National Audit Office

Report
by the Comptroller
and Auditor General

Ministry of Defence

The Equipment Plan 2018 to 2028

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National Audit Office

Ministry of Defence

The Equipment Plan 2018 to 2028

Report by the Comptroller and Auditor General

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Sir Amyas Morse KCB
Comptroller and Auditor General
National Audit Office

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This report assessed the financial assumptions underlying the Ministry of Defence's 10-year Equipment Plan to buy and support the equipment that the Armed Forces require to meet their objectives.

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Contents

Key facts 4

Summary 5

Part One
Setting the Equipment Plan 2018 to 2028 10

Part Two
Equipment Plan 2018 cost forecasts and risks 17

Part Three
Affordability of the Equipment Plan 27

Appendix One
Our audit approach 37

Appendix Two
Our evidence base 39

Appendix Three
The Equipment Plan 2017 to 2027 recommendations 41

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Key facts

£186.4bn	£193.3bn	£7.0bn
Ministry of Defence's (the Department's) 10-year equipment and support budget	the Department's 10-year equipment and support forecast costs	most likely variance between budget and costs identified by the Department, after contingency

The Department's budget of £186.4 billion includes:

£5.1 billion	departmental contingency that the Department has allocated to the Equipment Plan
£1.1 billion	nuclear-related contingency that is controlled by the Department and that it has dedicated to nuclear programmes

The Department's forecast costs of £193.3 billion reflects:

£7.3 billion	reduction for efficiency savings for which there are firm plans in place
£2.2 billion	reduction for less certain efficiency savings, which are in outline form and have no detailed cost estimate available
£6.7 billion	reduction for the Department's assumption that, across a portfolio, some projects will be delayed or not progress as envisaged

Risks not reflected in the costs include:

£3 billion	potential understatement of costs in the Plan estimated by the Department's Cost Assurance and Analysis Service

Note

1 Figures do not sum due to rounding.

Summary

1 The Ministry of Defence's (the Department's) Equipment Plan 2018 to 2028 (the Plan) sets out its equipment and support budget for the period 2018 to 2028. The Plan includes equipment already in use, such as the Typhoon combat aircraft, as well as equipment in development, such as four new nuclear-armed submarines. For the next 10 years, the Department will allocate more than 40% of its total budget to its equipment and support programmes. Consequently, it needs to manage the Plan effectively in order to maintain the stability of the wider defence budget and to ensure that the Armed Forces have the equipment they need to meet their objectives.

2 The Department introduced the Plan in 2012 following a period of poor financial management, during which a significant gap developed between forecast funding and costs across the defence programme. This led to a cycle of over-committed plans, short-term cuts, and the re-profiling of expenditure, which resulted in poor value for money and reduced funding for front-line military activities. At the request of the then Secretary of State, we provide Parliament with a commentary on the Plan when it is published each year, and assess the robustness of its underlying assumptions.

3 In January 2018, we reported that the Equipment Plan 2017 to 2027 was not affordable. Around that time, the government announced the Modernising Defence Programme (MDP). Among other things, the Department expects that this will address the affordability challenge, including by taking actions to delay, defer or de-scope some projects. Work on the MDP has not yet concluded and so does not feed into the Equipment Plan 2018 to 2028. In this report, we summarise our assessment of the robustness of the Department's financial data and assumptions for its Equipment Plan 2018 to 2028. In particular, we review how the Department:

- sets its Equipment Plan 2018 to 2028 budget (Part One);
- forecasts the cost of the Plan and associated risks (Part Two); and
- assesses and addresses the risks to affordability (Part Three).

We do not consider the value for money of the various projects mentioned in this report or comment on the extent to which the Department can make the programme affordable. We intend to examine and report on affordability further once the MDP review has concluded. Appendices One and Two summarise our audit approach.

Key findings

4 **The Department has made some improvements to the way it compiles its Plan, and the 2018 Plan is more transparent than in previous years.** Our report on the Department's 2017 Plan identified that it did not include sufficient information on its affordability challenges. This year, for the first time, the Department sets out and quantifies the gap between forecast costs and budget. It also provides a narrative on the risks to the costs included in the Plan, and quantifies the effect of these. While developing the Plan, the Department sought to improve communication with Top Level Budgets (TLBs) and better understand the risks within the Plan (paragraphs 1.8 and 1.9, 1.13, 3.4 and Figure 5).[1]

5 **The Plan remains unaffordable, with the Department reporting a £7.0 billion difference between expected costs and budget for 2018 to 2028, 84% of which falls in the first four years.** The Department's expected equipment and support costs of £193.3 billion, after applying assumptions and adjustments, exceed its budget of £186.4 billion, which includes a £6.2 billion contingency. This difference incorporates the Department's assumptions on project costs, risk and foreign exchange rates as well as assumed efficiencies. There are significant pressures in the budget over the next four years. This means the Department needs to make immediate savings decisions rather than relying on longer-term cuts or efficiencies (paragraphs 1.10, 2.8, 3.2 and 3.3 and Figures 10 and 11).

6 **The Department aims for the MDP to resolve its affordability challenges.** As part of the MDP, announced in January 2018, the Department will consider its future equipment and support projects, including whether to delay, defer or de-scope some of its future defence requirements. Starting the MDP half-way through the budgetary process meant the Department had to revisit its aims for the 2018 Plan. Instead of tackling the increased financial risks and establishing a basis for long-term affordability, the Department focused on making just the first year of its 10-year Plan affordable. In March 2018, the Department committed to sharing emerging MDP findings with Parliament in July, but instead provided an overview of the broad strategic context, indicating the Department's direction of travel. At the time of our report, the Department had not yet concluded the MDP. Decisions are now unlikely to be reflected in the 2019 Plan (paragraphs 1.7, 3.7 to 3.9, 3.13 and Figure 13).

7 **In developing its 2018 Plan, the Department has adopted a more realistic approach than in previous years, although forecast costs are still likely to be understated.** This year, for example, forecast project costs in the 2018 Plan incorporate a more detailed bottom-up review of nuclear project costs; better reflect US dollar exchange rates; and capture, as the Department considers, all expected projects. These include forecast costs of £1.5 billion for the Type 31e frigates, which were missing last year. However, the Department's independent Cost Assurance and Analysis Service (CAAS) has assessed that project costs are potentially underestimated by £3 billion, which could make the Department's task of making the Plan balance harder (paragraphs 2.4 to 2.12 and Figure 6).

1 The Department delegates fiscal responsibility for the Plan to Top Level Budgets (TLBs), which specify equipment requirements and manage associated budgets. They include the four front-line military commands of Air, Army, Navy and Joint Forces, alongside the Defence Nuclear Organisation and Strategic Programmes Directorate within the Department.

8 **The Department estimates that, should all identified risks materialise, the budget and cost difference for the Plan would widen to £14.8 billion, although we consider this could still be optimistic.** In its 2018 Equipment Plan, the Department outlines for the first time the affordability risks it faces and the underlying assumptions. Despite these improvements, its assessment is optimistic, meaning the affordability challenge could increase over the next 10 years. For example, the Department's assessment does not reflect CAAS's worst-case scenario that forecast costs are underestimated by £13.9 billion. In its most likely variance the Department assumes it will realise £2.2 billion of the £4.1 billion potential efficiencies it is not yet confident in. We could not provide assurance over this figure, and the Department found it difficult to provide a clear and comprehensive view of progress towards efficiency targets, with figures changing late in our audit. It plans to improve cost forecasting and its cost and financial risk management gradually over the next few years (paragraphs 1.13, 2.14 to 2.18, 3.2, 3.4 and 3.5 and Figures 10 and 12).

9 **The Department's approach of setting a 10-year budget lower than the Plan's forecast costs for 2018 to 2028 risks repeating practices which led to the Equipment Plan's original introduction.** In 2012, the Department announced its intention to make the Plan balance, with forecast costs fully funded from the start of the year. Since the Spending Review 2015 the Department has not fully funded its costs from the outset. It has relied on reducing costs to within budget during the year, through making individual programme decisions and not incurring planned spending. A reliance on in-year decisions creates greater uncertainty over costs and increases the likelihood of decisions focusing on short-term affordability rather than longer-term value for money. Our recent work, for example, on supporting naval equipment, has shown this can lead to increased costs. To make 2018-19 affordable, the Department has delayed work programmes, such as replacing Astute-class submarines and introducing remotely controlled aircraft (Protector), which could increase future costs (paragraphs 3.15 to 3.18 and Figure 16).

10 **In 2018-19, the first year of the Plan, the Department has a variance of £1.3 billion which it needs to manage in-year.** The Department told us it sought to set each TLB a tight but realistic budget to incentivise better cost control and better reflect historical spending trends. It based this budget on its own judgement of past TLB performance, and after having taken decisions to reduce or re-profile £59 million of specific programme costs. It remains confident it can reduce the remaining variance by spending £1.3 billion less than it forecast at the start of the year. Although the Department managed a similar variance in 2017-18, we consider this a high-risk approach given the assumptions already built into the 2018 Plan (paragraphs 3.13 and 3.14, 3.16, 3.18 and Figures 15 and 16).

11 The Department has limited flexibility to redirect other budgets to address the funding shortfalls it faces in relation to equipment and support. The Plan accounts for more than 40% of the Department's spending, and this is set to rise to 49% in 2021-22. For 2018-19, the Department has agreed with HM Treasury a departmental budget £1.2 billion in excess of the funds voted by Parliament. This covers both the Equipment Plan and all other departmental spend. The Department has allocated this larger budget, agreeing with HM Treasury that it will manage it in-year. Given the financial constraints elsewhere in the Department, it has limited flexibility to redirect other budgets, such as for estates and personnel, to address the funding shortfall for equipment and support. The Department has managed similar budget variances in previous years (paragraphs 3.10 to 3.12, 3.16 and 3.17 and Figures 14 and 16).

Conclusion

12 The Department's Equipment Plan remains unaffordable, with forecast costs exceeding budgets by £7.0 billion over the next 10 years. This variance could increase or decrease depending on different circumstances, with the Department estimating a worst-case scenario of costs increasing by £14.8 billion should all the identified risks materialise. However, some of its analysis remains optimistic and costs could increase further. The Department is improving its understanding of affordability risks, but we are not yet fully confident in the robustness of some of its underlying assumptions, particularly around efficiencies.

13 The Department recognises that continued unaffordability of the Plan is not sustainable and has presented the nature and scale of the challenges it faces more clearly in its latest Plan. However, as we have previously recommended, it still needs to undertake the necessary analysis and make the decisions needed for the Plan to be affordable. In January 2018, it established the MDP to take the action needed to close the affordability gap, but this work has not yet concluded. Given that 84% of the identified affordability challenge falls in the next four years, the Department must make decisions now. During the current period of uncertainty, the Department has resorted to short-term decision-making, increasing the longer-term risks to value for money and the likelihood of returning to past poor practices.

Recommendations

14 In developing its Plan for 2018 to 2028, the Department has addressed some of our previous recommendations (Appendix Three). However, it is still to make the decisions necessary to bring the Plan back into balance. To achieve this, the Department must:

a make the decisions required to defer, de-scope or delete programmes as soon as possible so as to address the affordability challenge;

b ensure decisions are supported by a full and transparent evidence base to demonstrate longer-term value for money; and

c outline its decisions, including the financial and broader implications, to Parliament.

15 In setting its Plan for 2019 to 2029, the Department must:

d continue its current plans to improve cost forecasting and consider, as part of this, what can be learnt from the work of the Cost Assurance and Analysis Service;

e ensure greater consistency across TLBs and delivery organisations in how risk and uncertainty are reflected in project costs, for example, through further challenge of TLBs, in line with our recommendation last year;

f continue, for example through delivering its current plans to improve financial leadership, to improve its understanding of affordability risks, and their impact, across the Equipment Plan portfolio. This includes using this insight to inform the size of its contingency budget; and

g improve central oversight of efficiency savings by ensuring that there is a single point of accountability, a central view of efficiencies included in the Plan, and a clear and accessible audit trail for all the efficiencies included in the Plan.

Part One

Setting the Equipment Plan 2018 to 2028

1.1 This part summarises the Ministry of Defence's (the Department's) Equipment Plan 2018 to 2028 (the Plan), and the process it has adopted to prepare the budget.

The Equipment Plan

1.2 Almost half of the Department's overall annual spend relates to procuring and supporting its equipment (**Figure 1**). Since 2012, the Department has published an annual statement on its 10-year Equipment Plan. This sets out the budget allocated to deliver and support the equipment required by the Armed Forces to meet their objectives over the next 10 years, although many of these projects will be delivered over a longer period.[2]

1.3 The Department began the process of preparing the annual statement following a period of poor financial management, during which a significant gap developed between forecast funding and costs across the defence programme. This led to a cycle of over-committed plans, short-term cuts, and re-profiling of expenditure, which resulted in poor value for money and less funding for front-line military activities. The Plan provided a 10-year statement to help demonstrate to Parliament that the Department could make effective decisions, alongside providing the Department a more stable basis to develop plans. At the request of the then Secretary of State, we report on the robustness of the Plan's assumptions. Our approach is set out in Appendix One.

Setting and allocating the equipment and support budget

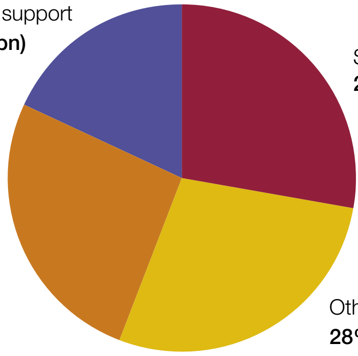
1.4 The Department sets the Equipment Plan budget as part of its defence-wide annual budgeting exercise. Its Head Office oversees this process, while fiscal responsibility for projects within the Plan is delegated to the four front-line military commands (Air, Army, Navy and Joint Forces), the Defence Nuclear Organisation (DNO), and the Strategic Programmes Directorate within the Department's Head Office (**Figure 2** on page 12).[3] These are known collectively as Top Level Budgets (TLBs).

1.5 TLBs specify their equipment requirements and manage equipment budgets to secure what they need to meet their objectives. Head Office adjusts budgets provided to TLBs to achieve a balanced position across defence as a whole. The Department's Board approves funding for equipment projects (including changes to previously approved funding), and is kept informed of progress on major projects.

2 These objectives are set out in HM Government, *National Security Strategy and Strategic Defence and Security Review 2015*, Cm 9161, November 2015.
3 DNO was established on 1 April 2018.

Figure 1
Breakdown of Ministry of Defence spend, 2017-18

The Department spent 42% of its £36.6 billion budget on equipment procurement and support in 2017-18



Notes

1 Spending on equipment comprises equipment support (£6.6 billion) and capital expenditure (£8.7 billion), totalling £15.3 billion (42%) of departmental spend.

2 Figures reflect resource and capital delegated expenditure limit (DEL) spending. They do not include non-cash deprecation costs or annually managed expenditure (AME), spending not easily controlled by the Department.

3 Capital expenditure covers equipment procurement, alongside capital spend on infrastructure.

4 Staff costs cover civilian and service personnel.

5 Other includes estate costs.

Source: National Audit Office analysis of Ministry of Defence *Annual Report and Accounts*, 2017 to 2018

1.6 Delivery organisations, such as Defence Equipment & Support (DE&S) and the Submarine Delivery Agency (SDA), manage equipment and support projects on behalf of TLBs. This involves managing commercial relationships and developing the more detailed figures for project costs. They also provide information and advice to support TLBs' decision-making.

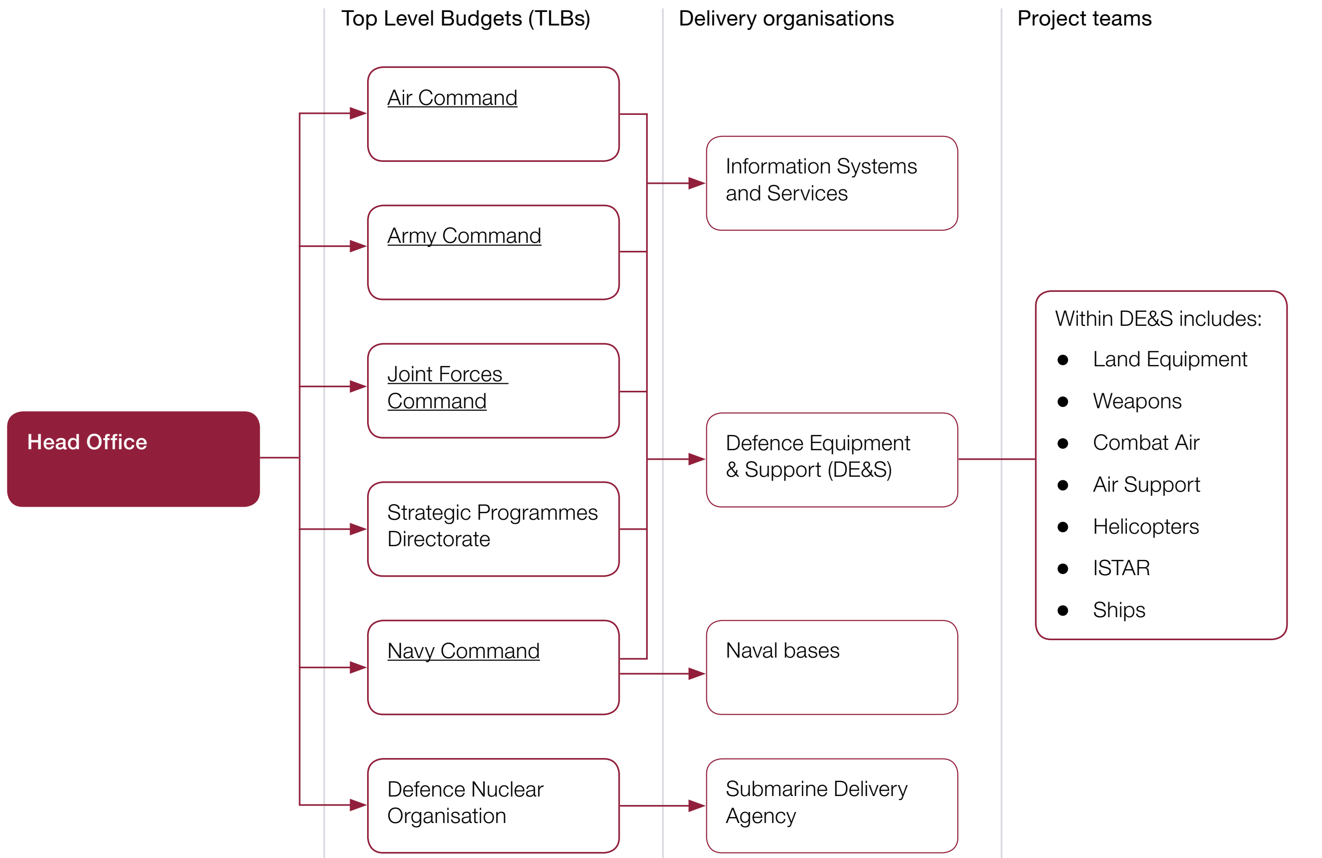
1.7 The Department completed the 2018 budgetary process quicker than in previous years. It began the process in May 2017 and issued indicative equipment and support budgets to TLBs in March 2018. Half-way through the process, the Department re-focused with the aim of making just year one affordable given its announcement of the Modernising Defence Programme (MDP) review in January 2018, which we consider in Part Three.

1.8 For the 2018 Plan, for the first time, the Department allocated 2018-19 budgets to TLBs based fully on forecast costs and financial risks, rather than rolling forward the prior year's budget. As forecast costs exceeded the budget available, the Department considered the scope within each TLB to reduce costs by, for example, deferring and de-scoping programmes, and then apportioned the budget across TLBs on this basis. This means budgets better reflect what TLBs expect to spend. The Department did not adopt a similar budget setting approach beyond the first year of the Plan.

Figure 2

Equipment Plan responsibilities, April 2018

The Ministry of Defence (the Department) has delegated Equipment Plan roles and responsibilities



Responsibilities

Approve project funding Set and allocate budgets Accountability and oversight over TLBs	Fiscal responsibility Set detailed equipment and support requirements Manage equipment portfolio Hold delivery organisations to account, acting as their customer	Deliver programmes on behalf of TLBs, including managing commercial relations Consider risks across their projects Provide TLBs with commercial and technical advice	Daily management of projects, including forecasting costs and handling supplier relations

Notes

1 Head Office is the Department's central financial and resource function that oversees the TLBs.

2 Underlined entities are Front Line Commands.

3 ISTAR is Intelligence, Surveillance, Target Acquisition and Reconnaissance, which links battlefield functions to develop a combined force.

4 The Defence Nuclear Organisation operates as a TLB but also has some delivery roles in relation to warheads.

5 The Department's Cost Assurance and Analysis Service acts independently of these organisations and provides assurance on costing figures developed by project teams.

Source: National Audit Office

1.9 In publishing its 2018 Plan in November 2018, the Department has met its commitment to Parliament to produce its 10-year Plan earlier than most years. In order to do this, Head Office established a stakeholder group from across the Department to better coordinate the process, communicate with TLBs and understand the data it needed to compile the 2018 Plan.

The Equipment Plan 2018

1.10 For the period 2018 to 2028, the Department has set a budget of £186.4 billion for procuring and supporting its equipment (**Figure 3** overleaf). This includes budgets for:

- procurement (£88.8 billion);
- support (£91.1 billion); and
- other areas which relate to centrally held amounts covering, for example, a provision for increased inventory costs (£0.4 billion) and £6.2 billion of contingencies, of which £1.1 billion of this is ring-fenced by the Department for nuclear-related projects.

The Plan covers some large and complex procurement projects including four nuclear-deterrent submarines (the Dreadnought-class), eight Type 26 Frigates, new armoured vehicles (Ajax), and the F-35 Lightning II aircrafts. It also includes a budget to support new and in-service equipment such as upgrading and enhancing the Typhoon aircraft, enabling modern ICT services and providing support services at UK naval bases.

1.11 The budget for the 2018 Plan has increased by £6.7 billion (4%) compared with the 2017 Plan (**Figure 4** on page 15). This compares with a 1% increase between 2016 and 2017. The increase reflects inflation, changes to programme commitments, and revisions to how forecast costs, which form the basis of the equipment and support budgets, have been set for the 2018 Plan. Part Two of this report provides our assessment of how the Department forecasts costs.

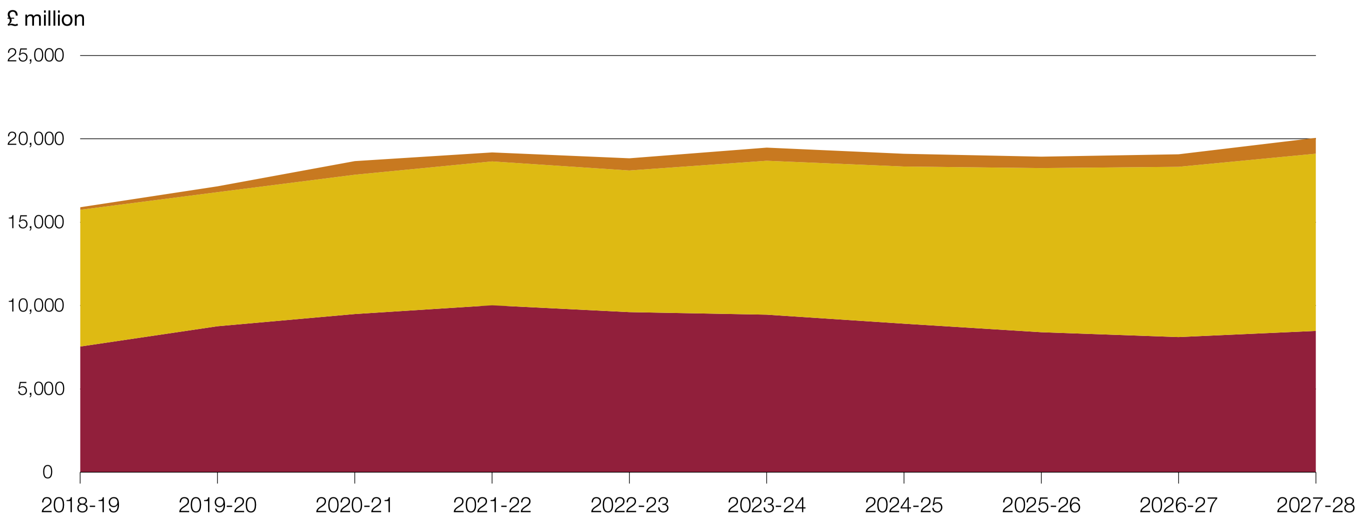
1.12 Despite an overall increase across the 10 years, the Department reduced its equipment and support budget by 1% for the first year, 2018-19, compared with its budget for the same year in the 2017 Plan. This reflects the wider budgetary pressures that the Department currently faces. Part Three of this report summarises our assessment of the affordability risks faced by the Department and describes how the Department hopes its MDP will address these risks.

Presentation of the Equipment Plan 2018

1.13 The Department has been more transparent in its 2018 Plan than in previous years, but can make further progress (**Figure 5** on page 16). It has gone some way to addressing our previous recommendations, and to fulfilling the intentions it set out in 2012 to publish a transparent statement that demonstrates the affordability and deliverability of the Plan. For example, for the first time, the Department has quantified both the affordability gap and its financial risks. It has also changed how it presents its sector analysis to make this more understandable. In line with its commitment to Parliament, the Department has also made its 2017-18 annual report and accounts more transparent in relation to the Equipment Plan. This included breaking down the expected spend across the Plan graphically.

Figure 3
Breakdown of the Equipment Plan budget, 2018 to 2028

The Ministry of Defence (the Department) has budgeted £186.4 billion for equipment and support projects in the 10 years 2018 to 2028



	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	Total (£m)
Equipment Plan procurement budget	7,542	8,759	9,491	10,015	9,606	9,454	8,913	8,401	8,110	8,478	**88,769**
Equipment Plan support budget	8,203	8,043	8,357	8,632	8,497	9,232	9,428	9,846	10,213	10,632	**91,083**
Equipment Plan other	152	350	816	538	730	787	763	684	750	948	**6,518**
Total	**15,897**	**17,152**	**18,664**	**19,185**	**18,833**	**19,473**	**19,104**	**18,931**	**19,073**	**20,058**	**186,370**

Note

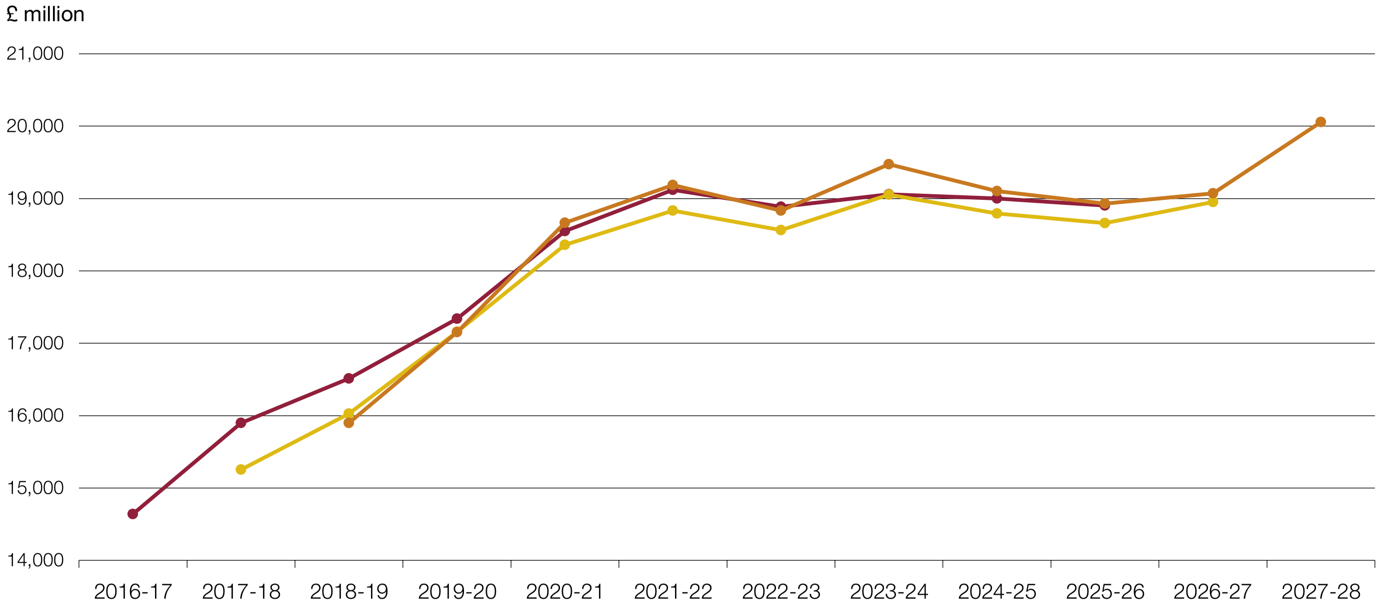
1 Other includes £5.1 billion Equipment Plan contingency; £1.1 billion ring-fenced contingency for nuclear-related projects; a £0.4 billion centrally held budget for additional inventory costs; and a negative amount of -£0.03 billion relating to centrally held amounts for foreign exchange rate movements.

Source: National Audit Office analysis of Ministry of Defence data

Figure 4

Comparison of Equipment Plan annual budgets, 2016 to 2026, 2017 to 2027, and 2018 to 2028

The 2018 to 2028 Plan has reduced budgets in the first two years compared with the 2017 to 2027 Plan



	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	Total (£m)
Equipment Plan 2016	14,639	15,901	16,511	17,340	18,550	19,120	18,888	19,059	19,000	18,904			**177,912**
Equipment Plan 2017		15,255	16,025	17,159	18,361	18,834	18,565	19,055	18,793	18,659	18,954		**179,660**
Equipment Plan 2018			15,897	17,152	18,664	19,185	18,833	19,473	19,104	18,931	19,073	20,058	**186,370**

Source: Ministry of Defence

Figure 5

National Audit Office (NAO) assessment of the transparency of the Ministry of Defence's (the Department's) Equipment Plan 2018 to 2028

In its 2018 Plan, the Department has provided more information on its equipment and support budget, forecast costs and affordability challenges

NAO assessment as to whether the report includes:	NAO assessment of progress	
• the time period over which figures are prepared	Good	Report sets out the timeframe, 1 April 2018 to 31 March 2028 clearly.
• financial information for the 10-year period	Good	Figures included in text and diagrams. Prior period figures enable longer-term assessments.
• the underlying assumptions	Good	Report sets out many assumptions and their impact, although their sensitivity could be better explained.
• range of scenarios	Good	Department describes how different factors impact costs, with scope remaining to explain likelihood of these factors occurring.
• changes to project costs and timeframes	Good	Project costs and delays are explained. However, basing this analysis on project information, compared to that generated as part of the Plan, makes it more difficult to understand.
• foreign exchange risks	Good	Clearly set out.
• progress in identifying efficiencies	Some	Detailed analysis by programme (progress against target). Changes to the approach and limited tracking of efficiencies make a longer-term assessment difficult.
• overall Plan risks	Some	A number of risks are quantified for the first time and summarised in the Plan, which describes how these are considered when forecasting costs.
• an impact of any cost growth	Some	Describes impact in broad terms, for example, across the Department, but more detail possible.

Notes

1 Criteria drawn from the NAO review of the government's open data strategy and previous NAO and Committee of Public Accounts', findings, including the NAO's review of the Equipment Plan 2012 to 2022.

2 Assessment reflects our view of how well the Department considered potential criteria, with 'Limited' reflecting where improvements could be made; 'Some' where progress has been made but improvements are still needed; and 'Good' where criteria have been met.

Source: National Audit Office

Part Two

Equipment Plan 2018 cost forecasts and risks

2.1 For the Equipment Plan 2018 to 2028 (the Plan), the Ministry of Defence (the Department) has allocated money across Top Level Budgets (TLBs) based on previous years' allocations and forecast equipment and support programme costs.[4] The Department estimates the forecast cost to be £193.3 billion across the 2018 to 2028 Plan. To set out a meaningful Plan, it needs to have accurate cost forecasts and to understand the risks that may influence these forecasts. This part provides our assessment of how well the Department develops forecast costs.

Developing realistic project costs

2.2 The forecast costs that feed into the Equipment Plan comprise around 2,000 cost lines relating to specific equipment and support projects, many of which are long-term and complex. TLBs use project teams within delivery organisations, such as Defence Equipment & Support (DE&S) and the Submarine Delivery Agency (SDA), to manage and deliver most equipment and support projects on their behalf. Project teams draw on their detailed knowledge of projects to forecast most costs. They are responsible for forecasting more than 90% of the costs included in the Plan, with TLBs responsible for the remainder.

2.3 As we recognised in our reports on previous Equipment Plans, there are challenges in forecasting costs for complex major programmes. These include, for example, the need to make assumptions about future costs which will be influenced by uncertain events. Consequently, the project teams continually update their forecast costs as projects evolve. The Department's Cost Assurance and Analysis Service (CAAS) provides independent assurance on many of these project costs.

2.4 For the 2018 Plan, the Department has adopted a more realistic approach to forecasting costs by including previously excluded costs; changing how it generates costs; and updating the foreign exchange rates used in the Plan. In doing so, it has addressed some, but not all, of our previous recommendations relating to the accuracy of costs (Appendix Three). However, although CAAS has suggested the Department has taken a more realistic approach to costing the 2018 Plan, it found the Department could have under-estimated the cost of equipment and support projects by £3.0 billion (£3.2 billion in 2017), when compared with CAAS's assessment (**Figure 6** overleaf).[5]

4 The Department delegates fiscal responsibility of the Plan to TLBs, which specify equipment requirements and manage associated budgets. They include the four front-line military commands of Air, Army, Navy and Joint Forces alongside the Defence Nuclear Organisation and Strategic Programmes Directorate within the Department.

5 As part of its assessment CAAS reviews a sample of equipment and support projects overseen by delivery organisations. As it has changed its approach to costing those projects outside its sample for the 2018 Plan, figures are not directly comparable between years.

Figure 6

Estimated level of project cost understatement in the Equipment Plan 2018 to 2028

The Cost Assurance and Analysis Service (CAAS) assesses the Ministry of Defence (the Department) could have underestimated the cost of the Plan by £3 billion

	2017 (£bn)	2018 (£bn)
Equipment procurement projects	0.4	0.7
Equipment support projects	2.8	2.3
Total	**3.2**	**3.0**
Proportion of project costs assessed by CAAS (across 10 years)		
	(%)	(%)
Procurement	66	66
Support	51	52

Note

1 In 2018, for those projects not included in CAAS's sample, CAAS has taken the project team's estimate. This is a change in methodology from 2017 and therefore figures are not directly comparable.

Source: CAAS's Annual Report for the Department's 2018 budget

Completeness

2.5 In January 2018, we reported that the Department could not demonstrate that all commitments made in the Strategic Defence and Security Review (SDSR) 2015 had been included in the Plan, in particular the costs of buying five Type 31e Frigates.[6] The 2018 Plan now includes a forecast cost of £1.5 billion for these ships, for which Navy Command is responsible. Responsibility for procurement and support will transfer to DE&S, which is working alongside Navy Command, as forecast costs become more certain and the current competition phase is complete. In line with evidence from our work, the Department and TLBs have assured us that all major expected equipment and support costs have been included in the 2018 Plan.

2.6 To more fully reflect its future costs, the Department has included additional forecast costs following changes in 2017-18 to the Department's budgeting for inventory, so as to align with European accounting standards. This introduced a £1.7 billion cost forecast across the 10-year Plan, although the exact cost, and over what timeframe, remain uncertain. The Department has established a £385 million centrally held budget for these costs in the first three years of the Plan, which it intends to review.

6 Comptroller and Auditor General, *The Equipment Plan 2017 to 2027*, Session 2017–2019, HC 717, National Audit Office, January 2018.

Cost maturity

2.7 The Department needs to forecast costs accurately to enable effective decision-making and long-term planning. Forecasting the costs for newer projects can be particularly challenging as, for example, equipment and support requirements still need to be developed and agreed with delivery organisations. The 2018 Plan includes £21.2 billion of less mature cost forecasts. These are managed by TLBs until the forecast costs are stable enough for the project to be delegated to a delivery organisation. In the 2017 Plan, TLBs managed £12 billion of similar costs.

2.8 To forecast costs, the Department needs to make a number of assumptions. These include:

- **Confidence levels**

  Historically, the Department has forecast its costs at the 50th percentile, which is equivalent to a 50% chance of the project costing more or less than the forecast. We have previously warned against this practice, particularly for projects at an early stage, as it can lead to over-optimism.[7] Other major complex projects such as Hinkley Point C, the civil nuclear power station, have estimated costs at the 80% confidence level. For some of its nuclear projects the Department has reconsidered the confidence level it uses. It has now costed 48% of nuclear-related projects on a 'most likely outcome' basis, with 17% of the projects at a confidence level of 70%.[8]

- **Project risks**

  Risks such as project delays or contractor performance may affect project forecast costs. In their forecasts, delivery organisations provide for those risks that they feel will more likely than not have a financial impact. At April 2018, the Plan included £11.3 billion of these costs. Those risks that are judged less likely to occur are not included in cost forecasts. The Department valued these less-than-likely risks at £19.7 billion for the 10 years 2018 to 2028. Financial risks will vary for each project, as will the proportion of these risks that are included in the forecast cost or not. Over the 10-year period, nuclear-related projects included half of their identified risks within forecast costs, while Army-related projects included a quarter of their risks within forecast costs.

- **Project portfolio risks**

  TLBs and delivery organisations also adjust forecast costs to reflect any slippage they expect across their portfolios of projects. This adjustment reduces forecast costs and reflects their assumption that some projects within the portfolio may slip, and therefore not all forecast costs will be incurred in the year specified. They use previous experience as a basis for this judgement. The Department made cost deductions totalling £6.7 billion to reflect these risks. This comprises £3 billion of TLB adjustments and £3.7 billion relating to delivery organisation adjustments, the latter of which have been considered by CAAS in its review of forecast costs.

7 Comptroller and Auditor General, *The Equipment Plan 2017 to 2027*, Session 2017–2019, HC 717, National Audit Office, January 2018; and National Audit Office, *Survival guide to challenging costs in major projects*, June 2018.

8 Comptroller and Auditor General, *The Defence Nuclear Enterprise: a landscape review*, Session 2017–2019, HC 1003, National Audit Office, May 2018.

Nuclear-related forecasts

2.9 Nuclear-related projects represent around a quarter of the 2018 Plan by value, with the Defence Nuclear Organisation (DNO) planning to spend £41.0 billion over the next 10 years on equipment and support programmes. This includes the 10-year costs relating to replacing the nuclear-deterrent submarines (the Dreadnought-class), alongside maintaining the nuclear warheads. These are complex projects and, because of their size, have the potential to destabilise the wider Plan.

2.10 The 2018 Plan includes a more realistic assessment of nuclear-related forecast costs than previous Plans. In summer 2017, the Department sought to develop a more coherent and realistic understanding of the DNO costs through a bottom-up review of its equipment and support programmes, including the warhead. This work gathered programme teams' views of costs based on identified risks and particular costing scenarios. Subsequently, the Department developed detailed cost forecasts. This analysis considered ways to reduce and re-profile the costs of the Dreadnought programme. This increased forecast spending by 26% in the first four years as a way of keeping the programme on schedule and within the £31 billion SDSR 2015 forecast whole-life cost commitment.[9]

Foreign exchange rates

2.11 For each of the next 10 years, foreign currency denominated contracts cover between 8% and 19% of forecast equipment and support costs. A large proportion relates to US dollar transactions. The Department has forecast that projects included in the Plan will spend $30.4 billion over the 10 years, compared with €6.2 billion (**Figure 7**). This is a 15% decrease in US dollar spend and a 69% increase in euro spend compared with the 2017 to 2027 Plan.

2.12 Foreign exchange rates continually fluctuate. For 2018, the Department adopted a more realistic approach to considering the implications of foreign exchange rate movements on its 2018 Plan. In particular it has:

- **Used a more realistic US dollar rate to forecast project costs than in the prior year.**

  The Department chose to revise downwards the rate used to forecast costs in projects, better aligning its rate with the market rate, which has also improved since the 2017 Plan. For the first year of the 2018 Plan, the Department used a $1.44: £ rate, 3% above the $1.40 market rate at the time of the Plan. It then used the $1.40: £ market rate for 2019-20, and a $1.45: £ rate for the remaining eight years. For the 2017 Plan, the Department had set rates that were 24% above the exchange rate at the point the 10-year Equipment Plan period started.[10]

9 See footnote 8.

10 Based on years 2 to 10 of the 10-year 2017 Plan where an exchange rate of £1 to $1.55 was assumed. This differed from the 2017-18 rate which assumed £1 was worth $1.23.

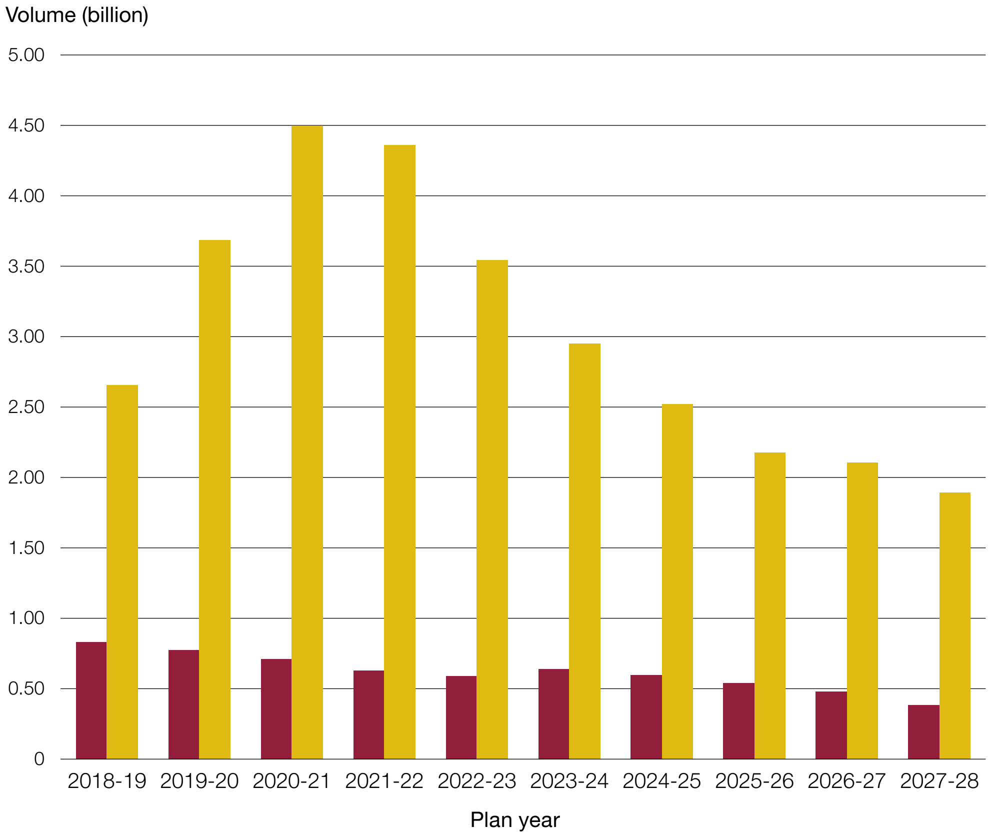
- **Set out within the 2018 Plan a specific provision, managed by Head Office, for exchange rate movements.**

  To manage the risk of exchange rate fluctuations, the Department holds a provision covering the difference between the planning rate used by project teams and the Department's assessment of the most likely rate at the time of the Plan. This rate is in line with market expectations at the time of the Equipment Plan (**Figure 8** overleaf). The Department manages this provision centrally, releasing budget to TLBs when required.

Figure 7

Expected US dollar and euro spend in the 2018 Equipment Plan

Expected US dollar spend is greater than that for euros



	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Euros	0.83	0.77	0.71	0.63	0.59	0.64	0.60	0.54	0.48	0.38	**6.17**
US dollars	2.65	3.68	4.50	4.36	3.54	2.95	2.52	2.18	2.11	1.89	**30.38**

Note

1 Volumes are in euros and US dollars.

Source: National Audit Office analysis of Ministry of Defence data

Figure 8
Comparison of forecast US dollar to pound sterling exchange rate, 2018-19 to 2027-28

The Ministry of Defence's (the Department's) forecast US$: £ exchange rate is in line with market expectations

Plan year	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
Equipment Plan planning rate assumption for costs	1.44	1.40	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
Defence estimate of most likely rate	1.43	1.44	1.46	1.47	1.47	1.47	1.47	1.47	1.47	1.47
Market estimate	1.40	1.45	1.45	1.44	1.47					

Note

1 Market estimate based on the Bloomberg forecast rate. Defence estimate represents the Defence Economics' team forecast. The Equipment Plan planning rate assumption for costs shows the rate used by the Department to forecast project costs.

Source: National Audit Office analysis

Reflecting efficiencies

2.13 The Department reduces its equipment and support budget to reflect the efficiency targets it hopes to achieve over the 10-year period of the Plan. However, delivery organisations, such as DE&S and SDA, which manage most equipment related efficiencies on behalf of the Department, will only reduce project forecast costs when they have confidence in efficiencies being realised against these targets. For the 2018 Plan, the Department has included a £13.4 billion target, with £7.3 billion of efficiencies it is confident in achieving assumed in the forecast costs (**Figure 9**).

Figure 9
Efficiencies assumed within the 2018 to 2028 Equipment Plan

The Ministry of Defence (the Department) is confident it will achieve £7.3 billion (54%) of its target efficiencies for the 10 years 2018 to 2028

Area	Target (£bn)	Efficiencies confident in achieving (£bn)	Percentage of target confident achieving (%)	Identified efficiencies included in the Plan where not yet confident in achieving (£bn)	Total efficiencies in Plan (£bn)	*Further efficiencies identified which are not included in the Plan (£bn)*
Defence Equipment & Support (DE&S) transformation	3.9	4.2	108	1.3	5.4	*2.0*
Consolidated Equipment Plan efficiencies	7.3	1.9	26	0.9	2.8	
Submarine Enterprise Performance Programme	1.0	0.6	60	–	0.6	–
Complex Weapons Pipeline	1.1	0.6	55	–	0.6	–
Total	**13.4**	**7.3**	**54**	**2.2**	**9.5**	***2.0***

Notes

1 Consolidated efficiencies covers those efficiencies that fall outside DE&S transformation. These include some targets set in the Spending Review 2015, for example on Single Source Regulations Office efficiencies and further equipment support efficiencies. It also includes legacy efficiencies from before the 2015 Spending Review.

2 Targets reflect those set before the Spending Review 2015; in the Spending Review 2015; and in subsequent updates.

3 Further efficiencies identified have not been split between DE&S transformation and Consolidated Equipment Plan efficiencies.

4 Figures do not sum due to rounding.

Source: Ministry of Defence

2.14 The Department is continuing to address recognised weaknesses in identifying and monitoring efficiency targets and forecasts. For the 2018 Plan, it consolidated efficiency targets and commissioned an independent review to assess its progress towards achieving efficiencies relating to the SDSR 2015. This builds on previous changes, such as introducing a more formal process for identifying and assessing efficiencies across DE&S. SDA has implemented a similar process although the 2018 Plan is based on figures developed by DNO. Information Systems and Services (ISS) has yet to develop a similar process.

2.15 The Department has more to do to bring together efficiency and cost forecast reporting. During our audit, the Department found it difficult to provide a clear and comprehensive view of its progress towards efficiency targets, and could not routinely track progress. It had to conduct further work to develop a clearer view. We identified inconsistencies in how efficiency data were recorded across organisations and financial systems, with the Department not always able to clearly explain differences. We also found insufficient information to support the Department's subjective assessment of the level of efficiencies that could be assumed for those less likely efficiencies, and that its attribution of efficiency delivery forecasts against targets changed late in the audit process. The Department told us it is introducing a new efficiencies approach which it expects will lead to improvements. Given the Department's current position, we cannot provide assurance over the efficiency figures included in the Plan.

Efficiency targets

2.16 The 2018 Plan incorporates efficiency targets set before 2012, impacting between 2018 and 2028, alongside more recent efficiency targets. In our 2017 report, we recommended the Department conclude its review to identify the full extent of savings targets assumed within the Plan, and set out clear accountabilities for delivering them.[11] As part of this review, the Department categorised most efficiencies into two groups, with targets covering:

- **DE&S (and SDA) transformation**

  Efficiencies delivered through the DE&S transformation programme, designed to raise the skills and productivity of staff and introduce better systems for managing and controlling projects.

- **Consolidated Equipment Plan efficiencies**

  In 2017, the Department consolidated several equipment-related efficiency targets to simplify how they were managed in the Plan to allow greater flexibility in how to achieve them. These include efficiencies relating to the Single Source Contract Regulations and equipment support.

Efficiency forecasts

2.17 In its 2018 Plan, the Department records its progress towards achieving efficiency targets. Its approach differs depending on its confidence in achieving efficiency targets. This differs between:

- **Realised efficiencies**

  When it is confident an efficiency can be achieved over the 10-year period, the Department deducts the full amount from its individual project costs. The Department's costs indicate it will achieve £7.3 billion of efficiencies between 2018 and 2028, 54% of the target. It has not yet identified robust plans for achieving the residual £6.1 billion, although it has assumed in its budget that they will be secured.

11 See footnote 6.

- **Identified efficiencies**

  The Department monitors those efficiencies it has identified but does not yet have confidence in achieving. When it developed the 2018 Plan, it had identified £4.1 billion of potential efficiencies, which it did not feel confident in deducting from project costs. However, based on the assessment of delivery organisations, the Department assumed £2.2 billion could be achieved. It deducted this from its total forecast cost position. On the basis of the evidence received, we cannot give assurance over the Department's estimation of a further £2.2 billion efficiencies.

Adjusting costs

2.18 To derive the final costs of £193.3 billion in its 2018 Plan, Head Office adjusted the TLB's forecast cost figures (**Figure 10** overleaf), including to:

- **Ensure the accuracy of forecast costs.**

  The Department's IT system requires budget and forecast cost figures to balance. Head Office had to reverse adjustments made by the TLBs that reduced their project costs by £9.4 billion (compared with £9.6 billion in the 2017 Plan). This increased forecast costs, representing a funding gap the Department needs to address.

- **Reflect the Department's assumptions.**

  The Department reduced costs by £2.2 billion to reflect those efficiencies it had identified but does not yet have full confidence in achieving. It also made a £31 million adjustment to ensure total forecast costs are based on defence exchange rates from the start of the Plan.

Head Office relies on information provided by TLBs to understand how forecast costs have been built up by delivery organisations and TLBs, for it to then make the adjustments it needs. It now has more sight over TLB adjustments, but the underlying data remain unclear and inconsistent. The Department has started a programme designed to improve finance capabilities, particularly around forecasting accurate costs and managing costs and financial risks. It expects to see improvements in the consistent understanding of risks from 2019-20, and improved cost forecasting from 2020-21. The Department told us it has already started to see some improvements.

Figure 10

Adjustments to forecast costs in the Equipment Plan 2018

The Ministry of Defence (the Department) has made a number of adjustments to its forecast costs

	Costs (£bn)	**Total (£bn)**
Delivery organisation forecast costs		**180.9**
Top Level Budget (TLB) forecast costs		
Which comprise:		
• Costs managed by TLBs	21.2	
• Planned cost reduction	(3.5)	
• Adjustment for realism	(3.0)	
• Other	(0.1)	
Sub total		**14.6**
Total delivery organisation and TLB costs		**195.5**
Adjustments made by Head Office		
Deduction so total Plan costs reflect the defence foreign exchange rate estimate at the start of the Plan	(0.03)	
Deduction for efficiencies the Department expects from those identified efficiencies not yet robust enough to deduct from costs	(2.2)	
Sub total		**(2.23)**
Total forecast cost		**193.3**

Notes

1 The Department delegates fiscal responsibility for the Plan to TLBs, which specify equipment requirements and manage associated budgets. They include the four front-line military commands of Air, Army, Navy and Joint Forces, alongside the Defence Nuclear Organisation and Strategic Programmes Directorate within the Department.

2 'Planned cost reduction' is described by the Department as those cost reductions to be delivered through planned activities that are not yet attributed to projects.

3 'Costs managed by TLBs' include less mature projects that delivery organisations do not yet manage.

4 'Other' includes costs to be transferred across TLBs and TLB inventory costs.

Source: National Audit Office analysis of departmental data

Part Three

Affordability of the Equipment Plan

3.1 In its Equipment Plan 2018 to 2028 (the Plan) statement, the Ministry of Defence (the Department) quantifies the affordability challenge it faces as the difference between its Equipment Plan budget and its forecast costs. We describe this in Parts One and Two. The Department must manage a number of risks that could have an impact on the extent of this affordability challenge, and has indicated a worst and potential best-case scenario. This Part provides our assessment of the Plan's affordability and the measures the Department has taken, and will be taking, to address this challenge.

Affordability of the 10-year Plan

3.2 Earlier this year, we reported that the Equipment Plan 2017 to 2027 was unaffordable, with expected costs exceeding the available budget.[12] For the period 2018 to 2028 the Equipment Plan remains unaffordable. In its statement, the Department reports a most likely £7.0 billion difference between its forecast costs of £193.3 billion and the available budget of £186.4 billion. This is after considering contingencies and expected efficiencies. The gap between budget and forecast costs is greater at the start of the period, with 84% of this variance falling in the first four years (**Figure 11** overleaf).

3.3 In establishing its affordability position, the Department has assumed it will use the contingency allocated to the Equipment Plan. This includes £1.1 billion of nuclear contingency ring-fenced by the Department and £5.1 billion of contingency available across the Plan. In addition, the Department could use some of its £4.3 billion department-wide contingency, which is not included in the £186.4 billion Equipment Plan budget, for equipment and support projects over the ten years 2018 to 2028.

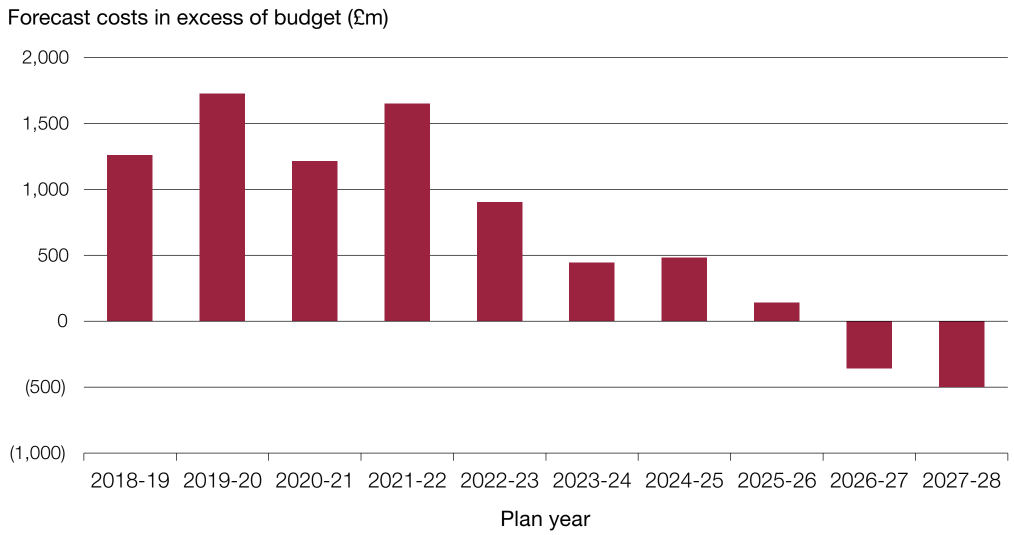
3.4 As outlined in Part Two, the Department's cost forecasts, and therefore its assessment of affordability, may change. The Department needs to understand and manage the risks to these cost forecasts to address the affordability challenge. The Department has sought to better understand the risks to the Plan's affordability and has presented these more clearly in its 2018 Plan.

12 Comptroller and Auditor General, *The Equipment Plan 2017 to 2027*, Session 2017–2019, HC 717, National Audit Office, January 2018.

Figure 11

The Ministry of Defence's (the Department's) assessment of its most likely affordability gap, 2018 to 2028

The Department has identified a £7.0 billion gap between its equipment and support programme budget and forecast costs that it needs to address in the next 10 years



2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	Total
1,260	1,727	1,214	1,651	901	445	482	141	(357)	(496)	**6,968**

Source: Ministry of Defence

3.5 The Department has calculated its worst-case scenario (all identified risks materialise) of the gap widening to £14.8 billion with a credible best-case scenario of a £2.5 billion gap. In calculating the affordability gap range, the Department made judgements around four factors that could increase or decrease costs (**Figure 12**). Its analysis covers the most likely reasons for changes to costs. However, some of its analysis remains optimistic, meaning forecast costs could potentially be higher, and it could go further by demonstrating a range of scenarios.

3.6 In our report on the 2017 Plan we quantified, for the first time, the affordability gap across the Equipment Plan.[13] We estimated a gap across the 10 years ranging from £4.9 to £20.8 billion, assuming all risks would fully materialise. To do so we adopted a different approach. This is not comparable to the approach used by the Department in its 2018 Plan.

13 See footnote 12.

Figure 12

National Audit Office (NAO) assessment of the Ministry of Defence's (the Department's) forecast cost risks

The Department has assessed four factors that may impact the cost forecasts in the 2018 Plan, but remains optimistic

Risk	Department's worst-case scenario (£bn)	Department's best-case scenario (£bn)	Description	NAO commentary
Cost understatement	3	–	CAAS estimate of expected outturn above project forecast costs	Plan costs potentially understated by £3 billion. CAAS estimates that the worst-case scenario will be costs understated by £13.9 billion.
Foreign currency exchange rates	1.1	(1)	Follows a 5% change in exchange rates over the 10-year period. The Department also includes the illustrative scenario of a 10% change in its Plan, but not in its affordability calculation.	Over the seven years (2010-11 to 2017-18) the US dollar rate has changed by 15%, indicating the risk of further changes to costs.
Adjustment for realism	1.5	(1.5)	TLBs adjust their forecast costs (£3 billion) to reflect the extent to which they feel their portfolio of projects may slip. These are subject to a lower level of assurance and are therefore at a lower confidence than realism adjustments included in project forecasts. The Department assumes a maximum variation of 50%.	Alongside the TLBs, delivery organisations make a similar adjustment. Combined, this indicates a £6.7 billion potential cost increase if all projects meet expectations, although the Department told us it is highly unlikely all projects will deliver their plans in full.
Efficiencies	2.2	(2)	The Department has identified £4.1 billion of potential efficiencies that it is not yet sufficiently confident in to deduct them from its project costs. However, in finalising the Equipment Plan forecast costs, the Department has assumed it could achieve £2.2 billion of these and has deducted them from forecast costs. If not achieved, costs could increase by £2.2 billion, but if it achieves all the efficiencies identified, costs would reduce by a further £2 billion.	It remains unclear whether the Department can achieve these efficiencies. A prudent approach would be to not yet reduce costs to reflect these efficiencies. The Department did not provide an evidence base to support the assumption that it would achieve these (paragraphs 2.13 to 2.17).
Total	**7.8**	**(4.5)**		

Notes

1 The Department's Cost Assurance and Analysis Service (CAAS) independently assesses equipment and support project costs.

2 The Department delegates fiscal responsibility for the Plan to Top Level Budgets (TLBs), which specify equipment requirements and manage associated budgets. They include the four front-line military commands of Air, Army, Navy and Joint Forces, alongside the Defence Nuclear Organisation and Strategic Programmes Directorate within the Department.

3 Foreign currency exchange rates – The potential change in cost is reduced in the three years from 2018-19 due to the forward purchase cover. The Department manages foreign exchange risk by securing prices for a proportion of its demand in the first three years of the Plan using a forward purchase mechanism provided by the Bank of England and HM Treasury.

4 Above figures not mutually excusive.

Source: National Audit Office analysis of departmental data

Addressing affordability across the Equipment Plan

3.7 In our report on the 2017 Equipment Plan we concluded that the Department needed to take urgent action across the 10-year Plan to make its equipment and support projects affordable.[14] We reported that the Modernising Defence Programme (MDP), a review of defence capabilities announced in January 2018, would affect future equipment and support projects and future affordability. This programme led on from the government's national security capabilities review, which began in July 2017.[15]

3.8 At the time of this report, the Department had been formally reviewing its defence capabilities for more than 15 months (**Figure 13**). It remains unclear when the final MDP conclusions will be published. In March 2018, the Department committed to sharing emerging findings in July 2018, which meant that the conclusions could not be reflected in the Equipment Plan until 2019 at the earliest. In July 2018 it published a short statement of the broad strategic context behind the review and initiated a second MDP phase, which focused on ensuring the Department had the right capabilities in the future, alongside making the decisions needed to make the programme affordable.[16] The Department has said it will make specific project decisions through:

- assessing the need for any new investments and the potential for rationalising equipment holdings;
- delaying, deferring or de-scoping areas of the forward defence programme;
- removing early from service the equipment that is uneconomic to maintain;
- sharing burdens more effectively with allies and partners; and
- examining the balance between areas where sovereign capabilities are essential, and those where military and commercial off-the-shelf solutions would be wholly adequate.

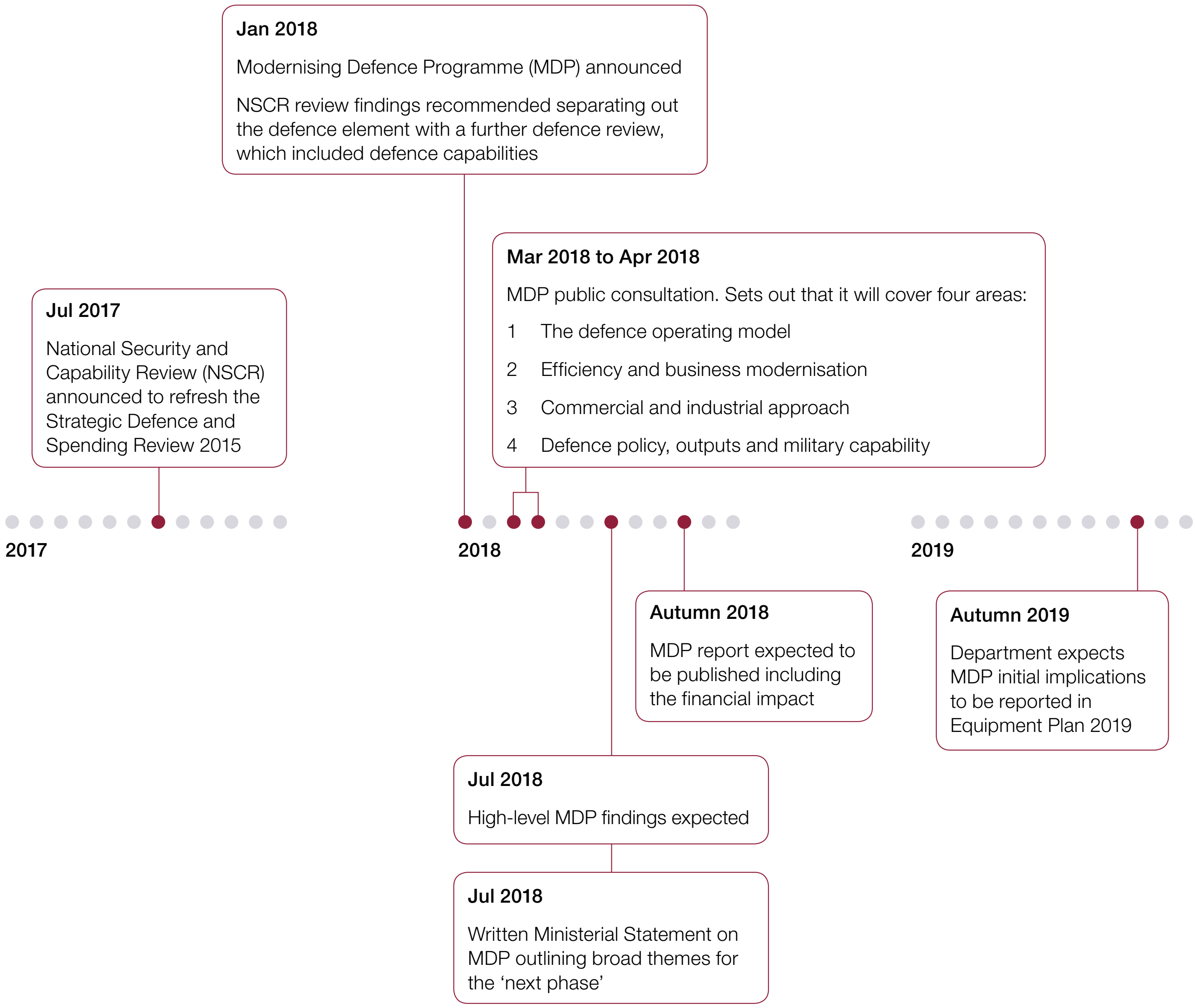
3.9 In March 2018, the Department told the Committee of Public Accounts that information on cost would be available in the autumn, to align with the Autumn Statement. The Department has now committed to reporting the initial implications of this work in its 2019 Equipment Plan. However, given the timing of the MDP, and with the Department having already started work on the next Equipment Plan, it is unlikely that the financial implications of the MDP will be available later this year or reflected in next year's Plan, covering 2019-20 to 2028-29.

14 See footnote 12.
15 HM Government, *National Security Capability Review*, March 2018.
16 Secretary of State for Defence, Written Ministerial Statement, HCWS883, 19 July 2018. Available at: www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Commons/2018-07-19/HCWS883

Figure 13

Timeline of defence capability reviews, July 2017 to Autumn 2019

The Ministry of Defence (the Department) has been continually reviewing its capabilities from July 2017 onwards



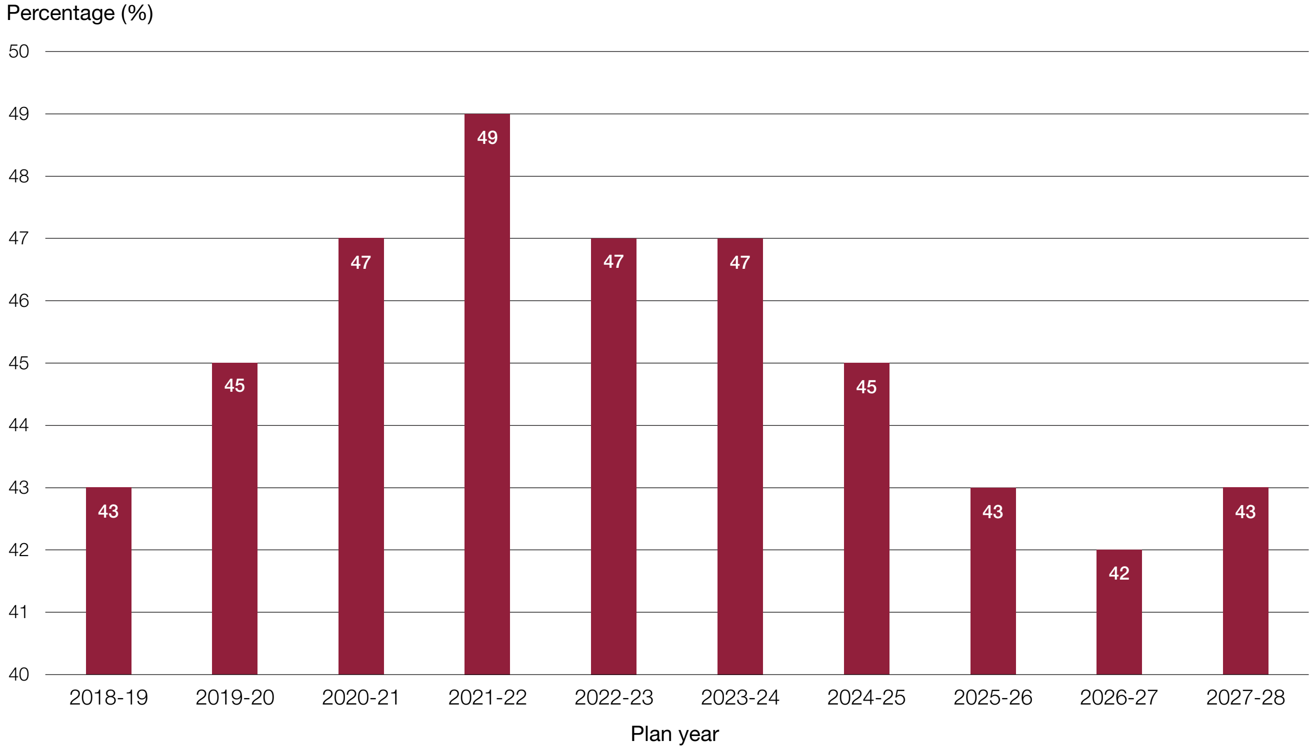
Source: National Audit Office

3.10 The Department expects its budget for equipment and support to grow to 49% of its overall budget in 2021-22 (**Figure 14**). This follows an increase in procurement and support spend, with the budget not increasing as quickly after 2020-21.[17] Given the size of its equipment and support budget, affordability challenges within the Plan will have significant implications for the Department. Its ability to make the Plan affordable depends on MDP decisions, but also the flexibility of its Plan. The Department reports that about 70% of its forecast costs over the next 10 years are not yet contractually committed. This includes uncommitted costs associated with programmes that have some contractually committed costs or political commitments.

Figure 14

Proportion of defence budget to be spent on the Equipment Plan, 2018 to 2028

The Ministry of Defence (the Department) expects that the proportion of its budget to be spent on equipment and support will peak in the early 2020s



Notes

1 Figures have been rounded.

2 The defence budget value reflects the Department's calculation based on the Spending Review 2015 settlement adjusted to reflect subsequent agreements. This includes, from 2020-21, continuing growth in the core budget by 0.5% above inflation, based on the GDP inflator measuring general inflation in the domestic economy.

Source: National Audit Office analysis of departmental data

17 Beyond 2020-21, the Department has assumed the budget will continue to grow 0.5% above inflation.

3.11 The Department also faces further challenges within its total budget, which means savings cannot be found elsewhere to fund equipment and support programmes. For example, we have previously highlighted a £8.5 billion shortfall in the Department's planned spending on its estate over the next 30 years.[18] We also noted pressures on its staff budget with limited progress in reducing the number of civilian personnel, to save approximately £150 million a year, and expenditure on the military workforce increasing by 11% between 2012-13 and 2016-17.[19]

3.12 For 2018-19, the Department agreed with HM Treasury a departmental budget (covering both the Equipment Plan and all other departmental spend) that is £1.2 billion greater than the funds voted by Parliament. It allocated this larger budget across the Department, including the Equipment Plan, agreeing that it would manage the affordability pressures in-year.

Addressing affordability in 2018-19

3.13 At the start of 2018-19, the Department's forecast costs exceeded the budget by £1.3 billion. For the Equipment Plan 2018 to 2028, the Department initially intended to establish an affordable defence plan, reflecting the Strategic Defence and Security Review (SDSR 2015). However, given the announcement of the MDP eight months into the budgeting process, it re-focused its priorities on achieving an affordable position for 2018-19 alone.

3.14 The Department has taken a number of steps to do this (**Figure 15** overleaf). However, these steps introduce different levels of uncertainty into the Plan. They include:

- **Specific project measures.**

  Head Office agreed with Top Level Budgets (TLBs) to remove £59 million of costs from eight specific programmes. This included deferring and de-scoping programmes, which could have an impact on the longer-term risks to the projects and value for money.

- **Requiring TLBs to make wider savings.**

  When allocating budgets across TLBs, the Department has required certain TLBs to make additional in-year savings within their provided budgets. Under the delegated model, TLBs can decide how to revise their programme to achieve these savings, although we found that their confidence in being able to manage these cuts varied. TLBs are responsible for ensuring their books balance.

18 Comptroller and Auditor General, *The Equipment Plan 2017 to 2027*, Session 2017–2019, HC 717, National Audit Office, January 2018; and Comptroller and Auditor General, *Delivering the defence estate*, Session 2016-17, HC 782, National Audit Office, November 2016.

19 Comptroller and Auditor General, *Ensuring sufficient skilled military personnel*, Session 2017–2019, HC 947, National Audit Office, April 2018; and Ministry of Defence, *Annual Report and Accounts 2017-18*, HC 1272, July 2018.

- **Using contingency.**

  For 2018-19 (and 2019-20) the Defence Nuclear Organisation (DNO) has built into its budgets use of its nuclear contingency. It also agreed with HM Treasury that it could access up to £600 million from a separate £10 billion Dreadnought submarine dedicated contingency announced in SDSR 2015, and held by HM Treasury. For 2018-19, the Department now has £150 million contingency available across its equipment and support budgets. It has already assumed it will use this contingency, although it is unclear on which projects.

3.15 The Department's over-commitment against budget at the start of the year differs from its 2012 approach. The then Secretary of State sought to move towards under-programming (allocating more budget than the forecast cost) to re-focus on managing value over the longer-term, rather than cash in-year, and provide greater certainty about funding.[20] The Department's change in approach followed the Spending Review 2015, which added £24.4 billion of new commitments, the majority of which would be funded within the existing Plan. This reduced the level of 'headroom', uncommitted spend within the Plan designated for new projects, which the Department told us increased the risk to affordability. We have previously highlighted in broader NAO work how over-committing can create additional cost risks, which then lead to significant reprioritisation exercises to reduce costs and release capacity.[21]

Figure 15

Summary of budget reductions applied in the Equipment Plan to make 2018-19 affordable

The Ministry of Defence (the Department) took a number of measures to improve affordability of the Plan in 2018-19

Top Level Budget		Additional measures, 2018-19 (£m)	**Total (£m)**
Specific project measures	Air	57	
	Navy	3	
	Defence Nuclear Organisation	(1)	
	Sub total		**59**
Wider Top Level Budget savings	Joint Forces Command	348	
	Army	100	
	Strategic Programmes	31	
	Sub total		**479**
	Total		**538**

Source: Ministry of Defence

20 Former Secretary of State, HC Debate: Defence Budget and Transformation, Hansard, 14 May 2012, vol.545, col 264.
21 Comptroller and Auditor General, *Progress with the Road Investment Strategy*, Session 2016-17, HC1056, National Audit Office, March 2017; and HM Revenue & Customs, *2017-2018 Accounts*, HC 1222, July 2017.

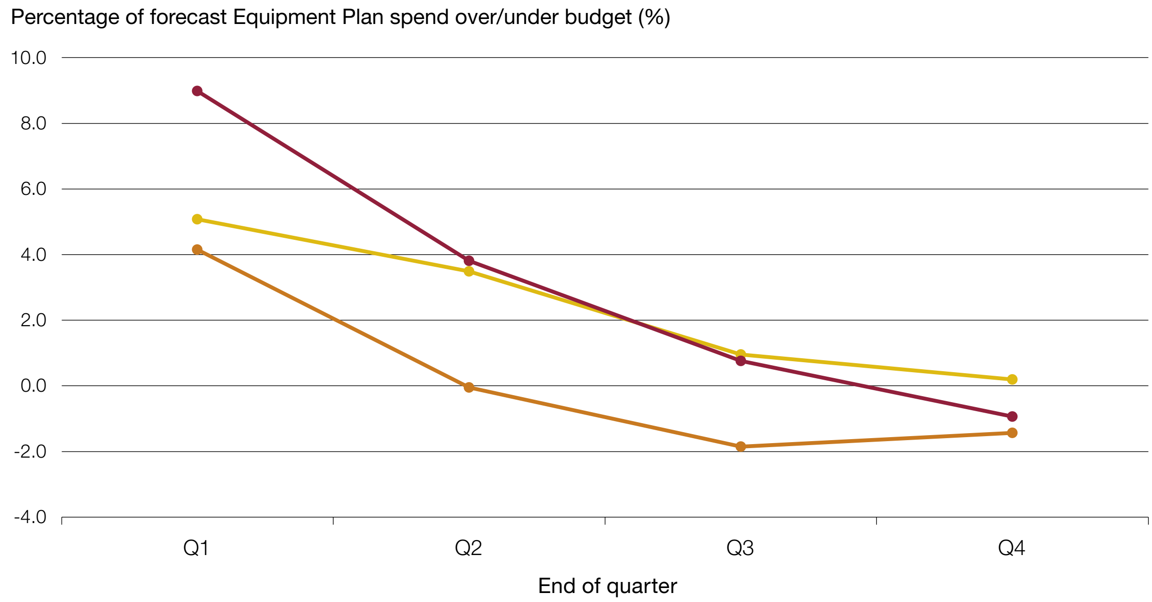
3.16 The Department still needs to manage a £1.3 billion variance between costs and budget in 2018-19. Consistent with HM Treasury rules, the Department must consider and manage its spending on an annual basis. As detailed in its 2018 Plan it feels that based on its analysis of financial risk, previous year spending and cost control measures, it can reduce the gap. Head Office has therefore provided TLBs with a budget, lower than forecast costs, that it expects them to meet and which it hopes will incentivise efficiency and cost control. Although the Department has previously addressed affordability gaps in-year, through making decisions on individual programmes and not incurring planned spending, there remains a risk to affordability given uncertainty in spending forecasts.

3.17 Over the last three years, forecast spending across equipment and support programmes has fallen in the last quarter, with the gap between budget and costs narrowing (**Figure 16**). In July 2018, the Department outlined the need to improve cost forecasting and put a plan in place. It also recognises the challenge of balancing annually living within its means, in accordance with the HM Treasury financial controls, and long-term financial sustainability.

Figure 16

In-year Equipment Plan forecast expenditure against budget, 2015-16 to 2017-18

The gap between forecast spend and budget falls throughout the financial year



	Q1	Q2	Q3	Q4
2015-16	4.2	0.0	-1.9	-1.4
2016-17	5.1	3.5	1.0	0.2
2017-18	9.0	3.8	0.8	-0.9

Notes

1 In 2016-17 the year end (Q4) Equipment Plan spend exceeds the original budget by £0.03 billion. This overspend was offset within the total departmental budget.

2 Figures exclude inventory costs.

Source: National Audit Office analysis of Ministry of Defence data

3.18 The Department's decision to focus on the first year of its 10-year Plan creates longer-term risks. The Department has recognised the trade-off between short-term decision-making to live within its means and the long-term sustainability of programmes. In its 2018 Plan, it states that it aims to 'deliver a more strategic approach to achieve sustainable affordability through the MDP.'[22] Focusing on the first year of the 10-year Plan means:

- **Increased longer-term risks to value for money.**

  Deferring projects can lead to higher costs in later years and undermine strategic planning. We have previously reported, for example, on how short-term decisions made when procuring new vessels increased the likelihood of spare parts not being available when required, while delays in carrying out essential maintenance across the defence estate leads to increased costs.[23] In response to affordability challenges within the Equipment Plan, the Department took a number of measures to make savings. These included delaying by two years its programme to introduce new remotely piloted aircraft (Protector), resulting in an estimated £160 million cost increase, and delaying some Typhoon training by one year, which increased costs by £6 million. We have also reported on how the Department delayed by two years the development of a replacement for the Astute-class submarine. This enabled it to remove £1.2 billion of costs, and reduced support costs from £590 million to £430 million over the project lifetime, which may have a longer-term impact on production and costs. It can be difficult to distinguish between savings made specifically as part of this process and those made routinely by TLBs.

- **It is harder to rely on future figures.**

  As part of the budgetary process for the 2018 Plan, the Department did not focus on balancing the budget and forecast costs of the final nine years of the Plan. Given that the Department needs to make decisions that will significantly affect future Equipment Plans, particularly as part of the MDP, there is greater likelihood than in previous years of figures beyond 2018-19 changing.

22 Ministry of Defence, *The Defence Equipment Plan 2018*, November 2018.

23 Comptroller and Auditor General, *Investigation into equipment cannibalisation in the Royal Navy*, Session 2017–2019, HC 525, National Audit Office, November 2017; and Comptroller and Auditor General, *Delivering the defence estate*, Session 2016-17, HC 782, National Audit Office, November 2016.

Appendix One

Our audit approach

1 This study assessed the financial assumptions underlying the Ministry of Defence's (the Department's) 10-year Equipment Plan (the Plan) to buy and support the equipment that the Armed Forces require to meet their objectives as set out in the Strategic Defence and Security Review (SDSR) 2015. We examined the robustness of the assumptions underpinning the Plan and commented on the:

- realism and accuracy of forecast costs included in the Plan;
- budget-setting process; and
- whether the Plan presents a transparent view of the future spend on equipment and support.

2 Our work tested assertions underlying the Department's assessment of the Plan's costs and budget. In particular, we considered how the Department adjusted project cost figures, for example in terms of efficiency savings, to ensure costs were accurate and realistic. To be able to conclude on the Department's assessment of the Plan's affordability, we considered how the Department had reflected risks in the forecast costs and whether they were realistic.

3 To make judgements on the accuracy of forecast costs underlying the 2018 Plan, we relied on the work of the Department's Cost Assurance and Analysis Service (CAAS), which independently assesses equipment and support project costs. We reviewed the CAAS function to gain assurance that we could rely on its work.

4 In assessing the Department's transparency in its Equipment Plan, we compared its report against both its initial ambitions and expected standards. We provide our assessment of the robustness of the Equipment Plan figures, but do not extend this over qualitative statements made by the Department in its Equipment Plan. We do not assess the value for money of the projects mentioned in the report.

5 Our audit approach is summarised in **Figure 17** overleaf. Our evidence base is described in Appendix Two.

Figure 17
Our audit approach

The objective of government

To buy and support the equipment that the Armed Forces require to meet their objectives as set out in the National Security Strategy and Strategic Defence and Security Review 2015.

How this will be achieved

The Ministry of Defence (the Department) enters into a wide range of equipment and support contracts. In 2012, it committed to publishing a statement to Parliament each year on the cost and affordability of the Equipment Plan. The Plan includes the equipment procurement and support projects that enable the Armed Forces to meet their objectives. The forecast cost of these projects should be realistic and affordable within the defence budget.

Our study

This study reviewed the robustness of assumptions underpinning the Department's Equipment Plan to assist Parliament in evaluating the affordability of the Plan.

Our evaluative criteria

1. Costs included in the Plan are realistic, complete and accurate.
2. Funding included in the Plan is realistic in respect of forecast costs.
3. The Plan presents a transparent view, based on the Department's and broader expectations of the Department's future spend on equipment and support.

Our evidence

(see Appendix Two for details)

- We reviewed the Department's Equipment Plan to assess its transparency, including how the Department has presented the overall affordability of the Plan and risks to this.
- We reviewed the budgeting process, interviewed departmental staff and reviewed departmental documents on how the Plan is managed.
- We analysed the Plan's budgets in the context of the Department's overall budget.
- We reviewed forecast cost information and adjustments in the Plan, focusing on forecast costs changing significantly from the prior year.
- We interviewed staff at six Top Level Budget holders (the Frontline Commands, the Defence Nuclear Organisation, and the Strategic Programmes Directorate), to understand changes in forecast costs and budget and gather their views on the budgeting process.
- We reviewed the Department's independent Cost Assurance and Analysis Service's (CAAS's) cost estimate for projects in the Plan.
- We reviewed data in relation to efficiencies included in the Plan, testing a sample of efficiencies, and interviewed staff in Defence Equipment & Support (DE&S), the Submarine Delivery Agency (SDA) and Information Systems and Services (ISS) to understand the process.
- We drew on our past work to inform our views on how the Department is managing the affordability of the Plan within the wider defence budget.

Our conclusions

The Department's Equipment Plan remains unaffordable, with forecast costs exceeding budgets by £7.0 billion over the next 10 years. This variance could increase or decrease depending on different circumstances, with the Department estimating a worst-case scenario of costs increasing by £14.8 billion should all the identified risks materialise. However, some of its analysis remains optimistic and costs could increase further. The Department is improving its understanding of affordability risks, but we are not yet fully confident in the robustness of some of its underlying assumptions, particularly around efficiencies.

The Department recognises that continued unaffordability of the Plan is not sustainable and has presented the nature and scale of the challenges it faces more clearly in its latest Plan. However, as we have previously recommended, it still needs to undertake the necessary analysis and make the decisions needed for the Plan to be affordable. In January 2018, it established the MDP to take the action needed to close the affordability gap, but this work has not yet concluded. Given that 84% of the identified affordability challenge falls in the next four years, the Department must make decisions now. During the current period of uncertainty, the Department has resorted to short-term decision-making, increasing the longer-term risks to value for money and the likelihood of returning to past poor practices.

Appendix Two

Our evidence base

1 We reached our conclusions based on our analysis conducted between June and September 2018. We had difficulty obtaining and validating evidence in some areas, particularly efficiencies, with changes being made to figures up to late September 2018. Appendix One sets our audit approach.

2 We drew on findings from our previous reports, particularly on the Equipment Plan (the Plan), to set our findings in context. We did not undertake a detailed review of how the Ministry of Defence (the Department) is managing the overall defence budget.

3 More specifically, in considering the funding available for the Plan we:

- interviewed departmental staff about the budget-setting process to understand changes to the process and timetable from previous years. We reviewed the guidance and documentation to support key decisions and interviewed staff at six Top Level Budgets (TLBs) to gather their views on the budgeting process; and
- reviewed in detail the budgeting information and figures, including the contingency, to see how this reconciled to the previous year. We also reviewed significant changes in light of our broader knowledge and discussions with TLBs. We also reviewed the Plan budget within the context of the wider defence budget.

4 In examining whether forecast costs within the Plan are realistic we:

- reviewed the detailed forecast cost data that feeds into the Equipment Plan. Cost data comprises nearly 2,000 lines. We performed checks on the information received, including reviewing it against the Department's systems, checking for completeness based on our audit knowledge and reviewing non-project lines for reasonableness. We sought to understand the Department's adjustments by gathering additional information from TLBs;
- gathered explanations for significant movements in forecast costs from both TLBs and delivery organisations. Unlike previous years, we have not reviewed in detail underlying information for a sample of projects. We gained assurance over cost figures through our previous sampling work and relied on the Department's independent Cost Assurance and Analysis Service (CAAS). We adopted this approach given our findings in previous years and the greater uncertainty about project costs after year one of the Plan in light of the Modernising Defence Programme (MDP);

- CAAS provided us with its view of the accuracy of cost estimates, at project level, based on its own cost estimates of a sample of projects. In 2018, this covered 66% by value of the Equipment Procurement Plan and 52% of the Equipment Support Plan. CAAS also provided its estimate of the total Plan costs by using the project teams' forecast cost estimates for those projects not included in its sample. This reflected a change from its approach in 2017, where it produced an overall view by modelling costs for the remainder of projects and making some cost adjustments. CAAS now has more confidence in the project teams' costings. Its sample of projects includes those that are the most high risk or high value;

- reviewed the assumptions made in relation to foreign exchange rates to estimate forecast costs in the Plan. We also sought to understand how additional costs had been included in relation to inventory; and

- interviewed staff at Defence Equipment and Support (DE&S), the Submarine Delivery Agency (SDA) and Information Systems and Services (ISS) to understand the processes for identifying and managing efficiencies. To gain assurance about the robustness of efficiencies reported in the 2018 Plan, we analysed a sample of seven realised and seven identified efficiencies in more detail. This involved analysing the veracity and completeness of supporting evidence. We then reviewed departmental information to estimate the totality of efficiencies factored into the Plan. However, we were unable to reconcile this to figures included in the Department's 2018 Plan or underlying evidence.

5 In assessing the transparency of the Department's Equipment Plan financial summary we:

- reviewed the Department's published Equipment Plan statement for consistency with the information we collected as part of our audit. We did not seek to audit all disclosures within the Department's statement;

- gathered evidence on the process for collating data for the Project Performance Summary Table part of the Equipment Plan statement, for which CAAS validates the numbers. This approach is consistent with the prior year; and

- tested the statement against criteria outlined in our assessment of the Equipment Plan 2012, which drew from international assurance standards covering the examination of prospective financial information, and what we have previously outlined as reasonable.

Appendix Three

The Equipment Plan 2017 to 2027 recommendations

1 See **Figure 18** overleaf.

Figure 18

Assessment of the Ministry of Defence's (the Department's) response to the National Audit Office's (NAO's) Equipment Plan 2017 to 2027 recommendations

The Department has made some progress in implementing past NAO recommendations

Recommendation	NAO assessment of progress	
The Department needs to be able to demonstrate, backed by appropriate evidence, the realistic choices open to it in terms of capability and affordability. It needs to be able to support a debate on critical prioritisation choices, both internally and in dialogue with HM Treasury about funding.	Some	Through its summer costing exercise, the Department has made some decisions across its nuclear programmes, reflected in the 2018 Plan. The Department awaits results of the Modernising Defence Programme (MDP) to make further major decisions across the Plan.
Demonstrate that all equipment and support projects are costed within the Plan, and develop detailed cost estimates for those projects in the Plan that still do not have them.	Good	Previously excluded costs have now been included. The Department has provided assurance that all expected costs are included.
Complete current nuclear programme costing exercise to ensure that all affected projects reflect the most up-to-date baselines.	Good	Completed.
Update the assessment of the cost of those projects denominated in foreign currencies by adopting exchange rates that better reflect the current market rate for all 10 years of the Plan.	Good	More realistic foreign exchange rates for US dollars have been used.
Ensure greater consistency in how risk and uncertainty are reflected in project costs. The Department must also improve its understanding of the impact of risks across the Equipment Plan portfolio and use this to inform decisions about the size of its contingency budget.	Limited	In July 2018, the Department instigated plans designed to improve consistency in terms of how risk and uncertainty are reflected in costs, with incremental improvements expected over the next year. The contingency budget does not clearly reflect risks within the Plan.
Explore the potential for greater flexibility in how forecasts are shown in the Plan and set out in the Plan the range of possible costs for projects, rather than the current approach of providing point estimates.	Limited	The Department continues to use a CAAS assessment to show how project costs may vary. It has not disaggregated this to show the range of possible costs for all projects. It has shown some flexibility in the choice of confidence levels, impacting project costs, across nuclear projects.
Conclude its work to identify the full extent of savings assumed within the Plan and set out clear accountabilities for delivering these savings. The Department should transparently set out in its Equipment Plan Statement an assessment of all equipment savings included in the Plan and its progress towards achieving these.	Limited	The Department has started taking steps to improve efficiency reporting. It now has a more complete picture of efficiency targets, with further work required to bring together its forecast efficiency data and ensure clear accountability lines. It has set out its assessment of efficiencies assumed within the Plan, but we remain unable to fully assure efficiencies.
Ensure that any critical prioritisation decisions are supported by a full and transparent evidence base.	Some	Although progress has been made across nuclear programmes, further decisions depend on the MDP work, which has yet to report.

Note

1 Assessment reflects our view of how well the Department has implemented our recommendations, with 'Limited' reflecting where little progress has been made in implementing the recommendation; 'Some' where progress has been made in implementing the recommendation but improvements are still needed, and 'Good' where the recommendation has been implemented.

Source: Comptroller and Auditor General, *The Equipment Plan 2017 to 2027*, Session 2017–2019, HC 717, National Audit Office, January 2018

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