National Audit Office

Report
by the Comptroller
and Auditor General

Ministry of Defence

Major Projects Report 2014 and the Equipment Plan 2014 to 2024

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Ministry of Defence

Major Projects Report 2014 and the Equipment Plan 2014 to 2024

Report by the Comptroller and Auditor General

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Sir Amyas Morse KCB
Comptroller and Auditor General
National Audit Office

8 January 2015

This volume has been published alongside a second volume comprising of – Ministry of Defence: Major Projects Report 2014 and the Equipment Plan 2014 to 2024 (Appendices and project summary sheets) HC 941-II

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This year for the first time we are combining what have previously been 2 separate outputs, the Major Projects Report and our review of the affordability of the Equipment Plan.

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Contents

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Summary

Scope of the report

1 Since 2012, the Ministry of Defence (the Department) has published an annual Statement on the affordability of its 10-year plan to deliver and support the equipment that the Armed Forces require to meet the objectives set out in the *National Security Strategy*.[1] We report on the robustness of the assumptions underlying the Statement.

2 Each year the Department also presents to the Committee of Public Accounts a Major Projects Report which provides data on the cost, time and performance of the largest defence projects.[2] We review the information underlying in-year variations to cost time and performance.

3 The Equipment Plan is the Department's forecast budget to cover the costs of procurement and support of military equipment for the next 10 years. In 2012, the Department adopted a new approach to generate greater stability in its procurement activity by developing a budget for a 'core programme' of key equipment projects, with additional sums set aside for contingency and emerging requirements. It is updated annually. For the period 2014 to 2024, the equipment budget is £163 billion, made up of procurement (£69 billion) and support (£81 billion) budgets, a central contingency reserve (£4.6 billion), and an unallocated budget (£9.2 billion) that the Department has not yet committed to specific programmes. The Plan is funded from the Department's overall budget, and makes up a significant proportion of its planned spend.

4 For the first time we have combined our review of the Equipment Plan with the Major Projects Report, to enable Parliament to have a more complete view of the Department's management of the procurement and support of the UK's defence capability. We have selected a sample of 17 projects as the basis for reporting project performance and to support our review of the affordability position.[3] This sample of projects has been selected based primarily on value but also to reflect the level of project maturity and type of equipment.

1 HM Government, *A Strong Britain in an Age of Uncertainty: The National Security Strategy*, Cm 7953, October 2010.
2 The project summary sheets the Department submits to Parliament are contained in Volume II of this report.
3 We also looked at the assumptions underlying a small additional sample of support projects.

5 We do not set out to offer a definitive view on the affordability of the Equipment Plan, as it is, by its nature, based on assumptions about the future that will inevitably change. Rather, we review the assumptions that underpin the forecast costs and funding to assess whether they were reasonable and consistently applied at the time they were made. We explain our approach in Part One of this report, and then look at: the Department's assumptions underpinning the forecast costs of the Equipment Plan (Part Two), including for the first time this year support costs; and the assumptions underpinning available future funding (Part Three), which taken together define whether the plan is affordable. We have also reviewed whether the disclosure in the Department's Statement is sufficient for the reader to fully understand the risks and sensitivities of the affordability position (Part Four). Appendix One contains full details of our audit procedures, and Figures 12 and 13 provide an overview of the projects included in our analysis. Summaries of the projects in our sample are included at Appendix Four. The full set of information for each project is set out in the project summary sheets completed by project teams which are included as Volume II of this report.

Confidence in the continued affordability of the Equipment Plan as a whole

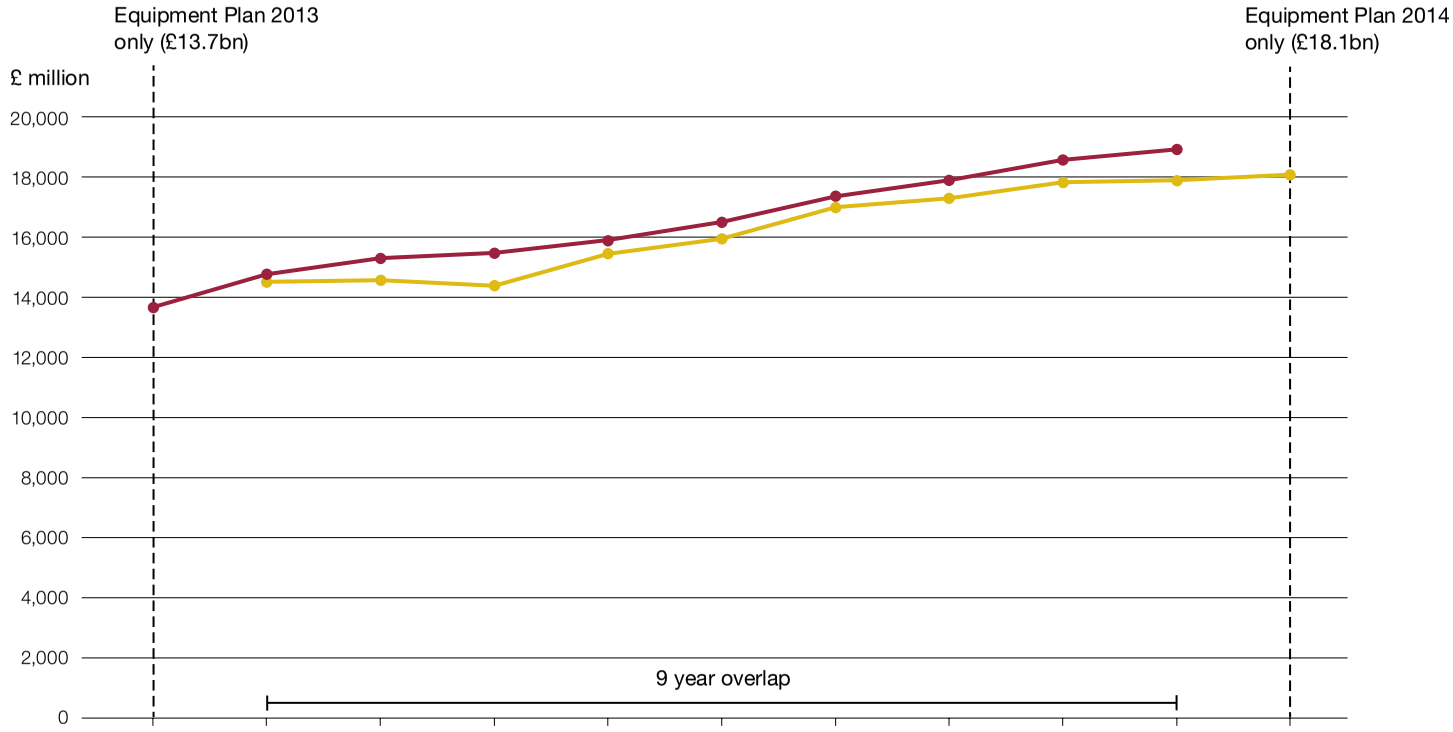
6 **The forecast cost of the Equipment Plan 2014 to 2024 is £1.4 billion less than the forecast cost of the 2013 to 2023 Equipment Plan**. The forecast cost of the Plan for 2014 to 2024 is £162.9 billion compared with £164.3 billion for the period 2013 to 2023 (see **Figure 1** overleaf). Since 2012, the Department has emphasised the importance of the affordability of its core equipment programme. For the Department to have confidence that the Equipment Plan is affordable, the combined cost forecasts for its core programme of projects need to be contained within the sums made available by HM Treasury, allowing for the non-equipment commitments of the Department.

7 **There have been significant movements of funds between procurement and support budgets**. Compared with the 2013 Plan the forecast cost of procurement has increased by £5.4 billion while support costs are expected to be £6.2 billion less over the period. This is due mainly to: a reclassification of costs for one project as procurement rather than support; and anticipated efficiency savings in the support budget more generally. Anticipated efficiency savings are the main cause of a £5.8 billion decrease in the Equipment Plan budget across the 9 years that the 2013 and 2014 Plans have in common (2014 to 2023).

Figure 1

The 10-year forecast cost profiles of the Equipment Plan 2013 and Equipment Plan 2014

This shows changes in the forecast cost of the Plan between 2013 and 2014



	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	**Total**
Equipment Plan 2013 (£m)	13,667	14,758	15,296	15,472	15,897	16,500	17,348	17,884	18,558	18,915		**164,295**
Equipment Plan 2014 (£m)		14,511	14,566	14,381	15,434	15,939	16,987	17,283	17,822	17,887	18,074	**162,884**

Note

1 The Equipment Plan covers a forecast 10-year period and is produced annually. Therefore, successive plans share a 9-year period in common with an additional year brought into the scope of the Equipment Plan each year.

Source: National Audit Office analysis of Ministry of Defence data

8 **The Department has removed more than £6 billion from budgets within the Plan in anticipation of achieving significant savings.** The largest element of this is the removal of £4.1 billion of anticipated savings from the support cost budget. The Department has engaged external consultants to assist in identifying savings. They have reviewed 11 major support projects to date, constituting nearly 40% of the value of the equipment support programme. The project teams have provisionally identified potential savings of £2.9 billion over 10 years. Only a limited proportion of these savings have been realised to date. Savings have also been removed from procurement budgets:

- Savings of £1.05 billion expected through the Submarine Enterprise Performance Programme.
- £1.2 billion of savings to be found from the Complex Weapons procurement programme.

If savings are not achieved the Department will need to adjust its budgets, which could mean using money set aside for future projects, or delaying or cancelling existing projects.

9 **Project teams continue to be over-optimistic in their forecasts of both procurement and support costs.** Project teams continue to be over-optimistic in their forecasts of procurement costs. The Department's Cost Assurance and Analysis Service estimates that the forecast cost of procuring equipment is understated by £3.2 billion against project team forecasts, a reduction from £4.3 billion for the 2013 to 2023 period. The Cost Assurance and Analysis Service has also reviewed 28% of the support cost budget to date, and estimate that project team forecasts for those projects are £2 billion understated.

10 **Budgets set using over-optimistic forecast costs could result in overall budgets for procurement and support being significantly understated.** The Equipment Plan budget should be a compilation of the individual budgets that are set based on the estimated forecast cost of each project. In some instances, however, the budget may be set lower than this; for example where the Department is challenging project teams to deliver projects for less. A review of the estimated procurement costs of 29 of the largest projects within the Plan by the Cost Assurance and Analysis Service in January 2014 initially estimated the gap between the allocated budget and the realistic procurement costs of these projects to be some £4.7 billion. In April 2014, the Department adjusted its budget allocations, adding £2.4 billion to the 2014 Equipment Procurement Plan. There is currently no overall estimate of whether, or to what extent, support budgets may be understated.

11 **The Department's contingency may not be enough to mitigate the combined effects of underestimates in project team costs and equipment plan budgets.** The Department continues to hold a £4.6 billion contingency across the 10-year plan to mitigate potential cost increases within the core equipment programme. Should this contingency be insufficient to mitigate unrealistic forecast costs across procurement and support budgets the Department may need to draw on the £9.2 billion that is set aside to deliver equipment needed for delivery of wider defence capability that currently is not included in the core programme.

12 The Department's Statement on the Affordability of the Equipment Plan is clearer than the earlier two Statements. The reader can understand how the Equipment Plan is constructed, managed and challenged. However, the Statement needs to be improved further to explain more clearly the key assumptions and the risks to the affordability of the Equipment Plan. In particular, more information is needed on how to measure the success of initiatives to achieve support cost savings, and how to manage the Equipment Plan if the necessary level of savings is not met.

Confidence in the Department's delivery of major projects

13 Our review of the forecast cost of 11 major projects where the Department has decided to buy equipment shows that the time, cost and performance of these projects has remained stable in 2013-14. For the 11 projects within our sample of 17 projects that have passed the main investment decision, the forecast cost of the projects has reduced by £397 million (0.7%). This was largely due to a reduction in the forecast cost for the Lightning and Typhoon fighter jets. There has only been one new significant approval during 2013-14 and no new procurements have been introduced, resulting in a relatively stable portfolio of major projects. We have excluded the £754 million cost increase of the Queen Elizabeth Class Aircraft Carriers, which we reported in our Major Projects Report in February 2014. The Department expects the projects to achieve 99% of their intended capability. There were in-year time variations totalling 14 months for 2 out of 10 projects – for Warrior Capability Sustainment Programme and Core Production Capability; in both cases the Department does not expect any impacts on operational capability from these delays.

Confidence in the forecast costs of the largest projects

14 Increases in the forecast costs of projects are not due to real cost growth and forecast costs largely remain stable across projects. Alongside our review of the aggregate cost movement from the prior year, we also undertook a detailed review of 17 of the largest procurement projects to see whether there was cost stability at the project level. We found that the 10-year procurement cost of these projects increased by £2.6 billion compared with the forecast cost for 2013 to 2023. However, these increases mostly came from the Department:

- implementing some projects within the 10-year plan more quickly, thereby bringing costs into the plan earlier; and
- assessing that it would be more appropriate to classify some costs as procurement rather than support.

15 The Department overspent by £185 million against its original equipment budget in 2013-14 by tasking project teams with a large amount of additional work. The Department has taken action to manage the risk of underspending against its budget, as in past years. To avoid a significant underspend in 2013-14 the Department included £920 million of additional work in the programme. When the Department became concerned that an underspend would emerge in-year, a further £213 million of additional work was added to the programme. In the event, the Department overspent by £185 million against its original assumptions. In 2012-13, we reported that the Department underspent on equipment by £1.15 billion against the total value of its work programme for the year (original equipment budget plus additional work programmed during the year). For 2013-14, the equivalent figure was £948 million.

16 A detailed review into the causes of project underspends shows that the largest single cause is accounting adjustments. Errors and consequent adjustments involve movements of hundreds of millions of pounds within budgets. This can give a misleading picture of spend and forecasts at individual project level. It is clear that the Department needs to improve its in-year financial management. The Department recognises the need to continuously improve its in-year financial management and has established a programme to do so. In addition, external consultants working with the Department to review support costs have found consistent weaknesses in:

- specifying requirements;
- estimating costs; and
- working with suppliers to drive down costs.

17 Project teams have varying skill levels in cost forecasting and risk management. Only 9 of our 17 projects forecast a range of potential costs based on the likelihood of different scenarios and risks, in line with good practice. Sometimes project teams rely on industry to model realistic cost estimates for projects. This casts doubt on whether the forecast costs are sufficiently robust for the Department to have confidence that the Equipment Plan is affordable and the Department has sufficient quality of information to manage the risks to the budget.

18 Project teams need to ensure they are using the most appropriate inflation rate. The forecast costs of long-term projects can be significantly affected by the projected inflation rate. Unexpected changes in inflation may drive cost increases in projects beyond those that were planned for, so project teams should understand how their projects are affected by inflation. The Department's guidance states that project teams should apply an inflation rate that is suitable to the characteristics of their projects, which is a reasonable approach. However, in 4 projects we found that teams were using rates based on analyses from 2 to 3 years ago or were applying a general rate without evidencing that this was appropriate. We would expect an up-to-date, evidence-based rate to be used to mitigate the effect of unexpected inflation rate movements.

Confidence in the funding assumptions of the Equipment Plan

19 The Department believes it is making the necessary savings in non-equipment budgets to protect the Equipment Plan, but we have not reviewed these. Funding for the Equipment Plan is not protected; the Department has to allocate its budget for equipment costs internally, ensuring that there is also enough within the budget to meet non-equipment cost (such as the management of the Defence Estate and costs of Armed Forces personnel). The absence of savings in these budgets could increase the proportion of the defence budget that is needed in those areas and have an impact on the funds available for the Equipment Plan.

20 The Department believes that the fundamental assumptions underlying the affordability of the Equipment Plan have not changed since last year. These assumptions are that a fixed minimum value will be given for the funding of the Equipment Plan for each year in the period covered, based on a 1% real increase above inflation (although this is not guaranteed for the full period of the Equipment Plan). Also, the Department can choose to spend more than that on equipment procurement and support, and the current Equipment Plan budget is significantly in excess of the amount allocated by HM Treasury for equipment procurement.

Conclusion

21 There are a number of positive features arising from our work on the Equipment Plan, not least the relative stability of forecast project costs and control over in-year variations in approved timings and costs of major projects. The Department has chosen a higher risk approach to managing the affordability of the Equipment Plan by relying on future savings where a significant proportion has not yet been identified. This is within the context of potential continuing over-optimism in the project cost forecasts that make up the Plan. The Department will need to be watchful and quick to react if costs start to grow.

Part One

Affordability of defence equipment

1.1 The Ministry of Defence's (the Department's) annual Equipment Plan sets out its expenditure plans for the equipment the Armed Forces need to meet the objectives of the *National Security Strategy*[4] and the *Strategic Defence and Security Review*[5] over the next 10 years. From 1 April 2014 to 31 March 2024, the Equipment Plan has a total budget of £163 billion for:

- equipment procurement (£69 billion);
- equipment support (£81 billion);
- a contingency provision (£4.6 billion); and
- an unallocated budget of £9.2 billion, consisting of £8 billion of 'headroom', which has previously been apportioned to commands from 2017-18, and £1.2 billion earmarked for future long-term equipment needs.

1.2 Many defence projects extend beyond 10 years, so the Equipment Plan does not cover the full procurement costs of its projects. Each year the Department also presents to Parliament a Major Projects Report. This gives data on the cost, time and performance of the largest defence projects where the Department has taken the decision to proceed to the main demonstration and manufacture stages of the project. There is no restriction to a specific period. Less detailed information is also given about the largest projects where the decision has not yet been taken, but work is ongoing to inform this decision.

4 HM Government, *A Strong Britain in an Age of Uncertainty: The National Security Strategy*, Cm 7953, October 2010.
5 HM Government, *Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review*, Cm 7948, October 2010.

A single overview of the Department's progress in implementing major projects and programmes

1.3 Both the Department's Statement on the Affordability of the Equipment Plan and the data in the Major Projects Report outline the progress of the Department's programme of equipment procurement. However, the Equipment Plan is based on the detailed 10-year forecast. The Major Projects Report is focused largely on costs that have been approved by the Department's Investment Approvals Committee. It excludes unapproved costs. Therefore each dataset presents one unique perspective.

1.4 In this report we use information from both the Equipment Plan and Major Projects Report to present a full overview of the Department's major procurement programmes. Small changes to planned cost and delivery on programmes can have an impact on the affordability of the Equipment Plan. By combining the two pieces of work, we can assess whether the performance of the projects supports the view that the Equipment Plan is affordable. Both the Equipment Plan and the Major Projects Report outline the procurement costs. Parliament can then decide whether the Department's approach to the Equipment Plan is adequate.

1.5 This report examines whether:

- the costings in the Equipment Plan were based on broad assumptions that were reasonable and consistent. This includes how changes to the cost, time and performance of major projects beyond the 10-year period relate to overall affordability (Part Two). It draws on our examination of the data in the Department's Major Projects Report (summarised in Appendices Two and Four);
- the assumptions used in forecasting the total funding available to the Department and the funding allocated to the Equipment Plan are realistic (Part Three); and
- the Statement contains enough appropriate information to make the reader aware of:
    - the key assumptions and risks; and
    - how much the assumptions would need to change for the Equipment Plan to become unaffordable (Part Four).

Our approach

1.6 To support our review of the assumptions that underpin the forecast costs of the Equipment Plan, we looked in detail at 17 of the Department's largest procurement programmes and 5 support programmes. For the sampled projects we looked at the reasonableness and consistency of assumptions used to forecast the 10-year costs. For the 17 procurement projects we also looked at the progress of cost, time and performance against the original approvals (that being the data included in the Major Projects Report). Summaries of the projects in our sample are included at Appendix Four. The full set of information for each project is set out in the project summary sheets completed by project teams which are included as Volume II of this report.

1.7 Our approach to examining the procurement and support projects 10-year Equipment Plan was to look at the audit evidence that the costs are sufficiently robust for planning purposes through a review of: the cost modelling; risk management; the Department's own assurance processes; and in-year performance against budget. We also worked closely with the Cost Assurance and Analysis Service to understand the work they have done through their independent cost reviews and estimates, both for the projects we sampled but also on the wider Equipment Plan, as well as their cost forecasting work on behalf of project teams.

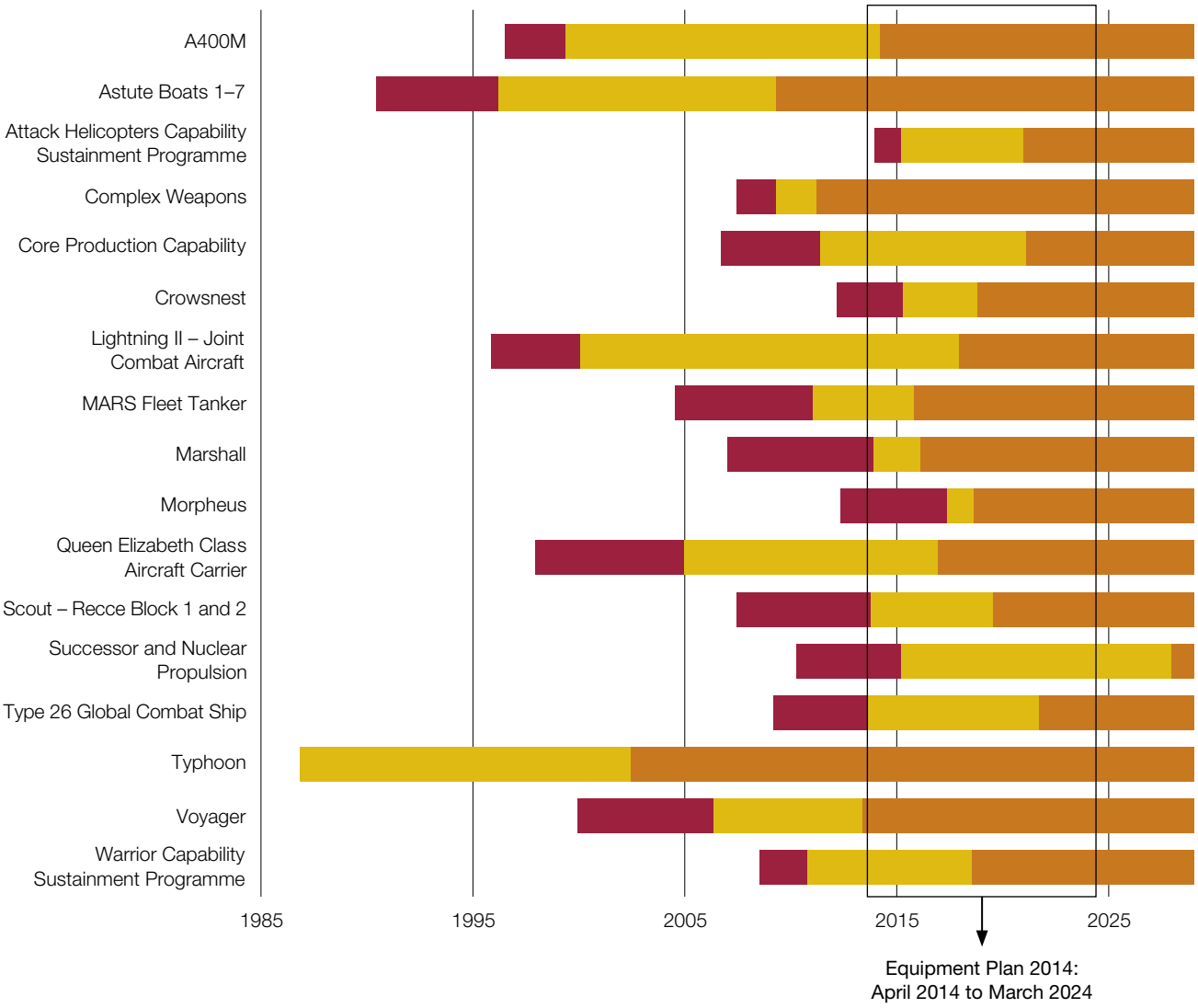
1.8 The Equipment Plan covers a 10-year period, whereas project approvals can be for a longer period, as illustrated in **Figure 2** overleaf which shows the cycle of the procurement projects and the subset of costs that are included in the 10-year Equipment Plan. The sample of support costs is shown in Appendix Two.

The path to a reasonable assurance engagement

1.9 We aim to gradually expand the scope of our review so that the Comptroller and Auditor General is able to rely on the Department's controls over the affordability of the Equipment Plan. We will use a framework based on international accounting standards to achieve this. Having evidence of strong controls in place will allow the Department to show stakeholders, particularly industry, that it is negotiating from a stable and credible position. We will review the Department's progress in addressing the key risks to the affordability of the Equipment Plan as set out in our previous reports (Appendix Three).

Figure 2
Project sample timelines up to 2030

The Equipment Plan covers a 10-year period whereas project approvals can be for a longer period



Notes

1 The time period of January 1985 to January 2030 has been selected to illustrate that the Equipment Plan period covers only part of a particular project's life cycle. Most of the projects shown have out of service dates beyond 2030, and in those cases the full life cycle is not included here.

2 The Major Projects Report data includes the total approved spend of a project, and may, therefore, include costs outside the Equipment Plan period shown.

3 The in-service period is measured from when the equipment met, or is forecast to meet, the initial operating capability. Procurement activity may be ongoing in this period eg Typhoon aircraft are in service and aircraft are still being delivered under existing contracts.

4 The boundaries of Demonstration/Manufacture and In Service are indicative only because some programmes have a more complex delivery approach than can be fully represented in this graphic.

Source: National Audit Office analysis of Ministry of Defence data

Part Two

Robustness of assumptions underpinning costs

2.1 The £163 billion Equipment Plan budget for the next 10 years (paragraph 1.1) consists of a core programme of procurement projects, and associated support budgets, and funds held in reserve. The core programme consists of projects identified as priorities by the Department. We have examined:

- changes to forecast project costs and budgets (paragraphs 2.2 to 2.8);
- the quality of cost forecasts (paragraphs 2.9 to 2.22); and
- the potential impact of inaccurate cost forecasts (paragraphs 2.23 to 2.26).

Changes in forecast budgets and costs

Changes in forecast budgets

2.2 Between the 2013 and 2014 Equipment Plans there has been a net reduction of £1.4 billion in the total Equipment Plan budget. However, the amount allocated to the support element of the Equipment Plan has fallen by £6.2 billion compared with the 2013 Equipment Plan. About £4.1 billion of this reduction is from anticipated efficiency savings from the cost of supporting equipment (paragraph 3.10).

2.3 Overall the procurement element of the Equipment Plan has increased in budget by £5.4 billion. This increase is mainly due to:

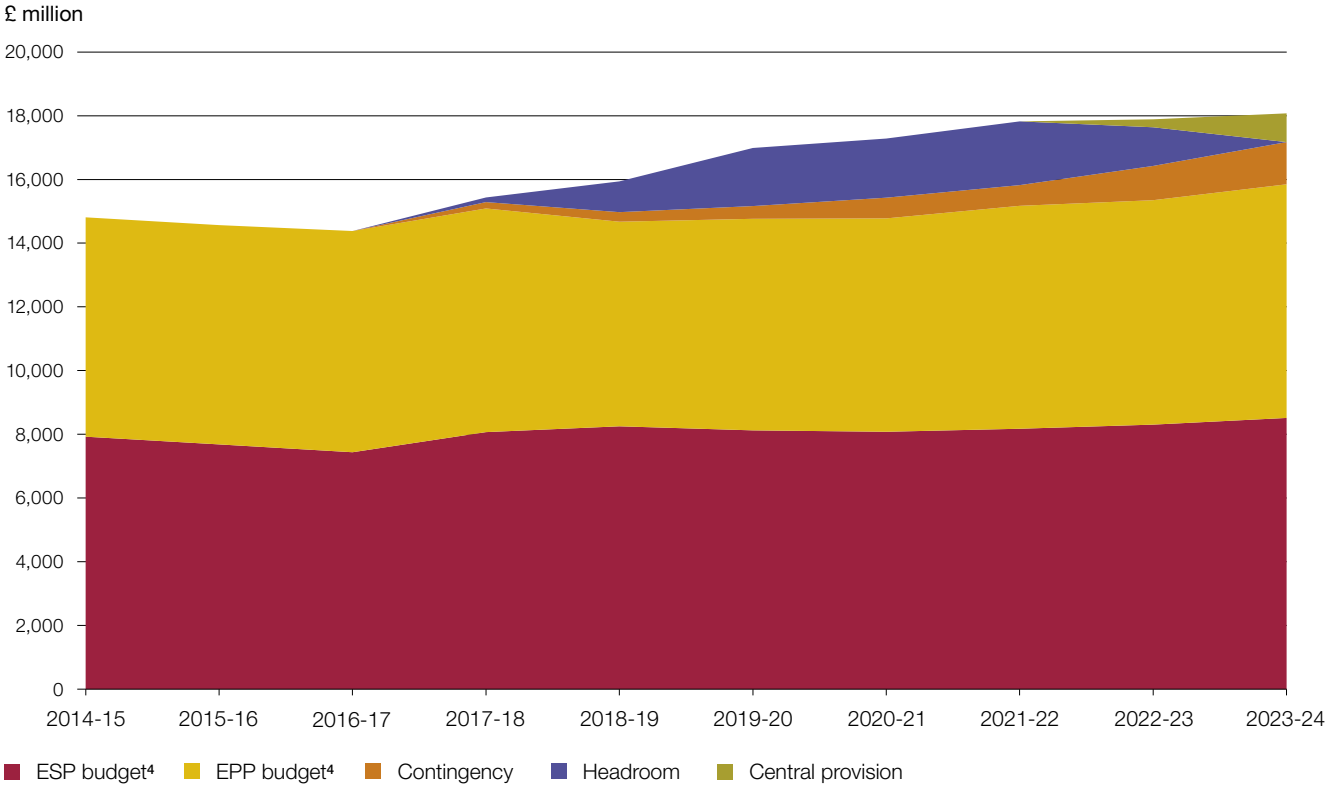
- the roll-forward of the Plan which brings within its scope high 2023-24 expenditure for some projects, most notably the Successor submarine platform; and
- cost adjustments to 2 projects, as explained in paragraph 2.6.

2.4 **Figure 3** overleaf describes the changes in budget totals since 2013 and the 10-year budget profile.

Figure 3

Breakdown of planned spending on equipment, 2014 to 2024

This shows the change since 2013 and the 10-year budget profile



	2014-15 (£m)	2015-16 (£m)	2016-17 (£m)	2017-18 (£m)	2018-19 (£m)	2019-20 (£m)	2020-21 (£m)	2021-22 (£m)	2022-23 (£m)	2023-24 (£m)	2014 Plan total (£m)	2013 Plan total (£m)
ESP budget	7,927	7,685	7,439	8,070	8,253	8,125	8,081	8,176	8,306	8,515	**80,576**	86,796
EPP budget	6,884	6,882	6,942	7,019	6,421	6,639	6,696	6,996	7,043	7,332	**68,854**	63,482
Contingency	0	0	0	200	300	400	650	650	1,075	1,325	**4,600**	4,700
Headroom	0	0	0	145	966	1,823	1,856	2,000	1,213	0	**8,003**	8,400
Central provision	0	0	0	0	0	0	0	0	250	902	**1,152**	919
Central over-programming	-300										**-300**	
Total	**14,511**	**14,566**	**14,381**	**15,434**	**15,939**	**16,987**	**17,283**	**17,822**	**17,887**	**18,074**	**162,885**	**164,297**

Notes

1 Central over-programming is outside the budget in 2014-15 but has been included within the budget for future years.

2 In previous years we have presented 'headroom' and 'central provision' as a single figure for 'unallocated budget'.

3 Figures may not reconcile because of rounding differences.

4 ESP = Equipment Support Plan; EPP = Equipment Procurement Plan.

Source: National Audit Office analysis of Ministry of Defence data

Changes in forecast costs

2.5 In our sample of 17 projects, forecast project costs for the period 2014-15 to 2023-24 have increased on 7 projects and decreased on 10. The net effect has been an increase in procurement costs for our sample of £2.6 billion (**Figure 4**) across the 10-year period. This represents a 5.9% net increase in forecast project costs since 2013.

2.6 The net increased forecast procurement cost of £2.6 billion is largely due to 2 projects, whose increases were partly offset by cost reductions on other projects:

- **The Scout specialist vehicle project**

  The project has been accelerated, leading to an increase of £1.1 billion in its budget over the next 10 years. However, overall costs for Scout specialist vehicle are actually reduced by £613 million over the 30-year period to 2044. The increased funding requirements have been accommodated in the programme without the need for contingency funding.

- **The Morpheus tactical communications project**

  While overall costs remain the same for Morpheus, an accounting adjustment has been made to better reflect the contracting strategy. This has moved £2 billion of planned expenditure from support cost budgets into procurement cost budgets.

Figure 4

Changes in forecasts for procurement cost sample, 2013-14

	Forecast project costs as at 31 March 2013 (£bn)	Forecast project costs as at 31 March 2014 (£bn)	Change (£bn)
Cost lines that have decreased in cost	22.4	21.2	-1.2
Cost lines that have increased in cost	21.8	25.6	3.8

Notes

1 Comparison over the same 10-year period achieved by removing year 1 from the 2013 budget and substituting year 11.

2 The 17 projects divide into 24 separate cost lines. A single project might have cost lines that have increased and ones that have decreased.

Source: National Audit Office analysis of Ministry of Defence data

Changes in forecast costs against project approvals

2.7 We reviewed project performance against approved costs for the 11 projects where the main decision to invest had already been taken (see Appendix Two).[6] Although there were in-year cost variations against approved costs on 9 projects during the year, the overall situation was stable. The one large increase resulted from the revised baseline of costs for the Queen Elizabeth Aircraft Carriers (see *Major Projects Report 2013*). Excluding this project there was a net in-year cost reduction of £397 million (0.7%).

2.8 The other large variation was on a new investment approval for the Lightning joint strike fighter project. This was approved during 2013-14, so is not part of the analysis in the previous paragraph. The Department approved the procurement of the first UK squadron at a budgeted cost of £2.75 billion (within a total budgeted cost of £3.75 billion). The project team are currently forecasting that the cost of the new approval will be £326 million less than this (12% of the approved cost). This is because of accounting adjustments for foreign exchange movements and reductions to the assumed levels of risk and uncertainty. Incremental approvals such as this prevent the Department from committing to unaffordable expenditure, and, it believes, enable it to respond more quickly to changing requirements and to alter its plans to address the needs of the armed forces without having to renegotiate contracts. However, incremental approval can make it more difficult for outside observers to understand the full cost of projects.

Quality of project team forecasting

2.9 All large defence projects have a range of potential costs based on the likelihood of different scenarios and risks. The Department requires project costs in the Equipment Plan to be forecast at the median of the potential cost range; this is referred to as the '50th percentile cost'. Each project is as likely to cost less than this estimate as it is to cost more. Some variation is therefore to be expected. Forecasting requires judgement, so costs are not absolute and can be over or understated.

Incorporation of risk and uncertainty into forecast costs

2.10 The total spend for our sample of 17 projects in 2013-14 was £3.7 billion, a net overspend of £61 million (2%). The main reason was the application of extra resources to various programmes to maintain schedules or recover time lost.

Impact of uncertainty around in-year expenditure on forecast costs

2.11 In its report on the 2013 Equipment Plan the Committee of Public Accounts recommended that the Department should improve its data collection to identify the main causes of any under or overspend.[7] The Cost Assurance and Analysis Service therefore reviewed the 21 major projects that showed the largest variance in 2012-13 and 2013-14 spend against the 2012 planning round. The net impact of the variances was a large underspend. **Figure 5** shows the root causes of underspending.

6 A project is approved in a number of phases, so the costs in this comparison might not cover the same period as the Equipment Plan costs for that project.

7 HC Committee of Public Accounts, *Ministry of Defence: Equipment Plan 2013 to 2023* and the *Major Projects Report 2013*, Fifty-seventh Report of Session 2013-14, HC 1060, May 2014.

Figure 5

The root causes of underspending by project teams on 21 projects in 2012-13 and 2013-14

Cause	Explanation	Total underspend across the 2 years (£m)
Financial planning assumptions	**1** Uncertainty about the responsibilities for making and reviewing adjustments to accounting records. **2** Errors in accounting treatments and subsequent corrections.	680
Contractor performance	Contractors propose timelines and schedules they are then unable to meet, especially if ramp-up of activity is required.	275
Approval delay	**1** Project team underestimates the amount of time required to obtain approvals, especially when HM Treasury or international agreements are involved. **2** Project teams' business cases are not robust enough to meet the standard for approval.	221
Commercial negotiations	Real benefits gained from renegotiation of contract elements (the majority from 2 projects).	178
Risk review	Inconsistent treatment of risk by teams and difficulty in accurately timing the impact of risk.	112

Note

1 Underspends are measured by the Cost Assurance and Analysis Service against the Department's 2012 planning round totals (£1.8 billion across the 2 years). In paragraph 2.23 the 2013-14 underspend is measured against the total approved programme of work for that year.

Source: Cost Assurance and Analysis Service

2.12 Most underspending was the result of decisions to move expenditure backwards or forwards in time relative to the original plans used by the Department to set its budget. This reflected over-optimism by project teams and industry alike. In particular, project teams were uncertain in making and reviewing accounting adjustments. The Cost Assurance and Analysis Service found multiple financial planning adjustments totalling hundreds of millions of pounds. This situation was compounded by a lack of clarity in specialist guidance to project teams and an overly complex budget structure.

2.13 The Department is implementing a 'forecasting improvement programme' in the Defence Equipment and Support organisation in 2014-15 with the intention of delivering improved forecast accuracy by project teams, better decision-making through greater transparency, and a better understanding of the implications of over and underspending (including the impact on future years).

Treatment of inflation, foreign exchange and VAT in forecast costs

2.14 Allowances in forecasts for inflation and foreign exchange movements have been falling after recent falls in inflation rates and the strengthening of the pound. In our sample of procurement projects, we found 4 cases where we had concerns about the treatment of inflation. However, the rates in these cases were not consistently too high or too low. In 2 cases in our sample of support projects, the team was using an inflation rate from outdated corporate planning assumptions; they were not regularly reviewing the rate.

2.15 The Cost Assurance and Analysis Service compared changes in cost estimates across 21 projects between 2013 and 2014. It found that project teams had reduced allowances for inflation and foreign exchange movements during the year by £316 million, primarily in 3 of the 21 projects. By comparison the Service reduced its own estimates for those projects by £718 million.

2.16 In August 2014, the Department reviewed the treatment of VAT by project teams. It found that some teams had incorrectly assumed that their project was exempt from VAT, or that VAT paid could be recovered. HM Revenue & Customs have since changed their policy on applying VAT to some projects. The Department is aiming to increase its capability in taxation matters and will focus more closely on this issue during its internal progress reviews.

Incorporation of risk into forecast costs

2.17 We found that good practice in cost modelling and risk is inconsistent across project teams. Weaknesses in estimating costs were also identified by external consultants in their review of support costs on behalf of the Department.

Cost modelling

2.18 Only 9 of the 17 procurement projects examined had generated a range of potential costs in line with good practice. Generating a range of probable costs is standard practice for the Cost Assurance and Analysis Service, and helpful in understanding risk. However, costs that lie above the 50th percentile within a cost model are not built into projects' budget lines – the elements allocated to risk in costings up to the 50th percentile are, therefore, known as 'risk inside cost', and those above the 50th percentile as 'risk outside cost'. The Department needs to be aware of the likelihood and potential cost of 'risk outside cost' when making decisions about the necessary contingency. Only 9 projects could cost risks above 50%. The total impact of these risks would be £2.5 billion if all risks were realised.

2.19 We found a variety of practices and ability to supply evidence regarding support cost forecasts. Until 2013-14 there had been no reliable cost forecast for the Typhoon In Service Support project. The project team has begun work to produce a robust evidence-based model.

Accounting for risk

2.20 All 17 procurement projects we reviewed had a formal process for assessing risks but found it hard to show how quantified risks were built into the costings. Only 3 project teams were applying good practice across all aspects of risk management for their project. The project teams had varied risk analysis skills, leading some to rely on the Cost Assurance and Analysis Service or industry for data and modelling.

2.21 The quality of costing risk is inconsistent between project teams, with some demonstrating good practice while others need improvement. For example, there is no detailed and costed list of risks and opportunities for the Typhoon fighter aircraft support costs (with approved costs of £13.1 billion), 11 years after the aircraft entered service. Instead a general management provision has been included in the forecast cost to cover risk.

2.22 Project teams decide what risks to include in their cost modelling. Typically risks are excluded where they are low probability but high impact, or when the risk is outside the team's control. It is not unreasonable to exclude some risks from the forecast costs, but as in 2013, we found failures to identify, record and report these risks consistently. Only 2 of our sample of 5 support projects could produce a range of costs that covered uncertainty and risk, and had profiled risk to understand how the risks of different programmes could cause cost pressures in specific years. These 2 projects had quantified risks outside forecast costs to a value of £510 million if all risks were realised. Failure to quantify risk appropriately is a common reason for the Cost Assurance and Analysis Service to challenge costings.[8]

Potential impact of inaccurate cost forecasts

Cost forecasting in-year

2.23 Figure 6 overleaf shows that the Department spent £13.87 billion on equipment in 2013-14, £185 million (1%) more than its original equipment budget. It achieved this by programming £920 million of work at the start of the year in addition to that within the original budget, and added a further £213 million of work during the year when the likelihood of an underspend emerged. The projects in our sample overspent by £60 million (2%) in 2013-14. In 2012-13, we reported that the Department underspent on equipment by £1.15 billion against the total value of its work programme for the year (original equipment budget plus additional work programmed during the year). For 2013-14, the equivalent figure was £948 million. The root causes of this underspending are discussed in Figure 5. Shortcomings in management information and cost forecasting could cause slippage in project delivery or additional costs to recover time lost.

8 The Cost Assurance and Analysis Service completed their first analysis of support costs in 2013-14 and continue to mature this work; their views on support costs may change as they develop greater levels of understanding about the drivers of support cost.

Figure 6

Spend against the total approved programme of work on the Equipment Plan, 2013-14

	Programmed spend 2013-14 (£m)	Actual spend 2013-14 (£m)
Equipment Plan 2013-14 original budget	13,688	13,709
Additional programmed work approved at the beginning of 2013-14	920	
Additional work programmed during the year	213	164
Total work plan	**14,821**	**13,873**

Source: Ministry of Defence

Longer-term impact of under-budgeting for projects

2.24 On some projects the project team and the Cost Assurance and Analysis Service forecast continue to differ significantly over a number of years. Each year the Department's independent Cost Assurance and Analysis Service reviews the procurement costings that are used to inform the Equipment Plan. In 2014, the Service reported potential under-costing by project teams of £3.2 billion. This is £1.1 billion less than the £4.3 billion identified by the Service in 2013.[9] The estimate is a combination of:

- project-specific cost estimates for large complex projects (69% of the value of the portfolio); and
- application of a cost model, which uses historic trend analysis, to other projects based on historic performance for cost growth and schedule slippage (31% of the value of the portfolio).

Of the £1.1 billion reduction, £895 million (80%) of this has come from a change in the output of the historic trend analysis model.

9 We reported £4.4 billion in our 2013 report for the period 2013 to 2023. The 2013 estimate for the period 2014 to 2024 is £4.3 billion which provides a like for like comparison to the 2014 estimate.

2.25 Previously, the Department was unable to give us data to undertake a detailed review of equipment support costs. However, by January 2014, the Cost Assurance and Analysis Service had reviewed 28% of the support cost budget (half their level of coverage of the procurement budget). We looked at the variance between the Service's estimate of the most likely outturn and project teams' forecasts used in planning assumptions across these projects. This aggregated to an extra £2 billion above the amounts allocated within the Equipment Plan (although the estimates are of varying levels of maturity). The Service expects to have reviewed 50% of support cost forecasts by 2015, and to have reviewed support costs to a similar level to procurement costs by 2016. It does not consider it practical to develop a model to forecast cost movements for the projects not covered by specific estimates. In paragraphs 3.13 to 3.15 we discuss how the contingency provision is intended to mitigate potential overspends.

2.26 Cost growth in projects on the scale estimated by the Cost Assurance and Analysis Service would exceed the Department's contingency provision, leading to the use of funds set aside for other capability requirements identified by commands.

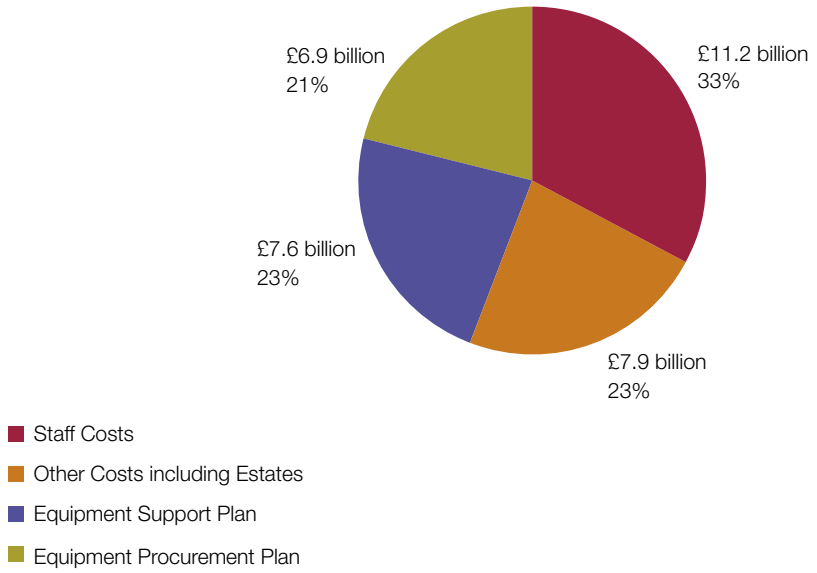
Part Three

Assumptions underpinning funding

3.1 The Department funds Equipment Plan expenditure with the budget allocated by HM Treasury through the Spending Review process. Funding for the Equipment Plan is not protected by HM Treasury; the Department has to allocate its budget for equipment costs internally, ensuring that there is also enough budget to meet non-equipment costs, such as the management of the Defence Estate and costs of Armed Forces personnel. The Department is planning to spend £14.5 billion on equipment procurement and support in 2014-15. This is 44% of the Department's core budget in 2014-15 (**Figure 7**).

Figure 7
Breakdown of Departmental spending, 2014-15

The Equipment Plan accounts for 44% of the Department's forecast spending in 2014-15



Source: National Audit Office analysis of Ministry of Defence data

3.2 Whether the Department can deliver the core Equipment Plan depends on a number of factors, including:

- the costs of the major programmes in the Equipment Plan remaining stable;
- the planned procurement and support savings initiatives providing the required level of cost reductions;
- efficiencies in the non-Equipment Plan spend being realised; and
- the contingency provision being enough to absorb any cost growth, so that the unallocated budget remains available for capability over and above the core programme.

3.3 We have examined the Department's assumptions that:

- it has enough funding to procure and support the core equipment it needs (paragraphs 3.4 to 3.15);
- it has enough funding to meet the Future Force 2020[10] capability objectives that extend beyond delivering the core Equipment Plan (paragraphs 3.16 to 3.18).

Sufficiency of Departmental funding

Proportion of funding allocated to the Equipment Plan

3.4 The proportion of the Department's budget allocated to the Equipment Plan increases from 40% in 2013-14 to 44% in 2014-15 (Figure 7). The proportion of the Department's total budget that is available for the Equipment Plan depends on the settlement that will be agreed with HM Treasury in the next Spending Review. If the Department's planning assumptions are correct the proportion allocated to the Equipment Plan remains around, or just below, 44%. However, if the funding is lower than planned the proportion of funding that is allocated to the Equipment Plan may increase to 47% of total budget by 2019-20. Whether the Department can allocate a greater proportion of its budget to the Equipment Plan depends on its achieving plans to reduce manpower and its Defence Estate. The Department is confident that non-Equipment Plan savings are being met, but we have not seen evidence to confirm this as part of this review.

Level of Departmental funding over the 10-year Equipment Plan

3.5 In July 2011, the Department agreed a settlement with HM Treasury for its forward Equipment Plan budget from 2014-15 to 2020-21. The settlement is for a fixed planning profile of funding for the Equipment Plan for each year in the period covered. It was calculated based on a 1% real funding increase above inflation. The Department's Equipment Plan budget is currently significantly higher than the amount allocated to it by HM Treasury for equipment procurement. There is no restriction preventing the Department increasing the Equipment Plan budget in this way.

10 Future Force 2020 is the Government's intended shape of the Armed Forces from 2020.

3.6 For the years beyond the current 10-year Equipment Plan the Department has assumed that it will continue to receive an increase in the budget of 1% above inflation, although this has not been formally agreed with HM Treasury. For the non-Equipment Plan element of the budget the Department assumes that funding will match inflation from 2016-17, with no further funding reductions or increases.

3.7 In our review of the *Equipment Plan 2013 to 2023*[11] we reported that there is a potential difference in available funding for equipment of £15 billion over the life of the Equipment Plan, depending on what starting point is used in determining the Department's settlement in the next Spending Review. The Department has since confirmed that they are planning on the basis that the funding settlement in the next Spending Review will use the Department's position following the Spending Round 2013[12] funding reductions as a starting point. This is a reasonable assumption for planning purposes. We are not able to comment further on the reasonableness of the full range of assumptions used as the Department has not provided us with the details of the level of total funding they expect to receive from 2015-16.

Funding changes between 2013 and 2014

3.8 The Department's ability to fund non-equipment costs is also dependent on it controlling planned growth in the Equipment Plan. There is a net reduction between the 2013 to 2023 and 2014 to 2024 Plans. The planned budget of £163 billion for the period 2014 to 2024 represents a drop of £1.4 billion against the final budget for 2013 to 2023. However, across the 9 years that the 2 plans have in common (2014 to 2023) there is a reduction of £5.8 billion (see **Figure 8**). Most of this is due to the removal of £4.1 billion from the support budget to be met from an ongoing review to identify efficiencies in the support budget.

Figure 8
Reductions in the core Equipment Plan budget 2014 to 2023

		£000
2013 budget		150,628
Less	Support cost savings	(4,123)
	Naval base costs transferred	(1,279)
	Re-profiling of contingency to 2023-24	(1,446)
Other changes		1,031
2014 budget		**144,811**

Notes

1 A target of £3.5 billion of efficiency savings in the Equipment Support Plan has been agreed between the Department and HM Treasury; however, the Department has extended its savings target on support costs to £4.1 billion over the 10-year planning period.

2 In 2013-14, Navy command identified £1.3 billion of costs within equipment budgets which were more appropriately attributable to general maintenance of capacity at naval bases.

Source: National Audit Office analysis of Ministry of Defence data

11 Comptroller and Auditor General, *Ministry of Defence*, *Equipment Plan 2013 to 2023*, Session 2013-14, HC 816, National Audit Office, February 2014.
12 HM Treasury, *Spending Review 2013*, Cm 8639, June 2013.

3.9 The Department has also brought forward expenditure to fund additions to the core programme. However, it has used the savings described earlier to fund the resulting cost increases rather than drawing on contingency or, for the most part, unallocated funding. The effect of the additional funding against the cost reductions is shown in **Figure 9** overleaf.

Management of costs and risks at portfolio level

3.10 The reduction in the Equipment Plan budget depends on initiatives that the Department expects will produce the required efficiency savings over the 10-year period. The largest sums relate to support cost efficiencies, with £4.1 billion of savings to be achieved by the commands, working with the support of external contractors.[13]

3.11 The Department engaged consultants to carry out a review of projects to identify savings from the support budget over 10 years. At the end of each project review the relevant project team agrees to an efficiency savings implementation plan. This plan is then incorporated into project costings and put to commands for their approval as budget holders. They will also assist in transferring skills to staff within the Department to create a sustainable approach to identifying and securing efficiencies. They have reviewed 11 major support projects to date, constituting nearly 40% of the value of the equipment support programme. The project teams provisionally identified potential savings of £2.9 billion over 10 years. **Figure 10** on page 29 shows the areas in which identified savings and greater efficiencies were identified.

3.12 In addition to the potential savings identified in the support costs, there are a number of cost reductions initiatives within the Equipment Procurement Plan. If these do not produce the forecast level of savings, there could be significant cost growth and potential impacts on capability. The most significant efficiency programmes with the Plan are as follows:

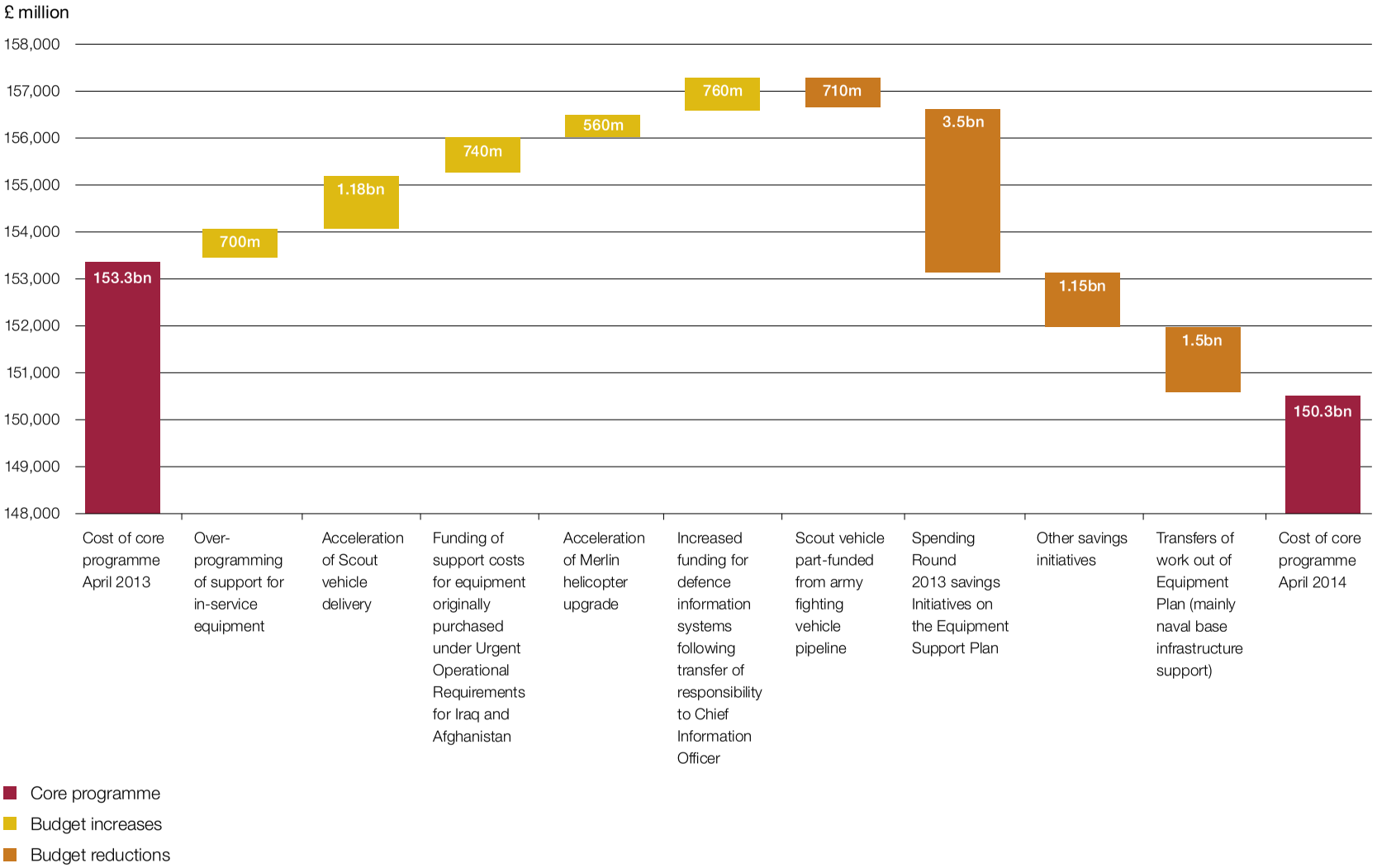
- We reported on the Submarine Enterprise Performance Programme (savings worth £1.05 billion) in the *Equipment Plan 2013 to 2023*. As at 31 March 2014, only around £200 million of the savings had been realised.
- There is an industry improvement project known as PULSAR, which is aimed at improving the efficiency of the contractor's submarine programmes. A key objective of this project is to ensure that the Astute programme is completed to its planned schedule. At the time of our review, the project did not have an approved business case; nor did it have an agreed baseline with industry against which improvement could be measured.
- The Complex Weapons procurement approach estimated financial benefits of £1.2 billion over 10 years from 2010. We reviewed Complex Weapons in detail as part of the *Major Projects Report 2013*. As at June 2014, the Department had identified £196 million of savings towards this target.

13 Consisting of a £3.5 billion reduction in funds allocated by HM Treasury and an additional £600 million Departmental challenge to commands.

Figure 9

The Department has managed its budget to accommodate a fall in core funding for the 2014 to 2024 Equipment Plan compared to its 2013 to 2023 Plan

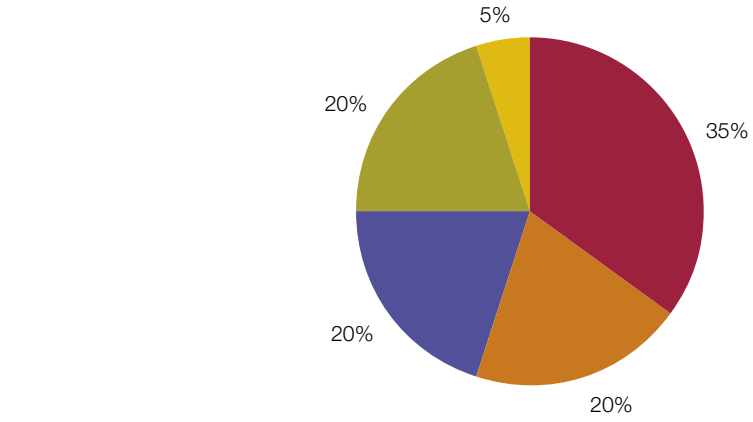
This shows the changes to the core programme between 2013 and 2014



Source: Ministry of Defence

Figure 10

Opportunities for savings identified by consultants through improved performance by project teams and contractors



Note

1 Proportions ultimately agreed by commands might vary.

Source: Ministry of Defence

Sufficiency of contingency

3.13 The Equipment Plan contingency funding of £4.6 billion is available from 2017-18, and increases in value over the rest of the 10-year plan to reflect the increased risk of forecasting costs further into the future. The contingency funding is intended to cover the risk of:

- cost growth;
- failures to achieve savings targets;
- risks maturing;
- unexpected events that have financial impacts; and
- over-optimism in project teams' costings.

3.14 In paragraphs 2.24 to 2.25 we explained that the Cost Assurance and Analysis Service has stated that project teams are underestimating their cost forecasts. Moreover, the project budgets included in the Plan by the Department may in some cases be lower again than these estimates. External consultants have identified several support projects where the costs in the Plan do not reflect teams' knowledge. When this is the case, the position is referred to as a 'cost challenge' and the project team is tasked with bringing the forecast to within the available budget.

3.15 In January 2014, the Cost Assurance and Analysis Service estimated that procurement budgets within the Equipment Plan understated realistic forecasts of outturn costs by £4.7 billion. In April 2014, the Department adjusted its budget allocations, adding £2.4 billion to the 2014 Equipment Procurement Plan. The Department's contingency allowance covers this, but there is no estimate of the extent to which support budgets might be underestimated (if support budgets were also underestimated it would be in line with the Service's findings on project team forecasts – see paragraph 2.25). It therefore risks being unable to provide adequate cover for future cost growth.

Achievability of strategic objectives

3.16 The Department recognises that Future Force 2020 cannot be realised by improving equipment procurement alone. It will need to make other changes if it is to achieve its objectives within budget. These include:

- making efficiency savings across the Department;
- using unallocated expenditure appropriately;
- making a success of its new operating model; and
- making changes to the way in which the Armed Forces conduct training and operations.

3.17 During the 10 years of the Equipment Plan 2014 to 2024, the Department has unallocated procurement expenditure – 'headroom' – of £8 billion. Most of this will be available towards the end of the planning period. The Department intends to use this money to fund extra projects beyond the current core programme according to their military priority (and assuming they are affordable), so that it can reach the full equipment capability needed to meet its longer-term objectives. The individual commands are being given the responsibility for allocating this expenditure as part of a wider Transformation Programme, since the Department believes that they are in the best position to judge how to use the unallocated funding most effectively.[14]

14 The National Audit Office, *Briefing for the Committee of Public Accounts: Reforming the Ministry of Defence*, February 2012.

3.18 Land and Navy commands have been the first commands to exercise this new responsibility, drawing down £392 million to fund 2 projects in future years. Land command is the most likely command to experience capability gaps unless it can procure equipment beyond the core programme.[15] We reported in our 2013 report that over 50% of the unallocated budget has been provisionally apportioned to Land command, and it has distributed 10-year funding plans to its project teams on the basis that £2.4 billion of the headroom will be available to them when necessary.

15 Comptroller and Auditor General, *Ministry of Defence: Equipment Plan 2013 to 2023*, paragraph 57, Session 2013-14, HC 816, National Audit Office, February 2014.

Part Four

Disclosure

4.1 The Department's annual Statement on the Affordability of the Equipment Plan should:

- aid transparency;
- show whether the Equipment Plan is affordable and achievable; and
- provide the defence industry with more information for planning.

4.2 Using International Assurance Standards (see Appendix One), we examined whether the statement contains adequate and sufficient disclosures for users of the Equipment Plan to fully understand:

- the key assumptions that have been used to generate the Equipment Plan costs and the sensitivity of the costs to changes in those assumptions; and
- the key assumptions that the Department has made about the level of available future funding, and the sensitivity of affordability of the Equipment Plan to changes in those assumptions.

Disclosure regarding cost assumptions

4.3 The Statement is similar in format and content to those of earlier years. It contains a breakdown of the Equipment Plan budget into its component parts. This enables the reader of the Statement to identify:

- the costs related to procurement and support;
- the unallocated budget; and
- the contingency provision detailed on a year-by-year basis for the reported 10-year period.

There is sufficient discussion for the reader to understand the nature and rationale of the different components of the Equipment Plan, including the contingency provision and unallocated budget.

4.4 We are pleased to note that the Statement has further disclosures that address some of the recommendations in our 2013 report:

- The Statement now explains how project teams generate forecast costs. It also refers to the findings of the Cost Assurance and Analysis Service.
- The Statement also gives information on the key savings initiatives.

4.5 The Statement's disclosures have improved but there are still areas where further detail is required. Readers need to fully understand the fundamental assumptions that underpin the Equipment Plan, and the risks and sensitivities to implementing it within budget. We would expect disclosures to describe:

- the drivers for the changes including risks, if any, to capability due to the planned budget reduction;
- the approach to inflation and foreign exchange assumptions and the sensitivity to these assumptions;
- consideration of the range of possible values the total Equipment Plan could cost;
- the total value of risk outside costing and the impact on affordability should these risks materialise;
- information on how the savings targets will be measured, what the key milestones are, and when the Department will report on whether savings targets have been met; and
- the impact that cost increases in the largest programmes would have on affordability, so that the reader of the Statement understands how sensitive the overall position is to movements in the projects in the Equipment Plan.

Disclosure regarding funding assumptions

4.6 Our observations are similar to those in our 2013 report. The Statement adequately discloses that funding available to the Equipment Plan is underpinned by an agreement with HM Treasury which provides for a minimum level of funding predicated on a 1% increase above inflation until 2020-21. It is also clear about the method and rationale for allocating funding to a core programme while retaining an £8 billion unallocated budget. However, for the user to fully understand the effect that changes in the funding assumptions could have on affordability, the Statement should also contain the following:

- Information on the Department's assumed total funding within which the Equipment Plan budget will have to be met, and the sensitivity of the Plan's affordability should these change.
- Information on the need to meet cost reduction targets in non-equipment areas of the Department's budget to ensure that the planned level of funding is available for the Equipment Plan.

Appendix One

Our audit approach

1 This year for the first time we are combining what have previously been 2 separate outputs, the Major Projects Report and our review of the affordability of the Equipment Plan. This reflects the close relationship between the 2 pieces of work:

- The sample of projects for our Major Projects Report is also used for our review of the Equipment Plan.[16]
- The Major Projects Report looks at the impact of changes to time, cost and performance measures. It provides some evidence of the stability of the programme on which the forward assumptions in the Equipment Plan are based. Our review of the Equipment Plan provides further detail on the accuracy and risks to the project cost and time forecasts reported in the Major Projects Report.

2 Our work is based on a sample of 17 major military equipment projects.[17] These include the 11 largest where the Department has taken the decision to to proceed to the demonstration and manufacture stage. This year we have in addition looked at 5 of the largest support programmes, shown in Figure 13 of Appendix Two.

Affordability of the Equipment Plan

3 As previously we built a model to test the Department's assertions within its assessment of the cost of the Equipment Plan and the funding available. The model breaks down those assertions into a set of hypotheses, as set out in **Figure 11** on pages 36 and 37. We used the following methods to test these hypotheses:

- We reviewed alternative cost estimates generated by the Department's internal Cost Assurance and Analysis Service. We worked with their staff to understand the methods and scope of their work. When there were significant differences between the Service's and the project teams' estimates we evaluated the risk to the affordability assertion.
- We reviewed the cost models and cost-estimating techniques used in generating cost forecasts; risk management; and how uncertainty and risk are built into costings. We also matched actual spend to contracted amounts.

16 The review of the Equipment Plan also includes an examination of the support costs of a small additional sample.
17 Originally the sample size was 18 but the Cipher project was concluded during 2013-14. A Project Summary Sheet for Cipher has been included for transparency, but the project data is not included in our analyses as it is no longer extant.

- We reviewed the application of central government guidance on how to treat inflation and foreign exchange.
- We reviewed historical data on actual costs against planned spending. This enabled us to assess the Department's ability to accurately forecast costs on a yearly basis.
- We assessed the Department's process for aggregating project costs into the Equipment Plan.

Project cost, time and performance

4 This is the thirty-first year in which we have reported to Parliament on in-year changes to the cost, time and technical performance of major projects. We publish the Department's data for the 11 projects; these data cover cost, time and performance against the original plans when the decision to proceed to the demonstration and manufacture stage was made. We validate but do not audit these data. We perform analysis to report on overall trends and in-year performance. We also validate and publish more limited data on the projects where the main investment decision is yet to be taken (including the Cipher project, which was brought to a conclusion in 2013-14, and so is not part of our further analyses conducted on the remaining 6 projects in our procurement sample).

5 For the time, cost and performance of major projects we measured the largest projects' forecasts against original approvals:

- The project teams in Defence Equipment and Support put together the project summary sheets that are published in Volume II of this report. We validated the data back to supporting evidence such as planning documents, contracts, project plans, contractor reports, and assessments of performance by the Director of Capability and front-line commands.
- Using the qualitative and quantitative data collected, we considered whether the Department is anticipating that the project will meet the budget, time and performance expected when the main investment decision was made.

Figure 11

Testable assertions and key findings relating to the Equipment Plan

High level assertion

The cost of the Equipment Plan over the 10-year period is equal or less than the available funding.

Sub-level assertions

The forecast cost of the Equipment Plan is sufficiently robust to be used as a reasonable basis on which to plan.

The assumed funding available for the Equipment Plan is realistic.

Test level assertions

The individual project costs that constitute the Equipment Plan are sufficiently robust for planning purposes.

Risk and uncertainty are adequately incorporated into project costings.

The Equipment Plan costs are adequately managed at the portfolio level.

Hypotheses

The costs of individual projects are a product of thousands of implicit assumptions.

Project teams use cost modelling to understand risk and uncertainty, and use the 50th percentile cost for planning.

The Department assumes that the sum of the 50th percentile costs for individual projects gives a reasonable most likely cost of the programme as a whole.

Key findings

The Department has maintained its cost challenge process for procurement costs and has improved its internal review processes. Inflation and foreign exchange assumptions are reasonable in most cases. There is evidence that some costings are still over-optimistic. In some cases the project teams are unable to provide an adequate audit trail to support their costings.

The costing techniques used by the Department are relatively sophisticated and there are examples of good practice; however, the use of costing techniques is yet to be consistent throughout project teams. Projects have formal procedures for assessing risks on procurement projects but less so for support. Quantification of risks outside costing is patchy.

Aggregating the 50th percentile project costs gives a limited basis on which to plan. Significant underspend continues against work plan but analysis indicates that this might be due as much to internal re-profiling and accounting adjustments as to project performance.

High level findings

The Department has improved its internal challenge process and there are examples of good costing techniques. However, not all project teams are able to provide an adequate audit trail for their cost estimates, and there is a lack of consistency in how effectively costings techniques are used. The Department is developing its understanding of support costs, but this is highlighting the need to achieve ambitious savings in support costs to maintain the affordability of the Equipment Plan.

Conclusion

The Department's ability to maintain the affordability of the current projects within the Equipment Plan is contingent on a number of factors, including the achievement of significant savings in its support cost budget and mitigating the effects of over-optimism in project team costings.

Note

1 The 50th percentile cost is derived from cost modelling, which gives a profile of possible costs for a project. The 50th percentile is the midpoint of the range of costs. Each project is as likely to cost less than this estimate as it is to cost more.

Source: National Audit Office

The centrally held contingency budget is sufficient to allow management of cost growth within the allocated funding.	The level of funding on which the Department is planning for the 10-year period is realistic.	The proportion of the funding the Department is allocating to the Equipment Plan is realistic.	The Department can deliver the equipment and support to reach the Future Force 2020 objective within the available funding.
Although the £4.6 billion provision is below historic trends of cost growth, the Department assumes it to be sufficient to manage cost growth drawing on analysis from the Cost Assurance and Analysis Service.	The Department has agreed funding for the Spending Review settlement period.	The Department has assumed that it will be able to manage both equipment and non-equipment costs from the planned funding, achieving such cost savings as are required.	The core Equipment Plan will deliver the key elements of Future Force 2020; the £9.2 billion total unallocated budget will be needed to deliver the full intent. If it is used for the core programme, capability issues will be addressed through adjusting strategic objectives.
The inclusion of the contingency budget provides a buffer to allow the Department to cope with cost growth. We have concerns that it may not be sufficient because of risk materialisation and cost growth from the Equipment Support Plan.	The funding for the Equipment Plan itself is based on agreements with HM Treasury. However, the funding is not protected and cuts to the Department's total funding may impact on the Equipment Plan.	The proportion of the Equipment Plan spend increases as a percentage of the total budget. Achieving affordability is therefore contingent on savings being achieved elsewhere in the budget.	The Department has adopted a prioritised approach to project funding that protects the budget for the core programme. Delivery of Future Force 2020 is contingent on how unallocated budget is used to deliver capabilities beyond the core programme.

The planned funding is based on an agreement with HM Treasury and the affordability position is highly sensitive to changes in the funding. The core is protected by the £4.6 billion contingency provision and, beyond that, the £9.2 billion unallocated budgets. However, if the unallocated budget is required to deliver the core programme then capability gaps may arise. Affordability is also contingent on achieving savings in the non-Equipment Plan budget.

Assessing whether Affordability Statement disclosures are adequate

6 To assess whether the disclosures in the Department's Affordability Statement are adequate and sufficient, we used as a framework the 'International Standard on Assurance Engagements 3400: The Examination of Prospective Financial Information' (the Standard).[18] The relevant elements extracted from the Standard that are applicable to this engagement are as follows:

- The presentation of prospective financial information is informative and not misleading.
- The assumptions are adequately disclosed in the notes to the prospective financial information. It needs to be clear whether assumptions represent management's best estimates or are hypothetical and, when assumptions are made in areas that are material and are subject to a high degree of uncertainty, this uncertainty and the resulting sensitivity of results needs to be adequately disclosed.
- The date as of which the prospective financial information was prepared is disclosed. Management needs to confirm that the assumptions are appropriate as of this date, even though the underpinning information may have been accumulated over a period of time.
- The basis of establishing points in a range is clearly indicated and the range is not selected in a biased or misleading manner when results shown in the prospective financial information are expressed in terms of a range.

18 Available at: www.ifac.org/sites/default/files/downloads/b013-2010-iaasb-handbook-isae-3400.pdf

Appendix Two

Major projects: cost, time and performance in 2013-14

Scope of the review

1 Each year the Ministry of Defence (the Department) presents to Parliament a Major Projects Report that provides data on the cost, time and performance of the largest defence projects where the decision to proceed to the demonstration and manufacture stage has been taken (11 of the projects in our procurement sample).[19] Full details of the projects are shown in **Figure 12** on pages 40 and 41. The Department's report also contains less detailed information on the largest projects where the main investment decision has not yet been taken (see **Figure 13** on page 45). The NAO validates, but does not fully audit, the data. This report presents our analysis and key conclusions. Short summaries of each project can be found at Appendix Four and the full project summary sheets are contained in Volume II of this report. As explained in paragraph 1.6, we have used the same samples in this review as our work on the Equipment Plan. An explanation of our approach is in Appendix One.

Cost

2 We examined the cost movements for the elements of the 11 projects in our sample where the Department has decided to proceed to the main demonstration and manufacture stages of the project (see paragraphs 3 and 4). As well as examining the cost movements of the entire sample, to allow a like for like comparison to the previous year we also examined the cost movements of those projects where the decision to proceed was taken prior to 2013-14 (see paragraphs 5 and 6).

3 Across the 11 projects we examined, we found there has been relative stability in the cost forecasts during 2013-14. Overall, we found a net cost reduction of £397 million during 2013-14 (0.7% of the current forecast cost to completion of £59.2 billion),[20] excluding the cost movement on the Queen Elizabeth Carriers.[21]

19 We count the Complex Weapons portfolio as a single project for these purposes.
20 This is the 50th percentile cost, derived from cost modelling, which gives a profile of possible costs for a project. The 50th percentile is the midpoint of the range of costs. Each project is as likely to cost less than this estimate as it is to cost more. It is used by the Department for planning purposes.
21 2013-14 cost increases for this project were reported in the 2013 Major Projects Report.

Figure 12

The 11 largest equipment projects where the Department has taken the main decision to invest

Project	Description	Expected cost to completion at approval (£m)	Current forecast cost to completion (£m)
A400M	Large transport aircraft	2,238	2,752
Astute	Attack submarine: Boats 1–3	2,233	3,433
	Attack submarine: Boat 4	1,279	1,492
	Attack submarine: Boat 5	1,464	1,365
	Attack submarine: Boat 6	1,579	1,515
	Attack submarine: Boat 7	1,642	1,669
Core Production Capability	Nuclear core production	1,176	1,148
Complex Weapons	Pipeline Weapons funding: Interim main gate 1 – Fireshadow	246	257
	Pipeline Weapons funding: Interim main gate 1 – Brimstone 2		
	Pipeline Weapons funding: Interim main gate 2 – Sea Ceptor	850	849
	Future Anti-Surface Guided Weapon (Heavy)	392	391
	Future Anti-Surface Guided Weapon (Light)	311	306
Future Strategic Tanker Aircraft	Air-to-air refuelling and passenger aircraft	11,779	11,402
Lightning II	Fighter or attack aircraft	5,622	5,036
Military Afloat Reach and Sustainability	Naval logistic support	596	562
Queen Elizabeth Class	Aircraft carrier	3,541	6,102
Scout Specialist Vehicle	Armoured Fighting Vehicle	1,394	1,394
Typhoon	Fighter aircraft	15,173	17,543
	Aircraft software upgrade: Future Capability Programme	403	403
	Meteor Integration	130	124
	Storm Shadow Integration	172	172
Warrior	Capability Sustainment Programme	1,319	1,315
Total		**53,539**	**59,231**

Notes

1 2013-14 Carriers cost increase (£754 million) and schedule slippage (5 months) originally reported on in 2013 Major Projects Report.

2 Projects and project increments that are new to the 2014 project population are: Typhoon Meteor Integration; Typhoon Storm Shadow Integration; Complex Weapons Future Anti-Surface Guided Weapon (heavy); Complex Weapons Future Anti-Surface Guided Weapon (light); Complex Weapons Sea Ceptor manufacture phase; and the Lightning II approval to procure the aircraft for the first UK Squadron.

Source: National Audit Office analysis of Ministry of Defence data

Total cost variation (£m)	Change on costs to completion since the 2013 Major Projects Report (£m)	Expected in-service date at approval	Current forecast in-service date	Total time variation (months)	Change to in-service date since the 2013 Major Projects Report (months)	Defence lines of development				Key performance measures				Number to be procured	
						To be met	To be met, with risks	Not to be met	In-year change, not to be met	To be met	To be met, with risks	Not to be met	In-year change, not to be met	Approved	Current plan
+514	-57	Feb 2009	Mar 2015	+73	0	4	4	0	No change	9	0	0	No change	25	22
+1,200	+19	Jun 2005	Apr 2010	+58	0					9	0	0	-1	3	3
+213	-12	Aug 2015	Jan 2018	+29	0					10	0	0	No change	1	1
-99	-30	Aug 2020	Aug 2020	0	0	8	0	0	-1	10	0	0	No change	1	1
-64	+5	May 2022	May 2022	0	0					10	0	0	No change	1	1
+27	+61	Mar 2024	Mar 2024	0	0					10	0	0	No change	1	1
-28	+38	May 2021	Feb 2022	+9	+6	7	0	0	No change	2	0	0	No change	N/A	N/A
+11	+10	Mar 2012	Mar 2012	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Oct 2012	Nov 2015	+37	0	8	0	0	No change	9	0	0	No change	N/A	N/A
-1	0	Nov 2016	Nov 2016	0	0	8	0	0	No change	10	0	0	No change	N/A	N/A
-1	-1	Oct 2020	Oct 2020	0	0	7	1	0	No change	5	0	0	No change	N/A	N/A
-5	-5	Oct 2020	Oct 2020	0	0	7	1	0	No change	5	0	0	No change	N/A	N/a
-377	+9	May 2014	May 2014	0	0	8	0	0	No change	9	0	0	No change	14	14
-586	-201	Dec 2018	Dec 2018	0	0	3	5	0	No change	5	2	0	No change	Not yet determined	Not yet determined
-34	-34	Oct 2016	Oct 2016	0	0	4	4	0	No change	11	0	0	No change	4	4
+2,561	0[1]	Jul 2015	Dec 2017	+29	0[1]	2	6	0	No change	8	1	0	-1	2	2
0	0	No date specified	No date specified	No data	No data	8	0	0	No change	11	0	0	No change	Not yet determined	Not yet determined
+2,370	-109	Dec 1998	Jun 2003	+54	0					8	1	1	No change		
0	-28	Jun 2012	Dec 2013	+18	0					7	0	0	No change		
-6	-6	Jun 2018	Jun 2018	0	0	7	1	0	No change	10	0	0	No change	232	160
0	0	Aug 2018	Aug 2018	0	0					10	0	0	0		
-4	-56	Nov 2018	Jul 2019	+8	+8	8	0	0	No change	9	0	0	No change	445	445
+5,691	**-397**			**+315**	**+14**										

4 The overall in-year cost variation of those elements of projects that were approved to proceed to demonstration and manufacture during 2013-14, which total £3.7 billion, was a net reduction of £338 million (0.6% of total forecast costs for the sample). The largest single in-year variation relates to a new approval to proceed to manufacture within the Lightning joint strike fighter project. In January 2014, HM Treasury approved the procurement of the first UK squadron at an additional budgeted cost of £2.75 billion. However, the project team are now forecasting that the cost will actually be £2.42 billion, a £326 million (12%) reduction against the budgeted cost. This is partly due to an accounting adjustment which has removed a £204 million provision for foreign exchange rate movements in future years from the forecast, and reductions to the assumed level of risk and uncertainty. Exchange rate adjustments may then be added back into the forecast as appropriate on an annual basis, if the exchange rate moves in a way that is unfavourable to the project. The remaining £122 million reduction in forecast is due to actual foreign exchange movements during 2013-14, and a reduction in the assumed levels of risk and uncertainty. The overall costs of all projects is £5.7 billion (10.6%) higher than originally forecast.

5 Excluding those projects and elements of projects where there has been a new approval since April 2013 allows us to compare cost movements on a like for like basis with last year's analysis. Across these projects there was a net reduction of £59 million (0.1%) in the forecast costs, indicating stability in these projects. This excludes the Queen Elizabeth Carrier project which we reported on in the *Major Projects Report 2013*.[22] The total forecast costs for this subset of projects is now £55.5 billion, an increase of £6.1 billion (12%) since the main investment decision was taken.

6 Within the net cost reduction of £59 million there has been a number of reductions and increases on individual projects. The 2 projects with the most significant variances by proportion of the project cost were:

- A 6% (£34 million) reduction in the cost of the Military Afloat Reach and Sustainability tankers to reflect the retirement of project risks.
- A 5% (£125 million) increase in the forecast cost of activities for elements of the Lightning joint strike fighter project where the investment decision pre-dated 2013-14. This was mainly due to accounting adjustments to allocate planned costs from later production phases into the 'system development and demonstration' phase to reflect the fact that this phase will not conclude as expected in 2016 and has been extended to 2019. However, when all project approvals for the Lightning joint strike fighter are taken into account, overall project cost forecasts have decreased by £201 million.

The largest reduction in costs, by value, was a 1% (£109 million) decrease on the Typhoon programme, after a downward assessment of the production cost of the third tranche of aircraft.

22 Comptroller and Auditor General, *The Major Projects Report 2013*, Session 2013-14, HC 817, National Audit Office, February 2014.

Causes of cost variations

7 In 2013, we identified changes to inflation assumptions as being the main cause of variations within the sample. This year there were a wider variety of causes; mainly exchange rates, budgetary factors and accounting adjustments and redefinitions.

8 As described in paragraph 4 the Lightning joint strike fighter aircraft project had a £2.75 billion change to its approved cost in 2013-14 following approval to move to the next production stage. This is an example of a large and complex project where the Department's approach is to break a large project into smaller stages and approve them in increments rather than in a single block. The Lightning project has so far had 3 investment approvals during the demonstration and manufacture phase and more will be necessary to meet the requirement. While this allows the Department to be more responsive to changing requirements, there are risks (for example suppliers' loss of certainty about future orders). It also can reduce transparency within the Major Projects Report data about the full cost of the programme, and the extent to which capability requirements are being met for the sums approved.

9 There are several projects in our sample that have large increases in expenditure in their assessment phase because this phase now includes activities originally intended for later in the project. Later investment approvals should reflect the consequences of this advance of expenditure.

10 In 2013-14, the Cost Assurance and Analysis Service have continued to carry out their own estimates of the likely cost of projects within our sample (including projects yet to achieve approval to proceed to the demonstration and manufacture stage). The comparison of the project teams' estimates included in the Equipment Plan forecasts against the Service's estimates of the most realistic outturn yields an overall net cost of £1.2 billion (3.2%) higher than project team forecasts across the period of the Equipment Plan. Most of this is accounted for by 2 projects.

Time

11 The total additional delay in 2013-14 to the operational delivery of 10 projects in our sample with in-service dates is 14 months. This excludes additional in-year delay for the Queen Elizabeth Class Aircraft Carriers which was reported in *The Major Projects Report 2013*.[23] Excluding this project the additional delays were:

- Eight months for the project to upgrade the Warrior armoured vehicle, due to granting the contractor more time to develop the design. This delay is against the assumptions used for the Equipment Plan; however, it does not yet threaten the project's approved in-service date which is based on different assumptions.
- Six months for the submarine core production facility, due to delays in regulatory approval and a change in commissioning strategy. The project team reports that this delay will not have an impact on the delivery of the cores to meet the operational programme.

12 The total forecast delay to the 10 projects against the approvals used for planning purposes is 315 months.

Performance

13 When the Department takes the main investment decision it approves a number of key performance measures for each project. These provide an indicator of whether the equipment is providing the intended military capability. Across the 11 projects, the Department has set 182 key performance measures and expects to achieve all but one of these, although the Department has identified risks to achieving 4 others. Each project also reports against 8 defence lines of development. These measure the other elements of capability, such as trained personnel and logistical support, which the Department needs to develop and deliver at the right time to ensure that it can best use the equipment. It expects to deliver all of the defence lines of development on time, with risks attached to 20% of the lines.

23 Comptroller and Auditor General, *The Major Projects Report 2013*, Session 2013-14, HC 817, National Audit Office, February 2014.

Figure 13

Additional projects examined by the National Audit Office

Projects where the Department has yet to take the main decision to invest	Projects where NAO specifically examined the support costs
Apache Capability Sustainment Programme	Atomic Weapons Establishment Management and operations
Merlin Crows Nest radar	Lightning II support contract
Cipher (now discontinued)	Typhoon support contracts
BATCIS LE TAC CIS successor (Morpheus)	Defence Core Network Services
Marshall	Type 45 destroyer
Type 26 global combat ship	
Future Submarine Successor platform	

Source: National Audit Office

Appendix Three

Performance indicators

These are the measures against which the Department must improve its performance in order to show that it has addressed the key risks to the affordability of the Equipment Plan.

Performance indicator	The Department's ability to report against the indicator in 2013
Accuracy of historical forecasts of costs to deliver projects	The Department can report costs against forecast on a project-by-project basis. However, it is unable to collate this information to obtain a view of cost against forecast for the whole portfolio or to analyse the causes of variances. It is putting in place measures to be able to do this for the 2014 to 2024 budget cycle.
Accuracy of historical forecasts of the time needed to deliver projects	The Department can report progress against milestones on a project-by-project basis through the Major Projects Report. However, there can be many years between milestones and the Department does not always have a clear view of progress against the schedule between the milestones. For example, the Department does not understand the impact of its £1.2 billion underspend on the Equipment Plan in 2012-13 or the extent to which this has been caused by programme slippage.
Agreed military capability delivered through the Equipment Plan	When the Department takes its main investment decision, it approves a number of key performance indicators for each project that demonstrate whether the equipment provides the intended military capability.

The Department's ability to report against the indicator in 2014	Evidence provided by the indicator about the Department's ability to deliver an affordable Equipment Plan
The Department is also now able to provide total Equipment Plan spend against the planned spend for the financial year. The Department can now quantify underspend against approved levels of expenditure. Its work continues to understand the root causes and to then put measures in place to address the problems.	The Cost Assurance and Analysis Service has carried out a study into historical underspends arising in the equipment programme. They analysed the performance of a sample of projects across recent years and identified a number of factors why planned spend on equipment did not arise in-year. These include: Project teams allowing insufficient time for the approvals process. Programme slippage and the performance of contractors. Genuine cost savings arising from robust negotiations with suppliers. Risk provision being retired when it emerges that it is no longer required. Accountabilities for financial management being unclear and a lack of capability to apply complex financial planning assumptions. A culture of overbidding for funding. In financial years 2012-13 and 2013-14, these 5 factors accounted for 90% of the underspend in the 21 projects reviewed. This analysis will continue next year.
The project sample we reviewed is showing a stable delivery timetable compared to the prior year. Underspends in 2012-13 have not manifested as schedule delay.	The results of the Major Projects Review 2014 show that of the 10 approved projects included within the sample with in-service dates, 8 reported no time variation and 2 reported a delay totalling 14 months (excluding 5 months of delay on the Queen Elizabeth Carriers reported on as part of our 2013 Equipment Plan report). There are risks to delivery schedule. For example within the submarine industry delivery of the Astute programme to schedule is dependent on an industry improvement programme. The review by the Cost Assurance and Analysis Service to investigate the causes of the underspend found only £200 million (caused by slippage in equipment programmes) was re-profiled to later years.
For projects that have been approved the Department reports on the performance of its largest procurement projects against their key performance indicators in the Major Projects Report. For projects that have not yet been approved but which are required to deliver the full intent of Future Force 2020, the Department maintains £8 billion of 'headroom' to meet new capability requirements and an extra unallocated budget of £1.2 billion.	The Department expects to achieve 99% of its key performance indicators. The £8 billion headroom remains part of the Equipment Plan over and above the funding for the core programme. In 2013-14, £393 million of headroom was drawn down to fund the Merlin Life Sustainment Programme and the Scout Specialist Vehicle programme. The commands have planned against their indicative headroom allocations.

Performance indicator	The Department's ability to report against the indicator in 2013
Achievement of savings in non-Equipment Plan areas of the budget	The Department is able to measure its performance in relation to achieving non-Equipment Plan savings targets.
Equipment support costs	During the Committee of Public Accounts hearing on the Equipment Plan 2012 to 2022, the Department undertook to be able to provide data to the National Audit Office on the accuracy of the £87 billion forecast costs within the Equipment Support Plan in time for the data to be included in our fieldwork for the 2013 to 2023 plan.[1] The data were not available and we have therefore not been able to undertake any detailed review of the equipment support costs. The Department has work under way that should make data available for 2014 to 2024.
Budget management	The Department can report spending against budget at a Departmental level but has been unable to give us a breakdown of spending against budget at an Equipment Plan level or provide us with reasons for the variances.
Amount of risk incorporated into costings	The Department is able to report on the amount of risk included within forecast costs on both a project and a portfolio basis. However, it does not have a clear view of the spread of risk across the portfolio, or of the costs excluded from modelling and their likelihood of occurring. This information is necessary for the Department to make a reasonable estimate about the size of the contingency required.
Cost maturity and control, including: identification and treatment of risk; quality of data; and internal control and assurance	The Department is able to report on the processes by which it challenges and verifies the accuracy of project costs.

Note

1 HC Committee of Public Accounts, *Ministry of Defence: Equipment Plan 2012 to 2022* and *The Major Project Report 2012*, First Report of Session 2013-14, HC 53, May 2013, Oral evidence p. 9.

The Department's ability to report against the indicator in 2014	Evidence provided by the indicator about the Department's ability to deliver an affordable Equipment Plan
The Department believes that it is on track to achieve the necessary savings, but has not shared with us the evidence to support this.	The Department's statement is that: "the Department has recently conducted a review of how well agreed savings have been delivered. The analysis shows that the Department is on track to meet most of these savings. In the last two financial years, the Department has spent below its allocated budget indicating that other in-year savings have been achieved."
The Department has undertaken work on a sample of support projects in 2013-14 although this should be seen as the first stage of an ongoing process for the Department to understand and challenge its support costs. In addition, the work of external consultants on support cost efficiencies has had the effect of improving the Department's understanding of support costs.	The Cost Assurance and Analysis Service has begun to provide independent cost estimates for Equipment Support Projects (ESPs) in the same way that they have done previously for Equipment Procurement Plan (EPP) costs. In ABC 14 they looked at 16 of the largest ESP projects (28% of the total cost for support over 10 years). The Cost Assurance and Analysis Service work on Independent Cost Estimates will continue to mature the Department's understanding of ESP costs and during ABC15 the aim is to increase the number of projects considered by the Cost Assurance and Analysis Service in the ESP to an anticipated level of at least 50% of the 10-year costs of the total ESP programme. The Independent Cost Estimates on the ESP used to inform ABC14 have been made available to the NAO. In addition the Department has been working with private sector support to identify cost savings across the largest ESP projects and develop an enduring methodology to reduce ESP costs. Thirty-nine per cent of the ESP by value (as at end of September 2014) has now been examined by the Department in conjunction with their consultants. The review has identified a number of projects that have already delivered efficiency savings and there are further potential savings identified across the portfolio. The review has conducted several lessons learned exercises which will be taken forward by the Department to continue delivering a more efficient ESP.
The Department was able to provide the actual spend of the Equipment Plan against the budget and has undertaken work to understand the reasons for the underspend.	The Department overspent against its initial 2013-14 equipment budget by £185 million due to the programming of significant work outside the original budget. The total final value of work in the programme for 2013-14 was £948 million higher than spend. The Department is investigating the reasons for the underspends and will continue to use over-programming to counteract this until the source of the problem can be addressed.
It is still the case that the Department does not have complete information on the risks excluded from cost modelling, and that there is no overall portfolio analysis of risk on the total Equipment Plan. We would expect the Department to address these issues before we can have full confidence that the contingency provision is sufficient and appropriate, and correctly profiled. The Department uses the work of the Cost Assurance and Analysis Service to evaluate the contingency.	The Cost Assurance and Analysis Service has continued its challenge of costs produced by project teams. In 2013-14, it reviewed 68% of the procurement plan in detail and applied an extrapolation to the rest, and reported a potential £3.2 billion under-costing. In ABC 14 it looked at 16 of the largest ESP projects (28% of the total cost for support over 10 years) and reported a £2 billion potential under-costing. The Department consider that the contingency of £4.6 billion is sufficient.
The Department continues to report on the processes by which it challenges and verifies the accuracy of project costs.	The Department continues with the Quarterly Review of Programme Cost process which allows for regular senior overview of cost and time variances by project, programme, operating centre, command and overall level. In addition, the Department has put in place a 'Forecasting Improvement Programme' designed to continue improvements in forecasting accuracy and deliver a better understanding of over/underspend when it does occur including the implications for future years.

Appendix Four

Executive project summary sheets

Post-Main-Gate projects

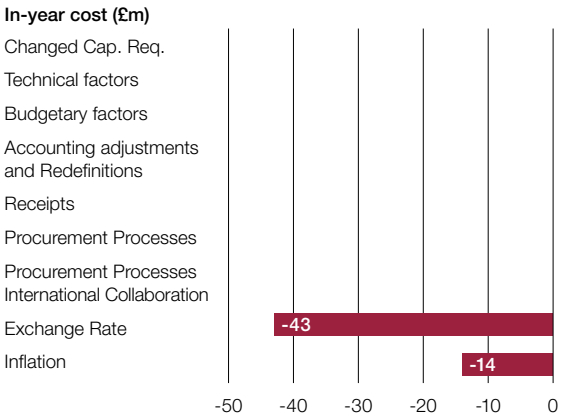
A400M

A400M is a collaborative programme involving 7 European nations (Belgium, France, Germany, Luxemburg, Spain, Turkey and United Kingdom). It is planned to provide tactical and strategic mobility to all 3 Services. The required capabilities include: operations from airfields and semi-prepared rough landing areas in extreme climates and all weather conditions by day and night; carrying a variety of equipment including vehicles and troops over extended ranges; air dropping paratroops and equipment; and being unloaded with the minimum of ground handling equipment. The 1998 Strategic Defence Review confirmed a requirement for an airlift capability to move large single items such as attack helicopters and some Royal Engineers' equipment and concluded that this would be met, in the latter part of the first decade of the 21st century by Future Transport Aircraft. The A400M was selected to meet this requirement. It will replace the Hercules C-130K fleet.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation	In-year Variation
Cost of Assessment Phase: A400M	£2m	£1m	-£1m	–
Cost of Assessment Phase: Training Service	£1m	£1m	–	–
Cost of Demonstration & Manufacture Phase	£2,238m	£2,752m	+£514m	-£57m
Duration of Assessment Phase	–	34 months	–	–
In-Service Date	February 2009	March 2015	+73 months	–

In-year Cost Variation Detail



In-year Progress

On 31 July 2013, the partner nations granted type acceptance at the initial operating clearance for the A400M Atlas aircraft, paving the way for the delivery of the first aircraft, to France, which occurred in early August. Delivery of the second A400M Atlas, also to France, took place in November 2013. These are important waymarkers in the multinational aircraft production and delivery programme, as was the retirement from the flight trials programme of the first prototype aircraft, MSN001, in late November. These significant events have helped provide further evidence of the capability and design maturity of this new aircraft; in support of this, the multinational flight trials programme had amassed over 6,000 flying hours by the end of March 2014.

On 3 December 2013, the Defence Board agreed to exchange 2 aircraft production slots with France, meaning that the UK would now receive 2 of its order of 22 A400M Atlas aircraft earlier than had previously been planned. Nevertheless, UK aircraft deliveries are still forecast to commence in the latter part of 2014.

On 30 January 2014, the Investment Approvals Committee retrospectively approved the UK contribution to the Export Levy Facility (reported in the Major Projects Report 2013) and, consequently, increased the approved budget for the UK A400M Atlas aircraft acquisition programme by the same amount. However, as the Major Projects Report compares performance against the original approval, and the Export Levy Facility was not within the scope of that approval, the 'Budgeted For' and 'Highest Approved' figures in this year's report (section B2 and B3) remain unchanged.

The A400M In Service-Support Main Gate business case was submitted to the Investment Approvals Committee in February 2014, however, at the end of March 2014 it was awaiting final endorsement and approval by ministers and HM Treasury. As a consequence, In-Service Support has not been reported as an increment in this year's report. Approval of the business case is anticipated early in the next financial year meaning that In-Service Support will be included in next year's report.

On 6 November 2013, the planned Review Note to include the Cargo Hold Trainer in the Training Service was approved. This increased the approval for the Training Service by £24 million from £502 million to £526 million and, consequently, the 'Approved Cost' figure (section B4) has been revised to reflect this new limit. This device will be procured through the A400M Development and Production Phase contract with Airbus Military under a contract amendment signed on 15 November 2013.

The A400M Schoolhouse at RAF Brize Norton, being procured under the A400M Training Service Support Contract with A400M Training Services Limited, was completed on schedule and accepted off contract on 28 March 2014.

Risk Assessment against Defence Lines of Development

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

Astute Class Submarines

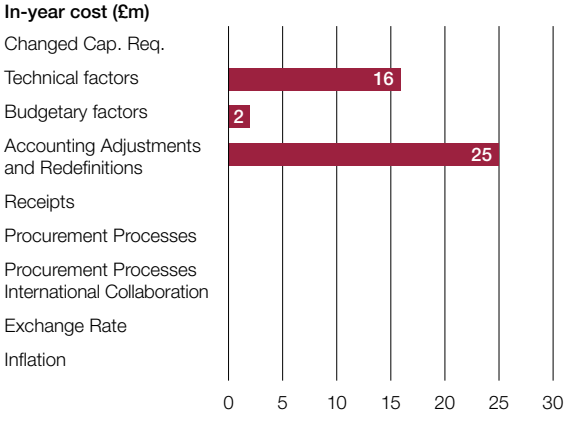
The military requirement is for up to 8 Astute Class nuclear powered attack submarines to replace the existing Trafalgar Class of nuclear powered attack submarine.

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.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation	In-year Variation
Cost of Assessment Phase	£33m	£29m	-£4m	–
Cost of Demonstration & Manufacture Phase Boats 1-3	£2,233m	£3,433m	+£1,200m	+£19m
Cost of Demonstration & Manufacture Phase Boat 4	£1,279m	£1,492m	+£213m	-£12m
Cost of Demonstration & Manufacture Phase Boat 5	£1,464m	£1,365m	-£99m	-£30m
Cost of Demonstration & Manufacture Phase Boat 6	£1,579m	£1,515m	-£64m	+£5m
Cost of Demonstration & Manufacture Phase Boat 7	£1,642m	£1,669m	+£27m	+£61m
Duration of Assessment Phase		69 months		
In-Service Date Boats 1–3	June 2005	April 2010	+58 months	–
In-Service Date Boat 4	August 2015	January 2018	+29 months	–
In-Service Date Boat 5	August 2020	August 2020	–	–
In-Service Date Boat 6	May 2022	May 2022	–	–
In-Service Date Boat 7	March 2024	March 2024	–	–

In-year Cost Variation Detail



In-year Progress

Following whole Astute Programme approval in 2012, an annual Information Note is submitted each summer to provide an update on the status of the Programme. The 2013 Information Note was submitted to IAC 29 July 2013. The Astute build, support and training programmes remain within their extant approvals.

Boat 1 – HMS ASTUTE

On 25 April 2013, HMS ASTUTE achieved Operational Handover (the scheduling authority transferred to the Royal Navy). This was followed by a short maintenance period to enable Force Generation prior to operational tasking. HMS ASTUTE is now deployed on operations.

Boat 2 – HMS AMBUSH

HMS AMBUSH achieved Operational Handover on 26 June 2013.

Following a maintenance period at Her Majesty's Naval Base Clyde, the submarine continued with a second, Capability Proving Sea Trial phase which completed at the end of July 2013. The vessel is currently undertaking a Base Maintenance Period prior to operational tasking later in 2014.

Boat 3 – ARTFUL

ARTFUL continues construction in the Devonshire Dock Hall at Barrow-in-Furness. A delay in supply of key Nuclear Steam Raising Plant components and a shortfall in volume of construction and outfit work completed against the plan prevented Core Load and Launch from being achieved against the baseline milestones. Core Load eventually completed in September 2013 and preparations are in hand for ARTFUL to exit the Devonshire Dock Hall and enter the water in May 2014. Exit Barrow is scheduled to occur approximately 12 months after Launch with the submarine undertaking a focused sea trials package prior to Operational Handover in autumn 2015. ARTFUL was formally named on 20 September 2013.

Boat 4 – AUDACIOUS

Construction and outfit of AUDACIOUS continues in the Devonshire Dock Hall, with the submarine having entered the 'closed outfit' phase in April 2013 (on completion of the final unit butt-weld). There has been a significant increase in test and commissioning activities over the last 12 months. Electrical Switch Board Operations completed in October 2013, while installation of Thin Flank Array modules has commenced and is progressing ahead of schedule. Forthcoming milestones include commencement of Diesel Generator Trials (May 2014) and Primary Circuit Initial Fill (September 2014).

Boat 5 – ANSON

ANSON has continued its 'open outfit' phase with the largest Unit 6/7 (Accommodation and Command Unit) and the Forward End Construction having been delivered to the Devonshire Dock Hall in September 2013 and December 2013 respectively. Fabrication of the Aft End Construction completed in March 2014; this is currently undergoing non-destructive examination in the New Assembly Shop. Areas of focus for the next 12 months include completion of the Unit 4/5 butt-weld by September 2014.

Boat 6 – AGAMEMNON

AGAMEMNON's keel was laid in a formal ceremony on 18 July 2013 in the Devonshire Dock Hall which was attended by Minister (Defence Equipment & Support). Fabrication continues in the New Assembly Shop.

Boat 7 – Unnamed

Procurement of long lead items for Boat 7 has commenced. As reported in MPR 13, the programme has pursued a number of opportunities to batch buy materials for Boats 5–7, delivering cost savings to the programme and protecting the later Boats from the potential impact of material shortfalls; this opportunity has allowed steel for Boat 7 to be cut early in January 2014.

Astute Class Training Service

The Astute Class Training Service (ACTS) has continued to provide training for ships companies of HMS ASTUTE, HMS AMBUSH and ARTFUL. Commercial agreement has been reached with the training service provider, FAST, to secure the necessary changes to the service to allow for the delivery of training for Boat 4 crews from July 2015.

Support

The Astute support solution continues to mature as further experience is gained from sea time. Current focus is to optimise support arrangements to support HMS Astute through her first operational deployment and prepare for HMS Ambush's deployment later in 2014.

Foundation Contract

The MoD's 2010 Strategic Defence and Security Review (SDSR) plan to save at least £900 million from the costs of the submarine programme to 2021 under the Submarine Enterprise Performance Programme (SEPP), resulted in a Foundation Contract with BAES M-S being signed on 17 July 2013 committing the company to a share of the total £900 million efficiency savings, through performance improvement, totalling at least £386 million over an 8-year period.

Risk Assessment against Defence Lines of Development

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

Complex Weapons Pipeline

The Team Complex Weapons initiative is based on meeting the UK's enduring requirement to have battle-winning military capability through the use of Complex Weapons; to be assured that the weapons will perform as expected; and to retain the ability to develop leading edge Complex Weapons technologies.

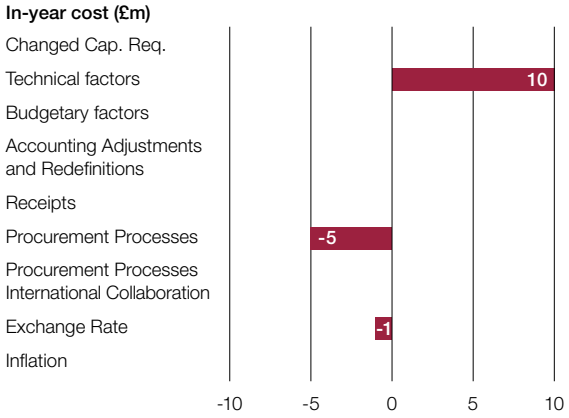
Within this context, the initiative aims to deliver improved, adaptable and flexible Complex Weapons that can be shaped to meet current and future military capability needs; and freedom of action and operational advantage in our Complex Weapons through a sustained indigenous industrial construct.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation	In-year Variation
Cost of Assessment Phase – Complex Weapons	£239m	£236m	-£3m	–
Cost of Assessment Phase – SPEAR Capability 3, SPEAR Capability 2, Block 2 and Sea Ceptor Assessment Phase elements	£145m	£145m	–	–
Cost of Assessment Phase – Future Local Area Air Defence System (Land)[1]	£40m	£40m	–	–
Cost of Demonstration & Manufacture Phase: Fire Shadow and Brimstone 2	£246m	£257m	+£11m	+£10m
Cost of Demonstration & Manufacture Phase: Sea Ceptor[1]	£850m	£849m	-£1m	–
Cost of Demonstration & Manufacture Phase: Future Anti-Surface Guided Weapon (Heavy)[1]	£392m	£391m	-£1m	-£1m
Cost of Demonstration & Manufacture Phase: Future Anti-Surface Guided Weapon (Light)[1]	£311m	£306m	-£5m	-£5m
Duration of Assessment Phase				
Complex Weapons	–	22 months	–	–
Future Local Area Air Defence System (Land)[1]	–	18 months	–	–
In-Service Date Fire Shadow	March 2012	In-service date was not met	–	–
In-Service Date Brimstone 2	October 2012	November 2015	+37 months	–
In-Service Date Sea Ceptor D	November 2016	November 2016	–	–
Future Anti-Surface Guided Weapon (Heavy)[1]	October 2020	October 2020	–	–
Future Anti-Surface Guided Weapon (Light)[1]	October 2020	October 2020	–	–

1 New projects for this year. The approved cost on Sea Ceptor has risen from £541 million in our 2013 report to £850 million in this report. This is because the amount now includes manufacturing costs (last year only included demonstration costs).

In-year Cost Variation Detail



In-year Progress

Brimstone 2

The Brimstone 2 programme has made significant progress in-year. Development trials to demonstrate flight software and seeker improvements successfully took place in the United States during September–October 2013; the seeker and flight software development work is now complete. The trial was a key demonstration of capability and achieved direct hits on a variety of static and moving targets. Later in the year the first Tornado firing using the Roxel Insensitive Munition rocket motor was accomplished at Aberporth. Qualification of both energetic subsystems (warhead and rocket motor) continue to progress without any failures and the rocket motor has now passed the previous failure points. This evidence, along with substantial supporting investigations and reports, has led to the satisfactory closure of the Rocket Motor Recovery Programme that was enacted after the initial technical issues in January 2012.

Sea Ceptor (Demonstration and Manufacture)

The two planned instrument firings of the Common Anti-Air Modular Missile were completed successfully in April 2013. Approval of the Manufacture Phase and contract award with MBDA were achieved in September 2013. The Critical Design Review was completed in November 2013.

Future Local Area Air Defence System (Land) Initial Gate

The FLAADS (Land) Initial Gate Business Case was submitted to the Investment Approvals Committee (IAC) in October 2013 and was approved by the IAC on 21 January 2014. Subsequently an amendment was made to the Through Life Enabling Contract to include this tranche of work with MBDA.

Future Anti-Surface Guided Weapon (Heavy)

The FASGW(H)/ANL (Anti Navire Léger (Light Anti-Ship)) Concept and Assessment Phase concluded in December 2011 and following UK Approval to proceed to the Demonstration and Manufacture it was anticipated that a contract for FASGW(H) Demonstration and Manufacture would be let in quarter 1 of 2012. However, owing to a change of government in France, a Strategic Defence and Security Review (termed 'Livre Blanc') was initiated resulting in France withdrawing its immediate support to FASGW(H)/ANL pending the outcome of the 'Livre Blanc' process. Consequently the FASGW(H)/ANL Demonstration and Manufacture contract was not placed with the prime contractor MBDA. The 'Livre Blanc' process concluded in April 2013 and France confirmed its commitment to the FASGW(H)/ANL project. Following a period of intense negotiations a contract was placed with MBDA for the Joint Programme on 26 March 2014.

Future Anti-Surface Guided Weapon (Light)

The FASGW(L) Demonstration and Manufacture Business Case was submitted to the Investment Approvals Committee on 15 October 2013. On 23 January 2014 the case was approved by Chief Secretary to the Treasury. At the end of the financial year 2013-14 contractual negotiations were still ongoing with Thales.

Brimstone Support USE

The Business Case for the continuation of the Brimstone In-Service Support phase was submitted on 17 September 2013 to Head of Defence Portfolio & Approvals Secretariat and approved on 3 October 2013. A 5-year contract was let in the same month. This included a short transition period with Full Service delivered from June 2014.

Risk Assessment against Defence Lines of Development

Brimstone 2

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

Sea Ceptor D

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

Future Anti-Surface Guided Weapon (Heavy)

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

Future Anti-Surface Guided Weapon (Light)

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

Core Production Capability

The requirement is to maintain a naval reactor Core Production Capability (CPC) to support the UK's nuclear submarine flotilla. All Royal Navy submarine propulsion nuclear reactor cores have been manufactured at the Rolls-Royce (RR) Raynesway site. CPC is composed of Sustainment that continues and improves core manufacture, and Regeneration that is replacing the old manufacturing facilities. The Regeneration programme does not interrupt the manufacture of cores.

To conduct nuclear operations on the Raynesway Site, Rolls-Royce Marine Power Operations Limited is 'Licensed' formally by the Health and Safety Executive (Nuclear Department) as required by the Nuclear Installations Act.

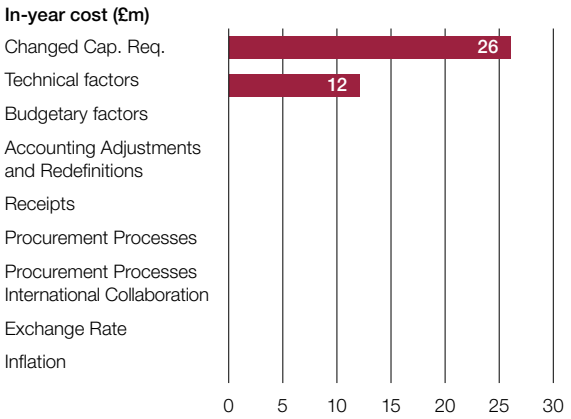
The technological and manufacturing capability to produce submarine reactor cores has traditionally been sustained through successive contracts for their production. With the introduction of long-life cores and the reduction in the submarine flotilla size the numerical requirement for cores has reduced.

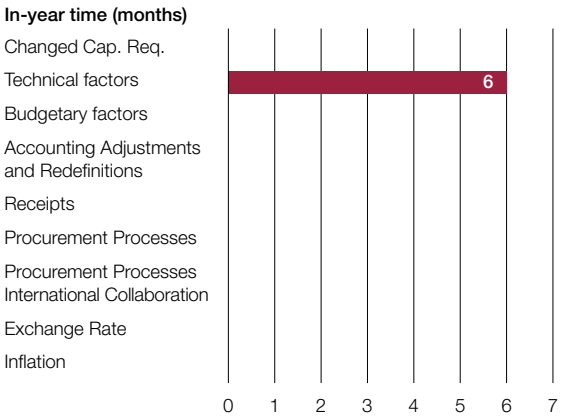
The Strategic Defence and Security Review White Paper deferred the In-Service Date for the Successor submarine to 2028.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation	In-year Variation
Cost of Assessment Phase	£107m	£107m	–	–
Cost of Demonstration & Manufacture Phase	£1,176m	£1,148m	-£28m	+£38m
Duration of Assessment Phase	–	56 months	–	–
Core Production Capability Date	May 2021	February 2022	+9 months	+6 months

In-year Cost Variation Detail





In-year Progress

May 2013: Reactor core development for Successor (SSBN) explicitly included in CPC J Core development.

July 2013: Piling of the Energy Centre and Reception Centre was completed.

August 2013: Piling of MF1B was completed.

October 2013: Steel frame erected for the Energy Centre.

December 2013: Steel frame erected for the Reception Centre.

March 2014: Steel frame work erected for MF1B.

6 March 2014: The Secretary of State for Defence made a statement to Parliament (Hansard 1077 to 1088) announcing the decision to refuel HMS Vanguard in 2015 following the detection of low level radiation in the cooling water of the prototype core at the Naval Reactor Test Establish. The CPC project is being re-baselined to take account of the requirement to provide an additional core and an option for a further core.

Risk Assessment against Defence Lines of Development

● Equipment	● Training	● Logistics	● Infrastructure
● Personnel	N/A Doctrine	● Organisation	● Information

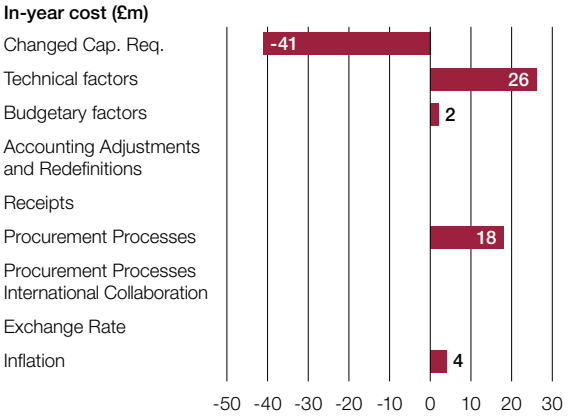
Future Strategic Tanker Aircraft

The 'Voyager' Future Strategic Tanker Aircraft will provide 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.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation	In-year Variation
Cost of Assessment Phase	£13m	£38m	+£25m	–
Support Cost	£11,779m	£11,402m	-£377m	+£9m
Duration of Assessment Phase	–	77 months	–	–
In-Service Date (Air-to-Air Refuelling)	May 2014	May 2014	–	–
Contract Go-Live	March 2008	March 2008	–	–
Contract End	March 2035	March 2035	–	–

In-year Cost Variation Detail



In-year Progress

Aircraft deliveries have continued during 2013-14 with a total of 7 aircraft now delivered as at end of March 2014.

During 2013-14 the Future Strategic Tanker Aircraft project has continued to build operational capability. The Release To Service clearance to deliver Air-to-Air Refuelling of Tornado was granted on 16 May 2013. The Typhoon Release To Service and Mk3 Voyager Release To Service for 2 point tanking were both granted on 15 August 2013. The Release To Service for refuelling C130 aircraft from the Fuselage Refuelling Unit was granted in March 2014 and the Releases To Services of Extended Twin Range Operations for Air Transport and Air-to-Air Refuelling were granted in February and March 2014 respectively. With the granting of the Releases To Services, Future Strategic Tanker Aircraft is now delivering the capability requirements of Air Transport, Air-to-Air Refuelling, and Medevac.

During the year Future Strategic Tanker Aircraft has stepped up its operational delivery. It took over the Falkland Islands South Atlantic airbridge in October 2013 from expensive charter aircraft and following accelerated delivery (3 months earlier than planned) of the enhanced Aircraft Platform Protection system capability previously reported, it took over the Afghanistan airbridge from Tristar aircraft in December 2013. Over the 2013 calendar year, Voyager aircraft flew 7,404 hours in RAF service.

Looking forward from this reporting year, the 7th modified aircraft was delivered during May 2014 to complement the unmodified 'green' aircraft. With an 8th modified aircraft working-up following accelerated Enhanced Platform Protection modification the ISD was met at the end of May 2014 as all critical military capability required to meet the current operational demand has been delivered. All modified Future Strategic Tanker Aircraft are capable of refuelling operations simultaneously with any two of Air-to-Air Refuelling-probe-equipped Fast Jets, and 5 of the 9 aircraft are able to transfer fuel to large aircraft. The previously reported 'green' aircraft is delivering the required Falkland Islands airbridge capability which does not require it to be converted. Nine modified aircraft will be available from September 2014.

Risk Assessment against Defence Lines of Development

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

Lightning II

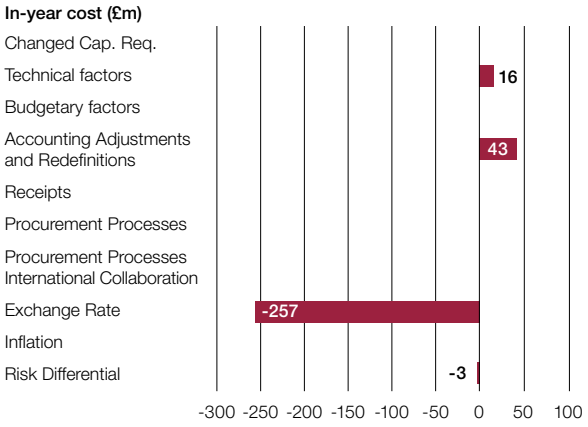
The Joint Strike Fighter has been selected as the aircraft to meet the Joint Combat Aircraft requirement, and provides the UK with a fifth-generation air system. Joint Combat Aircraft will provide the UK with an expeditionary multi-role fighter with the ability to enter and operate within contested airspace. Using secure links it will operate as a Combat Intelligence, Surveillance, Target Acquisition and Reconnaissance platform providing intelligence to troops on the ground, and when required will be able to employ a range of sophisticated weaponry, even through adverse weather.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation	In-year Variation
Cost of Assessment Phase	£150m	£144m	-£6m	–
Cost of Demonstration & Manufacture Phase[1]	£5,622m	£5,036m	-£586m	-£201m
Duration of Assessment Phase	–	–	–	–
In-Service Date	December 2018	December 2018	–	–

1 The approved cost of the Demonstration and Manufacture Phase has risen from £2,873 million in our 2013 report to £5,622 million in this report. This is because the 2013 amount only covers the first 4 demonstrator aircraft, but the 2014 number covers the first squadron of aircraft.

In-year Cost Variation Detail



In-year Progress

The UK took delivery of its third F-35B aircraft (BK-3), which transferred to Eglin Air Force Base, Florida, on 25 June 2013. BK-3 joined the US Marine Corps' Marine Fighter Attack Training Squadron 501 to support core pilot and maintainer training. An order was placed for a fourth UK F-35B aircraft in September 2013.

The Lightning II Main Gate 4 Business Case (MG4 BC) was endorsed by the Investment Approvals Committee in October 2013 and obtained HM Treasury approval in January 2014. The Lightning II MG4 BC sought approval to procure the aircraft for the first UK Squadron with all associated support equipment and capital spares. The Business Case also approved the procurement of Freedom of Action facilities, and all associated support contracts, which will enable the transition of the aircraft from the US to the UK, delivery of Initial Operating Capability from RAF Marham in December 2018, and permit initial First of Class Flying Trials to take place aboard the new Queen Elizabeth Class Carrier in the same year. The MG4 BC approval provides for the support contracts to cover the period 2015 to 2020.

Main Gate 4 set the operational In-Service Date for the UK Lightning II aircraft as 31 December 2018.

During the MPR14 reporting period, the first 3 British operational pilots completed their training to enable them to fly the F-35 and are now flying regularly from Eglin Air Force Base, Florida.

Risk Assessment against Defence Lines of Development

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

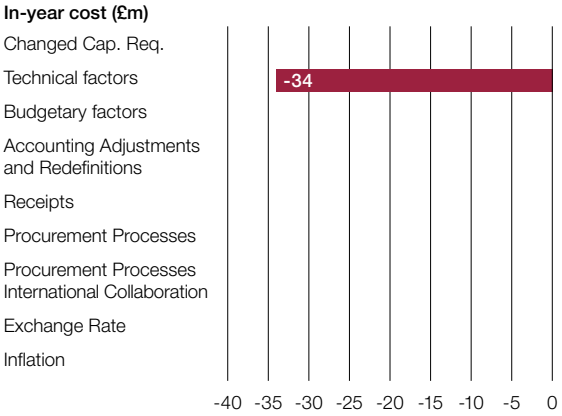
Military Afloat Reach and Sustainability

The Military Afloat Reach and Sustainability (MARS) 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. The main focus of this report is the MARS Tankers which will provide bulk fuels and forward aviation support to the maritime task group.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation	In-year Variation
Assessment Phase	£44m	£17m	-£27m	–
Cost of Demonstration & Manufacture Phase	£596m	£562m	-£34m	-£34m
Duration of Assessment Phase	–	78 months	–	–
In-Service Date	October 2016	October 2016	–	–

In-year Cost Variation Detail



In-year Progress

Completion of design transition from basic design phase to detailed design phase in June 2013. Award and commencement of build Oversight and Surveillance contract to SeaQuest Marine Project Management Ltd in August 2013. Before entering service the ships will require customisation in the UK and will undergo further trials; an advert was placed in the Defence Contracts Bulletin for the UK Customisation, Capability Assessment Trials and Support contract in December 2013.

Risk Assessment against Defence Lines of Development

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

Queen Elizabeth Class Aircraft Carriers

The platform element of the Carrier Strike capability will be provided by the Queen Elizabeth Class Aircraft Carriers. A staged approval to Main Gate in 2007 led to the formation of the Aircraft Carrier Alliance (comprising MoD and industry) and contract award in 2008 to deliver the programme with In-Service Dates originally planned for 2014 and 2016. The continuing need for the Carrier Strike capability was confirmed in the Strategic Defence and Security Review 2010.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation	In-year Variation
Cost of Assessment Phase (including Conversion)	£176m	£343m	+£167m	–
Cost of Demonstration & Manufacture Phase	£3,541m	£6,102m	+£2,561m	–
Duration of Assessment Phase	–	84 months	–	–
In-Service Date	July 2015	December 2017	+29 months	–

In-year Cost Variation Detail

In-year Cost and Time Variation Detail **N/A** – all cost and time variances that occurred in 2013-14 have been previously reported in the *Major Projects Report 2013*.

In-year Progress

The external structure of HMS Queen Elizabeth is now complete, consisting of over 55,000 tonnes of metalwork and systems. In January 2014, the supports surrounding the ramp were removed, the forward and aft aircraft lifts were fitted (February and May 2014 respectively) and the Pole Mast was installed on the Aft Island. The Flight Control centre (Flyco), which forms part of the Aft Island, was also completed in May 2014. This consisted of an additional metalwork and glass structure. On the second carrier, HMS Prince of Wales, work is now under way on all of the main blocks and assembly is expected to begin in August/September 2014.

A revised contract, reflecting a re-baselined programme, was signed on 29 May 2014. This contract places greater incentivisation on Industry to deliver to cost and time, through a revised 50/50 shareline arrangement. On 4 July, the first ship, HMS Queen Elizabeth, was officially named by Her Majesty the Queen, and on 17 July was floated out of the dock. The ship is now berthed in the non-tidal basin and is undergoing fitting out as part of the test, integration and commissioning phase of her programme. Blocks for the second ship, HMS Prince of Wales, have been arriving at Rosyth during August and September, and assembly work on the second ship is due to begin in September.

Risk Assessment against Defence Lines of Development

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

Scout Specialist Vehicles

Scout SV will provide the mounted reconnaissance capability integral to Army 2020 by equipping the Army with a fully digitised tracked armoured vehicle, designed as a manned, all-weather persistent, intelligence gathering capability with built in growth. Integral to Army 2020 plans, it delivers a Base ISTAR-like capability from a globally deployable ground platform to meet the demands of contingent operations.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation	In-year Variation
Cost of Assessment Phase	£109m	£87m	-£22m	–
Cost of Demonstration & Manufacture Phase	£1,394m	£1,394m	–	–
Duration of Assessment Phase	–	Continuous	–	–
Duration of Assessment Phase Recce Block 1 Demonstration	–	21 months	–	–
In-Service Date	–	–	–	–

In-year Cost Variation Detail

N/A

In-year Progress

During the year the programme continued to make progress within the Demonstration Phase. This included:

- April 2013 – Mobile Test Rig – extensive series of trials, including cold weather, Operational and Tactical mobility trials, and an Ease of Maintenance Assessment (June 13).
- June to August 2013 – Successful completion of the Mine Blast Trial.
- August 2013 – Completion of garaging facilities for the Specialist Vehicles prototypes.
- December 2013 – the Common Base Platform CDR was completed.
- January 2014 – Confirmation of vehicle numbers required to equip Army 2020, which will inform Main Gate 2.

An Information Note was acknowledged by the Investment Approvals Committee in July 2013. A further Information Note in April 2014 provided an update on the discussions with General Dynamics UK on MoD Planning Round intent, Army 2020 vehicle numbers and contractor progress.

Risk Assessment against Defence Lines of Development

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

Typhoon

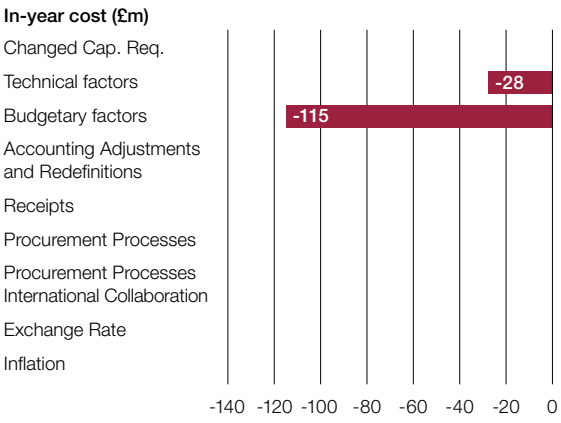
Typhoon is an agile, multi-role combat aircraft which is being developed, produced and supported in a collaborative project with Germany, Italy and Spain. The project is managed on behalf of the 4 partner nations by the NATO Eurofighter and Tornado Management Agency. To date, contracts have been placed for the Royal Air Force to receive 160 aircraft in 3 tranches. Typhoon support is being delivered through the letting of long-term contracts against 5 areas of support. Typhoon entered service with the Royal Air Force in 2003 and commenced operational duties in June 2007 when it assumed Quick Reaction Alert responsibilities for defence of UK airspace.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation	In-year Variation
Cost of Assessment Phase	£126m	£117m	-£9m	–
Cost of Demonstration & Manufacture Phase – Typhoon	£15,173m	£17,543m	+£2,370m	-£109m
Cost of Demonstration & Manufacture Phase – Typhoon Future Capability Programme	£403m	£403m	–	-£28m
Cost of Demonstration & Manufacture Phase – Meteor Integration[1]	£130m	£124m	-£6m	-£6m
Cost of Demonstration & Manufacture Phase – Storm Shadow Integration[1]	£172m	£172m	–	–
In-Service Date – Typhoon	December 1998	June 2003	+54 months	–
In-Service Date – Typhoon Future Capability Programme	June 2012	December 2013	+18 months	–
In-Service Date – Meteor Integration[1]	June 2018	June 2018	–	–
In-Service Date – Storm Shadow Integration[1]	August 2018	August 2018	–	–

1 Meteor and Storm Shadow integration are new for 2014.

In-year Cost Variation Detail



In-year Progress

The government's continued commitment to the growth in Typhoon capability was marked when the £130 million contract between NETMA and Eurofighter GMBh to integrate the Meteor missile system on to Typhoon was signed at the Paris Airshow in June 2013 at a ceremony attended by ministers of the Partner Nations of the Typhoon/Eurofighter programme.

The Typhoon Future Capabilities (FCP1) Programme introduces precision air-to-surface bombing capability on Tranche 2 and Tranche 3 standard of aircraft. The programme is delivered in two sequential phases, the first of which (P1Ea) was accepted into service with the RAF (1 Squadron) in December 2013. The precision bombing capability is provided principally via the integration of the Paveway IV bomb and Laser Designator Pod. In-service acceptance followed an earlier successful test firing of this weapon in July 2013.

The planning for integration of further capability upgrades under the wider FCP programme includes Storm Shadow, Meteor and additional Air to Ground Weapons. The United Kingdom and its Partner Nations are also jointly committed to integrate an Active Electronic Scanned Array (AESA) radar on to Typhoon and we are working closely with Industry to finalise arrangements for bringing this capability into service, subject to the usual approvals processes. The addition of this capability will further enhance both the operational capability and the exportability of this formidable aircraft which is already in service with the airforces of 6 nations.

In November 2013, the ministers of the Eurofighter/Typhoon Nations instigated a programme that underlines their collective commitment to improve the working relationships and create more efficient and agile working practices and build on and improve a programme of European Transformation.

The Typhoon fleet continues to grow as planned with 117 aircraft now delivered to the RAF as at the end of March 2013. The last of the Tranche 2 aircraft and the first of 40 new Tranche 3a aircraft were delivered at the end of December 2013.

The Department extended the Typhoon Availability Service support contract for a further year in December 2013. Throughout 2013 and into 2014 the Department has continued to get to grips with cost control in the Support area by contracting accounting consultants to conduct a 'Deep Dive' into the £13 billion Support budget to ensure it remains under control and affordable over the life of the aircraft through to its planned Out of Service Date in 2030. The combination of this activity and ministerially endorsed European Programme Transformation underlines the government's commitment to continued cost control and the long-term affordability and exportability of Typhoon.

Risk Assessment against Defence Lines of Development

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

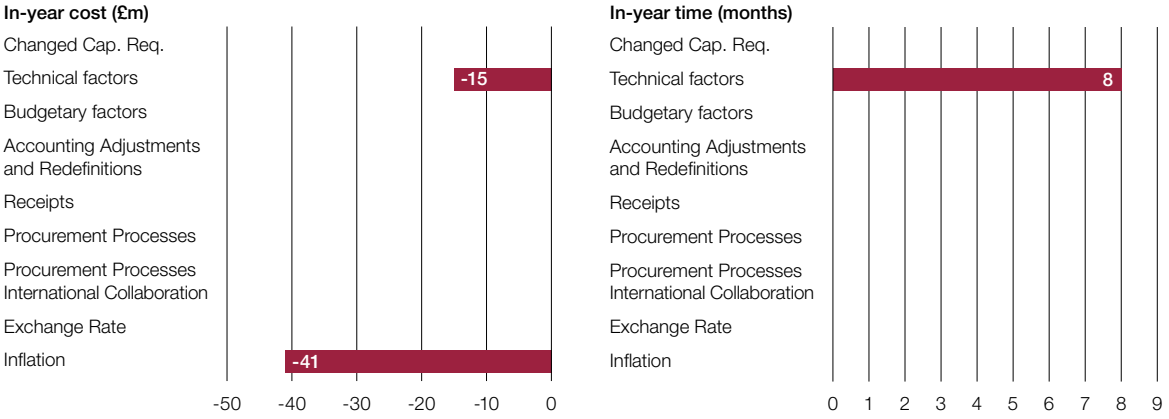
Warrior Capability Sustainment Programme

The Warrior Armoured Fighting Vehicle was brought into service in 1988 with an Out of Service Date of 2025. The requirement for the Warrior Capability Sustainment Programme is to sustain the capability of the Armoured Infantry within the balanced force against current and emerging threats, across the spectrum of conflict until the revised Warrior Out of Service Date well beyond 2035.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation	In-year Variation
Cost of Assessment Phase	£83m	£78m	-£5m	–
Cost of Demonstration & Manufacture Phase	£1,319m	£1,315m	-£4m	-£56m
Duration of Assessment Phase – Warrior	–	27 months	–	–
Duration of Assessment Phase – Common Cannon	–	9 months	–	–
In-Service Date – Warrior	November 2018	July 2019	+8 months	+8 months

In-year Cost Variation Detail



In-year Progress

Following slower than expected progress by the Warrior Capability Sustainment Programme Prime Contractor a re-baselining of the Demonstration Phase schedule was required. The contract was reset following a period of negotiation. Warrior Capability Sustainment Programme remained within financial approvals and protected our approved In-Service Date of March 2020 at 85% by amending the sequencing of Manufacture Phase activities, including the purchase of long lead items.

The following milestones have been achieved by Lockheed Martin in-year:

- March 2013 – Unit Zero Turret Integration & Test (Turret Factory Acceptance Test Plan/Specification complete and approved. Integration & Test Point A1 Test Report completed and any resultant corrective actions agreed).
- November 2013 – Unit Zero Integration Readiness Review (Integration Readiness Review held).
- December 2013 – Unit Zero Block 1 – Integration of Test Point A2, Stage 2 (Integration & Test Point A2 completed in accordance with Test Plan).
- December 2013 – FV510 & FV511 Preliminary Design Review (Anchor) (Conduct FV510 & FV511 Preliminary Design Review in accordance with and meet the criteria in the Systems Engineering Management Plan).
- March 2014 – Re-baseline Contract signed.
- March 2014 – Live Fire 3 Stage 1 – Unmanned Fire Torque Measurement (Trial to include unmanned firing of the Primary Weapon System integrated on to the Warrior Hull in the configuration and at the build standard).

The Armoured Battlefield Support Vehicle Initial Gate was planned for quarter 3 2014, however, Army Headquarters is currently reviewing the scope of the Armoured Battlefield Support Vehicle programme with a view to harmonising the requirement across the broader Army programme. Both the quantity of vehicles and the number of variants required for Armoured Battlefield Support Vehicle are expected to increase as a consequence of this review and Defence Equipment & Support are awaiting an option detailing the Army's requirement.

Main Weapon Selection –
Case Telescoped 40mm Cannon:
The qualification of Case Telescoped 40mm Cannon and Armour Piercing Fin Stabilised Discarding Sabot-Tracer and Target Practice-Tracer rounds continued in 2013 and included tests on the cannon and ammunition which included safety and functional trials in ambient and extreme hot and cold conditions. In addition, the ammunition was sequentially vibrated, shocked, heated, frozen and dropped to a specification which simulated a very tough in-service life, before being inspected and fired. The final qualification trials were completed in December 2013, forming the evidence in the Safety and Environmental Case Report which is currently with the Ordinance Safety Review Panel for their recommendation that Case Telescoped 40mm Cannon and Ammunition is safe to use. Some minor limitations have been applied in the initial use period, which will be lifted once further evidence or improvements have been provided as part of the 'gap closure' activities.

Risk Assessment against Defence Lines of Development

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

Assessment phase projects

Cipher

Cipher as a project was brought to a carefully managed conclusion in 2013-14. The original requirement was to provide protection for all of MoD's sensitive information and communications both at home and overseas, replacing a number of current systems, in particular the General Key Management System.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation
Cost of Assessment Phase	£19m	£46m	+£27m
Duration of Assessment Phase	–	80 months	–

In-year Progress

The extended Assessment Phase contract was brought to an end in June 2013. Following this, an overarching programme (the Crypto Capability Programme) was proposed to manage this complex capability as a whole. It was envisaged that the Crypto Capability Programme would include a number of projects. Some of these are already well established, but there will also be an incremental series of new projects (each subject to approval at an appropriate level) to modify or deliver discrete elements of the capability. A long-term progressive transition is now envisaged.

A Draft Review Note was raised in late summer 2013. The final version of the Review Note was presented in March 2014. The Investment Appraisal Committee gave authority to formally close down Cipher as a project and also gave retrospective approval for In-Year spend under the auspices of the Crypto Capability Programme. The Investment Appraisal Committee directed that a revised Review Note should be presented for June 2014; reflecting a more incremental approach, focused on the most immediate capability priorities.

Crowsnest

Crowsnest will provide an airborne surveillance, control and early warning capability to Carrier Enabled Power Projection, Littoral Manoeuvre, and Maritime Task Groups at all scales of operation. Following the 2010 Strategic Defence and Security Review, the Crowsnest capability is required to be delivered as a role-fit mission system integrated into the Merlin Mk2. The Crowsnest project will procure 10 role-fit mission systems, and convert all 30 Merlin Mk2 aircraft to make them 'fit-to-receive' the Crowsnest role-fit equipment.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation
Cost of Assessment Phase	£43m	£34m	-£9m
Duration of Assessment Phase	–	–	–

In-year Progress

Following commencement of Initial Phase of the Crowsnest Assessment Phase in March 2013, outline solution concepts were received from the competing Mission System Suppliers, and these were the subject of a Helicopters Operating Centre senior management review in Defence Equipment and Support. This review confirmed that the project should proceed into the Full Phase of the Assessment Phase. In parallel, work conducted by Navy Command and Defence Equipment and Support identified an opportunity to accelerate the project by 18 months, for a revised In-Service Date of October 2018.

This accelerated programme was adopted in autumn 2013, and the £24 million Full Phase contract award with Lockheed Martin was placed in September 2013. In February 2014, each competing Mission System Supplier held successful initial design reviews, and two further reviews are planned in July and November as the designs mature, leading to delivery of Mission System Supplier proposals at the end of January 2015, and a downselect decision by April 2015.

Marshall

The Marshall project is a Terminal Air Traffic Management capability that will enable air vehicles to operate safely and effectively with tactical freedom, in all weather conditions and in any environment, within UK Areas of Responsibility, including permanent overseas airfields, and in support of UK and coalition forces worldwide. The project will provide this capability via a contract of up to 22 years duration with a Service Provider for the design, acquisition, installation, sustained delivery and assurance of a military Terminal Air Traffic Management Service.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation
Cost of Assessment Phase 1	£3m	£3m	–
Cost of Assessment Phase 2	£6m	£6m	–
Duration of Assessment Phase 1	–	21 months	–
Duration of Assessment Phase 2	–	60 months	–

In-year Progress

The 3 competing consortia submitted their outline solution proposals in January 2013. Following evaluation of the proposals, an initial round of competitive dialogue was conducted with each bidder. BAE Systems took the strategic decision to withdraw from the competition in September 2013. The remaining two bidders, Aquila and Fusion, submitted detailed solution proposals in January 2014; these proposals have been evaluated, and a second round of competitive dialogue is currently under way. Submission of the Main Gate Business Case is planned for November 2014, which will enable the Marshall contract to be placed no later than February 2015 (50% confidence dates).

Following review by the Chief of Defence Materiel on 31 March 2014, the project team are working to an accelerated contract award to seek to de-conflict with expected purdah ahead of the General Election.

Morpheus

The Morpheus Project is the future capability element of the Land Environment Tactical Communications and Information Systems Capability Change programme. It is planned to provide tactical Communication Information Systems for Littoral, Land and Air-Land force elements operating in the Land Environment, this includes Dismounted Situational Awareness for close combat troops. Morpheus will replace the current portfolio of tactical communication capability, dominated by Bowman. The options being assessed range from sustaining the current systems, to evolution of these systems, through to their wholesale replacement.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation
Cost of Assessment Phase 1	£51m	£49m	-£2m
Cost of Assessment Phase 2	–	£239m	–
Duration of Assessment Phase (Morpheus Assessment Phase 1)	–	39 months	–
Duration of Assessment Phase (Morpheus Assessment Phase 2)	–	–	–

In-year Progress

To support the options analysis a 3-year appointment has been made with Atkins Ltd to bring in expertise in evaluating operational efficiency and cost of complex system design options. In addition to this, industry will be asked to produce prospective design options for each acquisition option and cost them through life. A competition has been launched for a company (acting as a systems house) to engage with broader industry to develop design options based upon current market experience and future technology plans.

System characteristics of the current capabilities are being documented, and together with MoD options for sustaining the current systems, will form the baseline for the systems house to commence design work on the future systems.

Successor

In 2007, Parliament endorsed the government's decision set out in their 2006 White Paper, *The Future of the United Kingdom's Nuclear Deterrent* Cm 6994, to maintain a Continuous At Sea Nuclear Deterrent by means of a new class of submarine. This will replace the current Vanguard class as it comes out of service.

The submarines are part of the MoD's committed core equipment programme as announced by the Secretary of State on 14 May 2012. Any decision to build will not be taken until after the next General Election expected in 2015, with any Main Gate approval expected in 2016.

The expected overall cost of any replacement of the Nuclear Deterrent remains as set out in Paragraphs 5–11 of the 2006 White Paper as between £15–£20 billion for a 4-boat solution.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation
Cost of Concept Phase[1]	£905m	£854m	-£51m
Cost of Assessment Phase[2]	£3,276m	£3,318m	+£42m
Duration of Assessment Phase	–	65 months	–

1 The Concept Phase costs were not included in our 2013 report, but have been included in this report due to their scale. Concept Phase costs are usually relatively small, but given the size of this project they have been included for full disclosure.

2 The approved cost of the Demonstration Phase has risen from £3,015 million in our 2013 report to £3,276 million in this report. This is because a bring-forward of funding of £261 million was approved by HM Treasury during the year for the investment in Barrow Facilities and Long Lead Items.

In-year Progress

The detailed design of the Pressurised Water Reactor 3 (PWR3) plant is now well advanced and all significant design decisions have been taken.

Similarly, design of the platform continues to progress well. A successful interim whole boat Preliminary Design Review (PDR) was held in December 2013 with the full PDR scheduled for November 2014.

The Investment Approvals Committee and HM Treasury approved bringing forward post-Main-Gate platform funding amounting to £261 million – £55 million for additional long lead material purchases and £201 million to commit to facilities upgrades at the BAES Barrow boat yard. The bring-forward is not additional funding; the total cost of the programme remains the same, it is purely a bring-forward of programmed funding post Main Gate into the Initial Gate period, therefore no programme cost growth overall. This is early expenditure to de-risk the programme. Separately, £3 million of platform approval was provided to Next Generation Nuclear Power Plant to pay for additional contractor assistance in the US.

Type 26 Global Combat Ship

There is a need to replace the 13 ship Type 23 capability before the safe operating standard for legacy ships is withdrawn and the platforms become obsolete. Following the Strategic Defence and Security Review it was confirmed that this enduring requirement will be delivered by the Type 26 Global Combat Ship.

The Type 26 Global Combat Ship is planned to be a globally deployable and sustainable warship that will form the spine of the Royal Navy's future fleet. It will be a task-group-enabled anti-submarine warfare warship and will combine the capabilities necessary to protect maritime task groups, the strategic deterrent and land forces, with the flexibility to conduct a wide range of other tasks. Type 26 Global Combat Ship retains the combat power that had been originally envisaged within the Future Surface Combatant C1 and C2 variants, while enhancing endurance and intelligence gathering capabilities in a common, acoustically quiet hull.

The current planning assumption is to replace Type 23 under the Type 26 Global Combat Ship programme, based on one class of 13 ships delivered in two variants; anti submarine warfare and general purpose vessels.

Overview of Cost, Time and Performance

	Approved	Forecast/Actual	Variation
Assessment Phase	£158m	_	_
Duration of Assessment Phase	–	_	–

In-year Progress

The MoD has engaged in a series of negotiations with BAE Systems to determine the best approach to maintain the key industrial skills needed to sustain UK Shipbuilding – the Maritime Composite Option.

A Review Note was eventually submitted in July 2013 when the Project sought permission to extend the Assessment Phase from December 2013 through to July 2014. The Review Note also sought approval to fund some initial stage work to scope the proposed Modern Dock Hall which aims to deliver an optimised, efficient build at lower overall cost and to underpin transformation within BAE Systems.

At the Defence Security and Equipment International Exhibition in September 2013, BAE Systems released new images of the current Type 26 Global Combat Ship design and announced the first 4 equipment downselections: Gas Turbines (Rolls Royce) Gearbox (David Brown Gear Systems Ltd), Diesel Generators (MTU) and Integrated Digital Communications systems (Rohde Schwarz).

Approval to extend the Assessment Phase was granted in early October 2013 but the Investment Approvals Committee did not initially approve the funding for the Modern Dock Hall element due to the outstanding resolution of the Maritime Composite Option negotiations.

On 6 November 2013, the Secretary of State announced in Parliament that the Maritime Composite Option negotiations had concluded and confirmed in his statement that 3 Offshore Patrol Vessels would be built for the Royal Navy. The construction of these vessels would ensure the key industrial skills were maintained between the conclusion of the Queen Elizabeth Class Aircraft Carriers and the start of construction of the first Type 26 Global Combat Ship. As a result of the conclusion of the Maritime Composite Option negotiations, the approval for the initial scoping of a Modern Dock Hall option was subsequently granted in late November 2013.

In May 2014, a further Review Note was submitted to the Investment Approvals Committee to extend the Assessment Phase to December 2014 which stems from the need for the Department to achieve the most mature case practicable given the significance of the investment. This has now been approved.

Concept phase projects

Attack Helicopter Capability Sustainment Programme

UK Defence competed to provide an Attack Helicopter capability to replace the Lynx/Tube-Launched Optically Tracked Wire-guided missile (TOW) combination during the 1990s. The competition resulted in the selection of the AgustaWestland (then GKN Westland) Apache WAH-64, known to the British Army as the Apache AH Mk1, which entered service in 2004.

The UK's Apache AH Mk1 is a modified US AH-64D Block 1 and is becoming increasingly obsolescent. The Attack Helicopter Capability Sustainment Programme (AHCSP) addresses existing and forecast critical obsolescence issues that will progressively degrade operational capability of the current Apache AH Mk1 towards the end of the decade, following the withdrawal from service of the equivalent US Apache model, and which, if left untreated, would result in the complete loss of the Attack Helicopter capability in the period 2020 to 2025. The aim of the Capability Sustainment Programme is to deliver the sustainment of the required Attack Helicopter capability in support of extant Defence policy across the full spectrum of warfare until 2040.

In-year Progress

The Attack Helicopter Capability Sustainment Programme options analysis, based on engineering analyses and cost modelling, has been completed. The time-phased budget of work for the platform, training and Integrated Logistic Support requirements has been developed to support the Initial Gate Business Case.

The Initial Gate Business Case making the recommendation for the way forward was submitted to the Investment Approvals Committee in October 2013 and further analysis was subsequently provided to help inform the consideration of the business case. No decision has yet been taken on the preferred option or procurement strategy.

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