	**-3.8**		

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
Search and Rescue Helicopter	***		-

B.3. Cost of the Demonstration and Manufacture (D&M) Phase – not applicable

B.4. Unit production cost – not applicable

B.5. Progress against approved Support/Service/PFI Cost – not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast / Actual Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
Assessment Phase 1		May 2003	
Assessment Phase 2	***	August 2005	***

C.2. Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
Search and Rescue Helicopter	***		***

C.3. In Service Date - not applicable

C.4. Initial Operating Capability - not applicable

C.5. Full Operating Capability - not applicable

C.6. Support / Service / PFI Contract - not applicable

D. Section D: Performance

D.1. Readiness Levels – not applicable

D.2. Performance against Lines of Development – not applicable

D.3. Performance against Key Performance Measures – not applicable

UKCEC Frigate and Destroyer Programme

Project

UK Co-operative Engagement Capability – Frigate and Destroyer Programme

Team Responsible

Joint Sensor and Engagement Networks

Single point of accountability for Project Capability

Director of Equipment Capability (Above Water Effects)

Senior Responsible Officer

Number of Projects / Increments 1

Current Status of Projects / Increments

- **Pre Main Investment Decision** - UK Co-operative Engagement Capability

A. Section A: The Project

A.1. The Requirement

The Co-operative Engagement Capability is a United States Naval System fitted to an increasing number of United States assets including ships, aircraft, and Army and Marine Corps land systems. Co-operative Engagement Capability does not replace any single system; rather it optimises war-fighting capabilities inherent in existing and future combat systems.

UK Co-operative Engagement Capability is a UK Network Enabled Capability project which provides an advanced air and missile defence capability by sharing and fusing engagement quality data from suitably equipped platforms to deliver a single, coherent, stable air picture. It will fill the capability gap originally identified in Commander in Chief Fleet's Military Capability reports and re-affirmed in the Above Water Effects capability audit in 2007, to detect, monitor, and counter Air Warfare threats. It will also reduce a gap in interoperability with the United States.

UK Co-operative Engagement Capability enhances the ability of fitted platforms to work together in detection, tracking and engagement of air targets. This capability represents a major advance in both air and missile defence.

A.2. The Assessment Phase

Operational Analysis conducted during the Concept Phase assessed seven options; Co-operative Engagement Capability was identified as the only solution capable of meeting capability requirements.

The objective of the Assessment Phase is to establish the most cost effective solution to the requirement for a Co-operative Engagement Capability for Type 23 Frigates and Type 45 Destroyers. It is a proven United States developed programme which the UK is considering purchasing via the Foreign Military Sales process. The UK, with United States assistance, is developing and testing the platform architecture and support and integration aspects, to reduce risk prior to Main Gate.

Assessment Phase 1. Approval for Assessment Phase 1 was received in May 2000 and, following a competition, contracts were placed with Lockheed Martin UK (Integrated Systems) and Raytheon UK, with down-selection to Lockheed Martin (UK) for Assessment Phase 2. This was for the Type 23 Frigate only. Also during this phase a study contract was undertaken by BAE Systems to investigate a Co-operative Engagement Capability fit on the Type 45 destroyer.

Assessment Phase 2. In May 2003 approval was received to accelerate the risk reduction work on Type 45 Destroyer by two years, at no additional procurement cost. In July 2003, this work was placed on contract by means of an amendment to the Type 45 Destroyer prime contract with BAE Systems, the Prime Contracting Office for the Type 45 Destroyer. Costed proposals for the Demonstration and

Manufacture Phase for both T23 and T45 were delivered by Lockheed Martin (UK) and BAE Systems respectively in 2005. However, an Option was taken as part of the Equipment Plan 2005 planning round extending the Assessment Phase by five years, enabling further de-risking of the project.

Assessment Phase 2b. De-risking study contracts were placed with Lockheed Martin (UK) and BAE Systems to investigate the options for integrating the UK Co-operative Engagement Capability into the two platforms and their existing/planned systems and to produce recommendations for design solutions. This work was successfully completed in March 2008.

Assessment Phase 3. Approval was obtained in September 2008 to proceed with the remaining Assessment Phase work. This covers detailed design and delivery of the Assessment Phase 2b study recommendations for UK Co-operative Engagement Capability system installation and interface on both platforms. The outputs from these activities will support the main investment decision currently forecast for ******* Further Operational Analysis, a review of technology assumptions since the Initial Gate approval in 2000, and a revised Investment Appraisal have also been commissioned.

A.3. Progress

A contract was placed on BVT Surface Fleet in January 2009 to complete the design and installation aspects of Assessment Phase 3. The initial design review is scheduled for May 2009, with the final design review in October 2009 to establish the baseline for the Main Investment decision.

A.4. Capability Risks

Co-operative Engagement Capability is a force multiplier in that it will enable effective Anti Air Warfare and missile defence capabilities with a reduced number of platforms by providing a single, coherent and stable networked air picture. A UK Co-operative Engagement Capability partly mitigates the decision to delete hulls 7 & 8 of the Type 45 Fleet. The effectiveness of such platforms would be significantly diminished if the Co-operative Engagement Capability is not provided.

A.5. Associated Projects

Description	Critical to achievement of IOC	
	Project Title	Forecast IOC
Type 45 Destroyers	Type 45 Destroyers	2010

A.6. Procurement Strategy

Pre-Main Investment Decision Projects / Increments only				
Description	**Procurement Route**			
UK Co-operative Engagement Capability	A revised procurement strategy was approved as part of the Review Note in September 2008. The key elements comprise a single contract on BVT Surface Fleet for the design and installation aspects with assistance from the United States via a Foreign Military Sales agreement. The strategy will be reviewed prior to the Main Investment decision.			
Post-Main Investment Decision Projects / Increments only				
	Contractor	**Contract Scope**	**Contract Type**	**Procurement Route**
UK Co-operative Engagement Capability				

A.7. Support Strategy

The planned support strategy forms part of the procurement strategy which will be endorsed at the Main Investment decision. The support strategy assumes two main elements: the United States core Cooperative Engagement Capability to be supported via a Foreign Military Sales case; the UK element to be supported by a Contractor Logistic Support contract with UK Industry.

	Contractor	Contract Scope	Contract Type	Procurement Route
UK Co-operative Engagement Capability				

B. Section B: Cost

B.1. Cost of the Assessment Phase

Description	Approved Cost (£m)	Actual / Forecast Cost (£m)	Variation (£m)	Post-Main Investment Decision Projects only	
				Approved cost as a proportion of total estimated procurement expenditure (%)	Actual Cost as a proportion of total estimated procurement expenditure (%)
UK Co-operative Engagement Capability	25	53	+28		

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

Description	Lowest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Highest Forecast / Approved
UK Co-operative Engagement Capability	***	-	-

B.3. Cost of the Demonstration and Manufacture (D&M) Phase – not applicable

B.4. Unit production cost – not applicable

B.5. Performance against approved Support/PFI Cost – not applicable

C. Section C: Timescale

C.1. Duration of the Assessment Phase

Description	Forecast Date of Main Gate Approval	Date of Initial Gate Approval	Length of Assessment Phase (months)
UK Co-operative Engagement Capability	***	May 2000	***

C.2. Planned / Actual Boundaries for introduction of the Capability

Description	Earliest Forecast / Approved	Budgeted For (Post-Main Investment Decision Projects only)	Latest Forecast / Approved
UK Co-operative Engagement Capability	***		

C.3. In Service Date - not applicable

C.4. Initial Operating Capability - not applicable

C.5. Full Operating Capability - not applicable

C.6. Support / Service / PFI Contract - not applicable

D. Section D: Performance

D.1. Readiness Levels – not applicable

D.2. Performance against Lines of Development – not applicable

D.3. Performance against Key Performance Measures – not applicable

Glossary

Acquisition Cycle (see also Assessment Phase and Demonstration and Manufacture Phase)	The Concept, Assessment, Demonstration, Manufacture, In-Service, Disposal (CADMID) cycle has been used by the Department since 1999, when it was devised as part of the Smart Procurement initiative to deliver equipment capability within agreed performance, cost and time parameters.
Approval	The formal decision by the Investment Approvals Board (and, dependent on the size of the project, HM Treasury) on the investment of funds in a project. Approvals set "not to exceed" parameters for the project's cost and In-Service Date, which reflect the worst case scenario should the majority of foreseen risks arise. The project cannot exceed these parameters without returning to the Investment Approvals Board for further approval. The Main Gate process also sets target "most likely estimate" figures for cost and In-Service Date. The difference between these targets and the approved "not to exceed" figures is known as a project's "Risk Differential".
Assessment Phase	The second phase in the acquisition cycle after the Concept Phase and beginning with Initial Gate. The aim of the Assessment Phase is to develop an understanding of options for meeting the requirement that is sufficiently mature to enable selection of a preferred solution and identification, quantification and mitigation of the risks associated with that solution. At the end of the Assessment Phase a Business Case is submitted to the Investment Approvals Board for Main Gate approval.
Business Case	The documentation submitted to the Investment Approvals Board at Initial Gate or Main Gate, making the case for the proposed expenditure on the next phase of the project.
Capability Risk	This section of the Project Summary Sheet explains why the capability to be provided by the equipment matters and the impact of not proceeding with the procurement.
Cost of Capital	The opportunity cost to the Government of employing money in capital expenditure instead of on alternative investment opportunities. For the public sector, cost of capital is charged at 3.5 per cent of the average capital employed during each year. Prior to 1 April 2003 the rate was six per cent.
Defence Equipment and Support	Officially formed on 1 April 2007 from the merger of the Defence Procurement Agency and the Defence Logistics Organisation. It equips and supports the United Kingdom's Armed Forces for current and future operations, including equipment and services ranging from ships, aircraft, vehicles and weapons, to electronic systems and information systems.
Defence Lines of Development	These are used to manage the introduction of capability, aiming to ensure that all the elements are coherent. The Defence Lines of Development are: Training, Equipment, Personnel, Information, Doctrine, Organisation, Infrastructure and Logistics, with Interoperability an overarching theme.
Demonstration and Manufacture Phase	The third and fourth phases in the acquisition cycle, which begin after Main Gate approval, and continue until the equipment enters service. During these phases, development risk is progressively eliminated, the ability to produce integrated capability is demonstrated and the solution to the military requirement is delivered.

Equipment Examination	Part of the 2008 planning process undertaken in order to reduce the budgeted Equipment Plan over the next ten years to an affordable level in addition to rebalancing equipment programmes.
Full Operating Capability	When the full capability that is intended to be procured is delivered and available for operations.
Government Furnished Equipment	Government Furnished Equipments are Department-owned assets supplied to industry in support of Departmental contracts. Performance risk in that respect rests with the Department.
Heads of Capability	Formerly know as the Equipment Capability Customer. The Head of Capability is responsible for leading the capability change planning process and identifying the equipment and support requirements to optimise the United Kingdom's Defence capability within allocated resources. In doing so the Head of Capability acts as the sponsor for new and enhanced equipment and support programmes.
Incremental Acquisition	A procurement strategy which aims to reduce risk and spread costs by building up a required capability over time. Each increment offers additional capability.
Increments	These may be additional units of the same equipment that have been approved separately (for example, additional Astute submarines) or procurements that are closely related and/or managed by the same Project Team (for example, the Typhoon aircraft and the Typhoon Future Capability Programme). They are shown in the same Project Summary Sheet, but are separately identifiable.
Initial Gate	The approval point preceding the Assessment Phase. A Business Case is put to the Investment Approvals Board to confirm that there is a well-constructed plan for the Assessment Phase that gives reasonable confidence that there are flexible solutions within the time, cost and performance envelope the Head of Capability has proposed.
Initial Operating Capability	The definition varies between projects, but in principle it is achieved when an initial capability is available for operations.
In-Service Date	The definition varies between projects. For example, Typhoon's In-Service Date is defined as the date of delivery of the first aircraft to the Royal Air Force. It does not necessarily mean the capability is fully delivered or ready for operations.
Investment Approvals Board	The Departmental body responsible for the approval of investment in projects at Initial Gate and Main Gate. The Investment Approvals Board comprises the Vice Chief of Defence Staff, the Second Permanent Under Secretary, the Chief of Defence Materiel, the Defence Commercial Director and is chaired by the Chief Scientific Advisor. For projects with a value of less than £100 million, delegated representatives of Investment Approvals Board members may authorise approval.

Project Teams (previously known as Integrated Project Teams)	Each project within the Major Projects Report has its own Project Team (previously known as Integrated Project Teams, or IPTs) that manages the funding of the project and engages with industry in order to develop solutions to the capability requirements and drive the programme forward.
Key Performance Measures	These outline the requirements which are considered to be key to the achievement of the capability and are used to measure project performance.
Main Gate	The main investment decision, typically at the end of the Assessment Phase when the decision to proceed with the project is made. At Main Gate the Business Case is presented to the Investment Approvals Board, recommending a single technical and procurement option. By this point, risk should have been reduced to the extent that the Head of Capability and Project Team can, with a high degree of confidence, undertake to deliver the project to narrowly defined time, cost and performance parameters.
Planning Round	The Department's budgeting plan for expenditure on procurement of defence equipment, which runs across a ten year planning cycle.
Platform	In this instance the term refers to individual equipments such as aircraft, satellites, vehicles, ships and submarines.
Smart Acquisition	Instead of approving each of four separate stages of a project, approval is given at two points. Major equipment projects are only to be submitted for the main investment decision once risks have been reduced and the most cost-effective solution identified. Any breach of the approved "not to exceed" time or cost figure would necessitate a re-approval.
System Readiness Levels	System Readiness Levels indicate the maturity of systems that combine different technologies to create a capability. They enable Project Teams to assess, communicate and manage the systems risk involved in delivering overall equipments.
Technology Readiness Levels	Technology Readiness Levels indicate the technical maturity of specific technologies within a project. They enable Project Teams to assess, communicate and manage the technical risk involved in delivering specific aspects of an equipment.
Programme Approach to Through Life Capability Management	A change programme instigated by the Department to ensure all aspects of capability are planned and managed coherently, from concept to disposal, across all Defence Lines of Development.
Unified Customer	Brings together the key stakeholders within the Department to share ownership of capability-based decisions.

Definition of cost, time and performance causal factors

Technical	
Technical Factors	Variations arising from technical challenges encountered by the project.
Capability Requirements	
Changed Capability Requirement	Variations due to changes in the customer's requirement for the equipment, flowing from operational reassessment rather than budgetary priority or as a result of support to current operations.
Budgetary	
Budgetary Factors	Variations due to changes in the customer's requirement for equipment, flowing from changed budgetary priorities.
Economic Conditions	
Inflation	Variations due to changes in inflation assumptions.
Exchange Rate	Variations due to changes in exchange rate assumptions, including the impact of International Financial Reporting Standards on exchange rates.
Commercial	
Receipts	Variations due to changes in expected levels of receipts, e.g. liquidated damages, commercial exploitation levy.
Procurement Processes	Variations due to changes associated with the contractual process, including time taken in contract negotiations/placing contracts, international contract negotiations and the effect of comparing contractor bids to estimates. Also variations due to changes in overall procurement strategy e.g. change to collaborative options, or from competitive to single source.
Reporting Conventions	
Accounting Adjustments and Re-definitions	Variations that do not reflect any substantive change, including imported or exported costs arising from changes to accounting rules, or adjustments to reflect changes in the definition of terms.
Risk Differential (*post Main-Gate projects with Smart Approvals only*)	The difference between the 50 per cent "most likely" estimate and the "not to exceed" figure approved at the point of the main investment decision. It is the amount of risk allowed for in the approval.
Associated Projects	
Change in Associated Project	Variations due to change in an associated project e.g. availability of equipment from another project for trials or integration activity.
HM Treasury Reserve	
HM Treasury Reserve/Conflict Prevention	Recovery of additional costs incurred in support of current operations from either the HM Treasury Reserve or the Conflict Prevention Fund.