Ministry
of Defence

The Defence Equipment Plan 2017

Contents

List of abbreviations

ABC – Annual Budget Cycle
ABSV – Armoured Battlefield Support Vehicle
CAAS – Cost Assurance and Analysis Service
CBRN – Chemical, Biological, Radiological and Nuclear
DE&S – Defence Equipment and Support
EPP - Equipment Procurement Programme
ESP - Equipment Support Programme
FASGW – Future Anti-Surface Guided Weapon
FBLOS – Future Beyond Line Of Sight
FLAADS – Future Local Area Air Defence System
FLC – Front Line Command
GMPP – Government Major Projects Portfolio
ICE – Independent Cost Estimate
ICT – Information Communication Technology
IPA – Infrastructure and Projects Authority
ISS – Information Systems and Services
ISTAR – Intelligence, Surveillance, Target Acquisition and Reconnaissance
JFC – Joint Forces Command
MMCM – Maritime Mine Counter Measures
MOD – Ministry of Defence
MPA – Major Projects Authority
MPR – Major Projects Report
NAO – National Audit Office
PDG – Programme Delivery Group
PPST – Project Performance Summary Table
PR12 – Planning Round 12 (financial year 12/13)
QRPC – Quarterly Review of Programme Cost
SDA – Submarine Delivery Agency
SDSR – Strategic Defence and Security Review
SEPP – Submarine Enterprise Performance Programme
SSPR – Single Source Procurement Reform
SSRO – Single Source Regulations Office
WCSP – Warrior Capability Sustainment Programme

The Defence Equipment Plan 2017

Foreword

I am pleased to lay before Parliament this year's financial summary of the Defence Equipment Plan. This is the sixth consecutive annual publication of the equipment plan summary, and demonstrates MOD's investment and the need to continue progress in driving improvements, reform and efficiency, with a plan to spend £180bn on equipment and support over the decade out to 2026-27 which will provide our Armed Forces with the capability they need.

The Government remains committed to the Defence Budget increasing by 0.5% above inflation each year and the Department is focussing on where best to invest across the entire Defence programme in order to remain on top of an ever changing and increasing threat environment. However, it was evident following the 2016 annual planning cycle that both uncertainty and risk had increased in the Equipment Plan. Consequently the Equipment Plan emerging from ABC17 contains a high level of financial risk and an imbalance between cost and budget. In addition to the underlying imbalance, the key risks at the end of ABC17 were the immaturity of the costs for the Type 31e frigate and the nuclear programme, and the demanding efficiency targets the Department is aiming to deliver from the equipment programme through the transformation of DE&S, more demanding approaches to contracting and the Single Source Contract Regulations. In addition, there are potential cost pressures related to the change in the value of sterling. It is though worthy of note that the difference between the aggregate project team cost estimates and the independent estimates carried out by the Cost Assurance and Analysis Service has fallen again indicating an improvement in project team estimating.

These risks have informed the Department's work on the National Security Capability Review, and associated work in the 2018 Annual Budget Cycle. The Department recently launched the Modernising Defence Programme. We aim to use this work to deliver better military capability and value for money in a sustainable and affordable way, and to ensure that defence capabilities complement other national security capabilities in the most effective way.

We have also continued our efforts to improve the organisation and internal processes that deliver the equipment plan. April 2016 saw the formation of the Director General Nuclear to oversee the Defence nuclear enterprise and further benefits are anticipated from the standing up of the Submarine Delivery Agency in April 2017. We remain closely involved in the cross-government work on industrial strategy to ensure that the Department benefits from this initiative.

31 January 2018

Guto Bebb MP
Minister for Defence Procurement

Section A: Defence Equipment Plan 2017

Summary

1. This financial summary of the Defence Equipment Plan sets out the Defence equipment budget and forecast expenditure to deliver and support the equipment the Armed Forces require to meet Defence objectives. It covers the period from 1 April 2017 to 31 March 2027. In line with our commitment to transparency and assurance, the National Audit Office (NAO) has again reviewed our plans. They have carried out an independent assessment of the robustness of our financial data and the assumptions that underpin the affordability of the forward equipment plan, as they have done with previous equipment plan statements. In this section we describe the overall equipment plan; Section B sets out the areas in which we are continuing to improve our processes, and Section C sets out the areas where we currently plan to spend the equipment budget over the next ten years. Section D contains the Project Performance Summary Table (PPST) that the Department developed to succeed the Major Projects Report (MPR). The PPST has been independently validated by the MOD's Cost Assurance & Analysis Service (CAAS).

Equipment Budget

2. The data summarised in this report, and reviewed by the NAO, is correct as at the end of the Department's 2017 Annual Budget Cycle (31 March 2017). This was finalised in May 2017 and covers the ten year period from Financial Year 2017/18 to 2026/27. The Defence budget has been agreed with the Treasury up until 2020/21 as part of the Spending Review settlement in 2015, consistent with the commitment to continue to fund the equipment budget at 1% above inflation until the end of this Parliament. Changes in inflation or foreign exchange assumptions will be managed corporately by the Department.

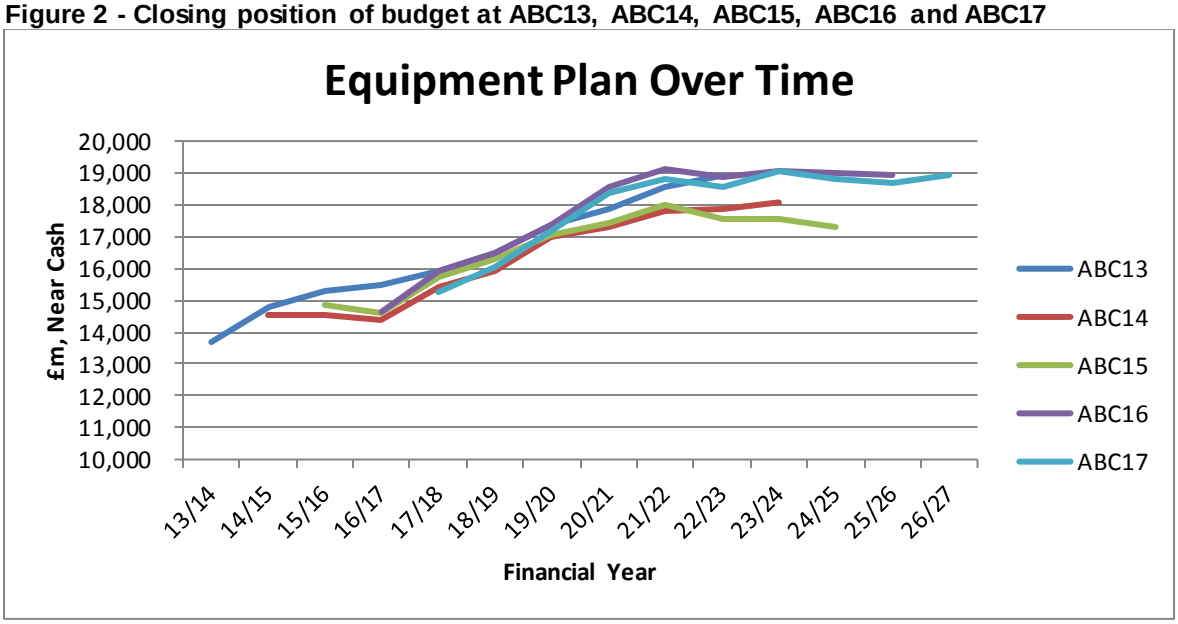
3. The total ten year equipment plan at ABC17 (including contingency), is £179.6bn. The table at Figure 1 below shows a comparison of the budgets over the past five Annual Budget Cycles (ABCs), for a rolling ten year plan at nominal prices.

Figure 1 – Equipment budget over time, £m

EP Budget over Time	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	Total
Actual End of ABC 13 Budget	13,688	14,758	15,295	15,472	15,897	16,501	17,348	17,884	18,559	18,914					164,316
Actual End of ABC 14 Budget		14,511	14,566	14,381	15,434	15,939	16,987	17,283	17,822	17,887	18,074				162,885
Actual End of ABC 15 Budget			14,880	14,600	15,714	16,277	17,059	17,397	17,997	17,582	17,532	17,314			166,352
Actual End of ABC 16 Budget				14,639	15,901	16,511	17,340	18,550	19,120	18,888	19,059	19,000	18,904		177,912
Actual End of ABC 17 Budget					15,255	16,025	17,158	18,361	18,834	18,565	19,054	18,794	18,660	18,954	179,660

4. A graphical representation of the table above is shown at Figure 2 below. This illustrates the investment planning throughout the ten year period from ABC17, and updated forecast profiles.

Figure 2 - Closing position of budget at ABC13, ABC14, ABC15, ABC16 and ABC17



5. Since April 2013, the responsibility for managing the majority of the equipment budget has been delegated to the Front Line Commands (FLCs) in line with the Levene Report recommendations.

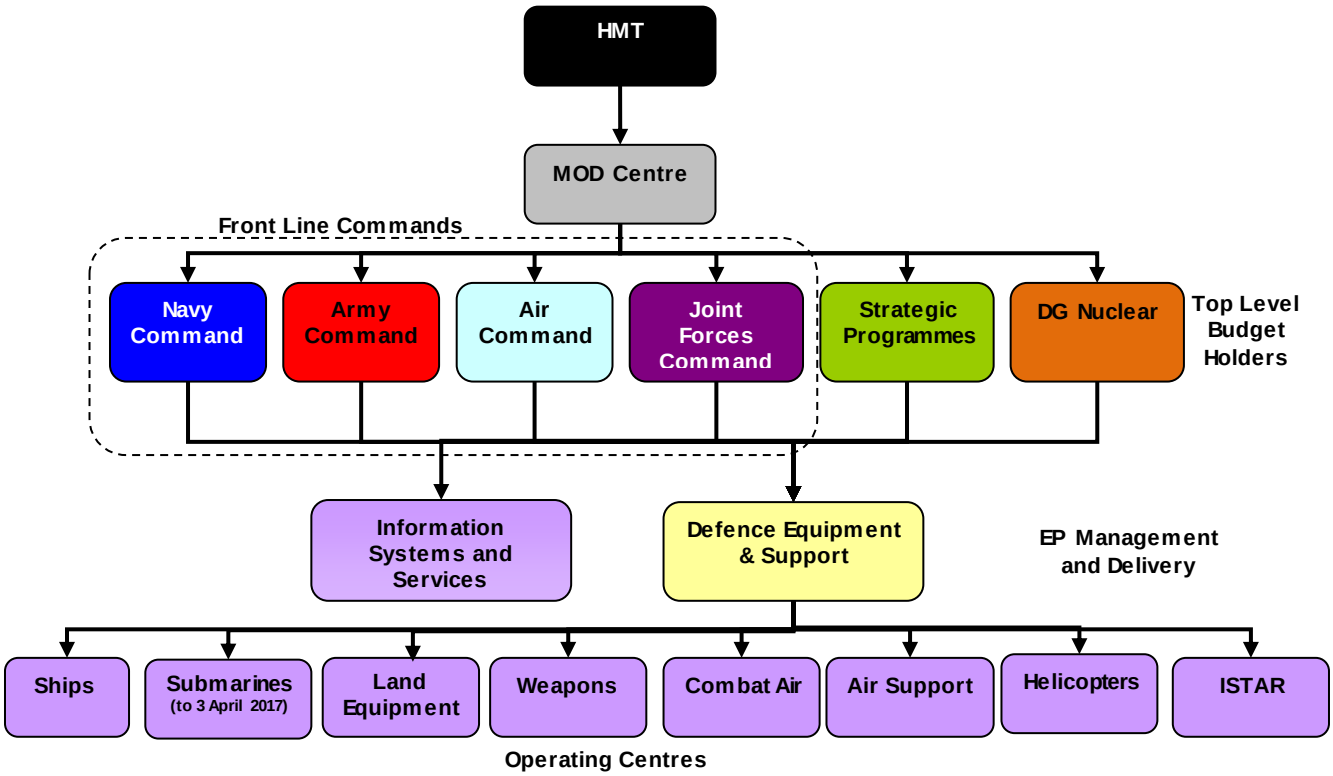
6. Organisational changes to strengthen the nuclear enterprise continue. This is a national endeavour with the construction of new submarines among the largest and most complex procurements undertaken by MOD or UK Industry. In light of the scale and significance of the nuclear programme, the Government committed in the SDSR to review and reform the management of this activity. In April 2016 we set up the new Director General Nuclear organisation in the Head Office to oversee all aspects of Defence nuclear business. With the exception of submarine operations and their in-service maintenance, which is delivered by Navy Command, the organisation has responsibility for the submarine programme (from procurement to disposal), nuclear warheads, skills, related infrastructure and day-to-day nuclear policy. Work continues to structure and transform the DG Nuclear organisation to establish the appropriate responsibilities, governance and regulatory compliance to direct a safe and capable enterprise. In August 2017 the organisation took over the management of submarine programmes and in November 2017 completed the transfer of the Customer and Delivery function for the Warhead Programme. The DG Nuclear organisation acts as the departmental Sponsor for the newly established Submarine Delivery Agency (SDA), ensuring that a strong governance model is in place to oversee the development and improvement in the corporate performance of the Agency.

7. The SDA itself stood up on 3 April 2017, alongside the Defence Equipment and Support (DE&S) organisation, to strengthen arrangements for the procurement, in-service support and decommissioning of the UK's nuclear submarines, with the Chair and Chief Executive having since been appointed to lead the Agency. We are working to obtain full Executive Agency status by no later than April 2018, therefore this report represents the last where the Submarines Operating Centre is within DE&S. The Chief Executive will be responsible for leading a world-class delivery organisation: establishing its structure; shaping the team to deliver; and transforming its capabilities

for the long-term. A key facet of this will be to manage the Dreadnought and Astute nuclear submarine acquisition programmes to time and budget, alongside providing day-to-day support to the operational fleet of Trafalgar, Astute and Vanguard Class submarines.

8. The diagram at Figure 3 below shows how the budget flows in the delegated model in financial year 2016/17.

Figure 3 – Budget flow in 2016/17 delegated model



Equipment Costs

9. In contrast to the budget for the equipment plan, which is allocated top-down, the cost of the equipment plan is built up from cost forecasts generated by individual project teams within DE&S Operating Centres (and, from 3 April 2017, the Submarine Delivery Agency) and ISS, who have responsibility for delivering the projects within approved time and cost parameters and delivering agreed performance criteria. Project teams produce these cost forecasts using quantitative risk analysis to model the range of cost outcomes for projects. The cost forecasts are made at a confidence level where there is an equal chance of outturn costs being above or below the forecast amount. In the first instance, any variance between the forecast cost and issued budget is the responsibility of the FLCs, Strategic Programmes and DG Nuclear to manage.

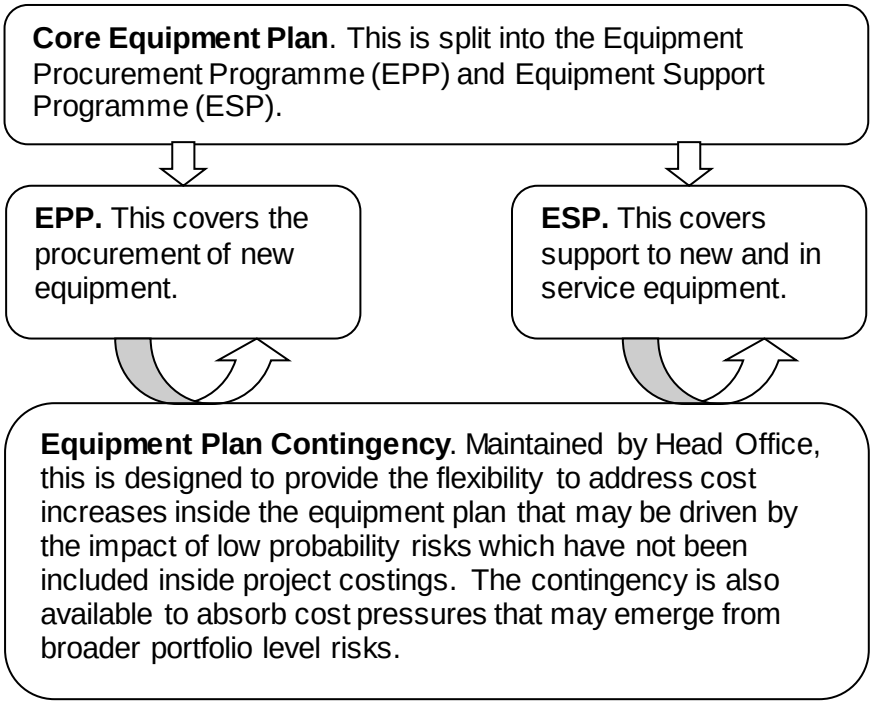
10. DE&S and ISS are continuing to run the Quarterly Reviews of Programme Cost (QRPC), first introduced during ABC13. These reviews test the latest cost forecasts to provide assurance that current costings are taut and realistic. Each QRPC is followed by a Quarterly Customer Review where FLCs have the opportunity to review programme performance and costs, and instruct necessary mitigation actions to keep

within overall budget limits. This governance mechanism ensures that the cost of every project in the equipment plan receives assessment and oversight at senior level. The reviews include consideration of the level and profile of risk funding held within the projects in the FLCs, Strategic Programmes and DG Nuclear portfolios.

Equipment Plan

11. The Defence Equipment Plan is made up of a number of different elements which are shown in the diagram below.

Figure 4 – Constituent elements of the equipment plan



12. As of the close of ABC17, the Department's plan for the constituent elements of the equipment plan over the next ten years is to:

a. **spend £84.7bn on the procurement of new equipment.** This is an increase of some 3.3% over last year's £82bn, mainly due to the effects of budget roll-forward in 2026/27;

b. **spend £21.7bn on support arrangements for new equipment**. This is funding required to support new equipment and also includes the effect of budget roll forward in 2026/27 and is a decrease of 5.7% on last year's £23bn;

c. **spend £66.8bn on support for existing, in-service equipment**; This funding is required to support in-service equipment and reflects the impact of budget roll forward in 2026/27 and represents a slight decrease of 0.3% on last year's £67bn;

d. **maintain a corporately held contingency provision of £6.0bn.** This is an increase of 14.3% on last year's £5.25bn. A proportion of this contingency fund is ring-fenced for the Nuclear Enterprise in recognition that it accounts for a significant element of the equipment plan.

13. Within the individual project costs and budgets that make up the core equipment plan, there is specific risk funding of just under £12bn over the ten year planning period. The overall level of funding held for risk at the end of ABC17 is an increase of just under £1bn on the previous year's figure. The QRPC process continues to provide a significant focus on whether project teams are holding the right level of risk provision and to ensure that they are retiring risk appropriately. When considered alongside the £6bn contingency provision, we have £18bn set aside to cover emerging risks and potential cost growth in the equipment plan, totalling over 10% of the core programme.

14. Funding allocated to the core equipment plan includes an adjustment in estimated costs to reflect a realistic assessment of likely actual spend across the ten year profile of ABC17. This judgement reflects the fact that planned financial expenditure often fails to materialise in-year due to slower than anticipated progress, for example because of challenges in recruiting Suitably Qualified and Experienced Personnel, or technical challenges.

15. At the end of ABC17, the equipment budget broken down into the Equipment Support Programme (ESP), for both new equipment and in-service, the Equipment Procurement Programme (EPP) and taking the contingency into account, is illustrated in the graph and table at Figure 5 below.

Figure 5 – Equipment plan at the end of ABC17

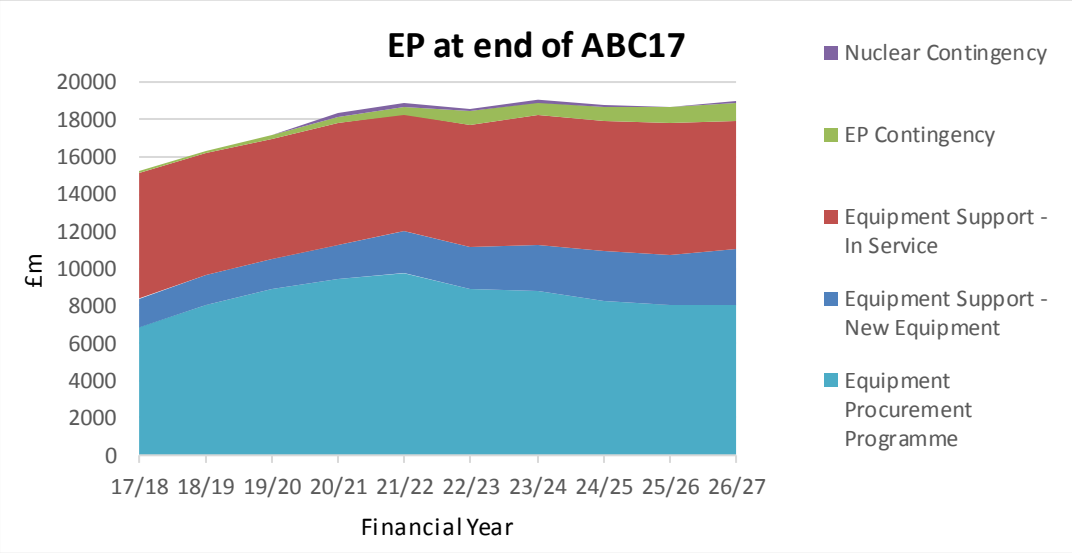


Figure 6 – ABC17 Equipment Plan Budget, £m

ABC 17 EP Budget	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	Total
Nuclear Contingency	0	0	0	200	134	87	136	111	31	100	799
EP Contingency	125	150	200	400	413	736	714	789	819	900	5,246
Equipment Support - In Service	6,721	6,508	6,434	6,501	6,320	6,587	6,998	7,007	7,108	6,967	67,151
Equipment Support - New Equipment	1,558	1,580	1,642	1,863	2,215	2,248	2,419	2,573	2,664	2,924	21,686
Equipment Procurement Programme	6,851	7,787	8,883	9,397	9,752	8,907	8,788	8,313	8,037	8,063	84,778
Total	15,255	16,025	17,159	18,361	18,834	18,565	19,055	18,793	18,659	18,954	179,660

Negligible discrepancies in totals shown are attributable to rounding differences.

Annual Budget Cycle

16. Due to the size and complexity of the equipment plan, and the significant enhancements in capability investments resulting from SDSR decisions, it was recognised in last year's equipment plan that there was increased uncertainty and financial risk within the ten year programme. ABC17 was intended to continue the planning action necessary to reflect the SDSR and Spending Round outcomes. However, during the planning period financial risks materialised which required the Department to undertake action to address.

17. As a first step the ABC18 process was adapted to enable the Department to take an early view on the scale of the problem and to initiate work to identify ways of returning the budget into balance. This work continues through internal initiatives and is being managed in concert with the cross-Whitehall National Security Capability Review. The intent is that the conclusions of these exercises will feed into the later stages of ABC18. Through the recently launched Modernising Defence Programme we will aim to consolidate this work to allow the MOD to deliver better military capability and value for money in a sustainable and affordable way. The aim is to share headline conclusions from this programme of work by the summer.

18. The Department continues to work to ensure risk and uncertainty are effectively managed, in order to ensure delivery of the programme remains on track. Previous equipment plan summaries have noted that the investment packages required to meet the Joint Force 2025 ambition requires the generation of ambitious efficiency savings across the Defence Budget. Progress has been made towards the target of achieving over £5.8bn of efficiency savings in the equipment plan across the ten year period. The Department acknowledges the size of the challenge and remains committed to delivery. This is a key focus for the role of the newly appointed Chief Operating Officer.

19. To mitigate the risk of under spending caused by projects not progressing as swiftly as planned, some £928m of additional work was planned for financial year 2016/17 over and above the budgeted programme. This number took into account judgements made at both Operating Centre and DE&S corporate level. As well as this, a series of in year adjustments and transfers produced a net decrease in the budget and workplan of £234m to manage the in-year departmental financial position. Once these

were taken into account, there was a net overspend of £361m against the planned equipment budget in 2016/17, balanced by underspends elsewhere in the overall Defence programme.

Figure 7 – Financial Year 2016/17 Cost, Budget and Workplan

FY 2016/17 Budget, Workplan and Outturn	Near Cash, £m
Gross Workplan	15567
Over Programming	-928
2016/17 Equipment Plan Budget	14639
In Year Adjustments	-234
Adjusted In Year Budget	14306
Outturn	14667
Variance	**361**

20. The level of contractual commitment in the core equipment plan has remained similar to that at the end of ABC16. Around 72% of the plan is contractually committed in 2017/18, (compared to 70% contractually committed in 2016/17) falling to around 17% at the end of the decade.

Figure 8 – Contractual commitment in core equipment plan at close ABC17

	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27
% Committed	72%	54%	43%	34%	31%	27%	21%	18%	17%	17%

Section B: Improvements in Ministry of Defence (MOD) Processes and Functions

21. Following engagement with the NAO during their five previous reports into the MOD's forward equipment plan, we have continued to take forward a series of improvements in our data, cost and risk management processes. The strands of work included in the Modernising Defence Programme to optimise how the MOD is organised and operating, including identifying further efficiencies and ways to be more productive will seek to highlight additional areas for change in the future.

22. The Cost Assurance and Analysis Service (CAAS) continues to provide Independent Cost Estimates (ICEs) for EPP and ESP projects. During ABC17, CAAS maintained their coverage of projects at a level of 58% of the whole equipment plan by 10-year value, and used modelling and extrapolation to provide an independent view for the remainder.

23. The CAAS independent view on equipment plan cost reflects the extent to which project teams may be underestimating the financial risks within project budgets. For ABC17, the CAAS realistic outturn view is projected at £0.4bn over the delivery team estimates for the EPP and £2.8bn for the ESP, which totals £3.2bn or 1.8% of the whole equipment plan. This is a smaller variance than that projected the previous year (£4.8bn). Comparing this to the centrally held contingency of £6.0bn, CAAS judges the latter is sufficient to deal with any cost growth within the equipment plan. However, there are also pressures to meet challenging efficiency savings over the same time period, as well as additional work which CAAS believes is essential for meeting Defence Outputs. This includes work within the Nuclear Programme, which has not yet been programmed by customers, for example, critical Nuclear Infrastructure.

Efficiency and Savings in Major Programmes

24. The Modernising Defence Programme will undertake further work to identify efficiencies and ways to be more productive across Defence. Following Spending Reviews in 2010 and 2013, the Department identified a number of areas in the equipment plan with significant opportunities for further efficiency. These included:

a. A review of the largest **Equipment Support Projects** to deliver significant efficiency savings whilst still delivering the required level of support. Based on the ESP review, which was conducted with significant private sector support, most likely savings of £4.1bn over 10 years were identified - to be delivered through a combination of net savings and cost avoidance (i.e. identifying opportunities to reduce future costs to bring them in line with budget). So far, £3.4bn of these savings have been realised.

b. The **Submarine Enterprise Performance Programme** (SEPP), under which the MOD is working in conjunction with BAE Systems, Babcock Marine and Rolls-Royce Submarines to pursue improvements in efficiency, performance and long term sustainability within the Submarine Portfolio. SEPP supports the acquisition and maintenance of submarines as well as delivering around £900m of savings against the PR11 submarine programme baseline in the 10 years to

FY20/21. To date £677m of financial benefits have been delivered under SEPP and over £200m further possible savings have been identified.

c. An innovative approach to the MOD's **Complex Weapons pipeline**, based on a Partnered Portfolio Management Agreement with MBDA UK Ltd focusing on the development of families of weapons utilising the principles of commonality, modularity and re-use. This will deliver financial benefits estimated at £1.2bn over 10 years from 2010. This represents the forecast net savings compared to what could be achieved from open competition. To achieve these net savings, efficiencies of £2.1bn compared to stove-piped contracting with MBDA are necessary. A review by CAAS in July 2017 judged that the target remained achievable and that 99% of estimated values of these efficiencies are realistic and achievable (or have already been realised), but that realisation remains subject to project performance delivery. Efficiency savings of £0.68bn have been realised and there is high confidence that a further £0.67bn has also been achieved (but this cannot be confirmed until individual project phases complete). It should be noted that the majority of the benefits will be realised towards the end of the 10-year period due to efficiencies from technology development in early projects being re-used in later projects.

Figure 9 – Efficiency savings in the equipment plan

	Savings Delivered £bn	Total Forecast Savings £bn
Equipment Support Efficiencies	3.4	4.1
SEPP	0.68	0.88
Complex Weapons Pipeline	1.35 (gross) 0.68 (net) [1]	2.1 (gross) 1.2 (net)
Total	4.76	7.08

2015 Spending Review Efficiency Savings

25. The Department agreed to a significant five-year efficiency programme in the 2015 Spending Review, including a target to deliver circa £2.3bn of efficiencies from the core equipment plan over the 2015 Spending Review Period of FY16/17 – FY20/21 (as set out below at figure 10). The ten year equipment plan target remains to deliver £5.8bn over the ABC period. These efficiency savings will be re-invested into the equipment plan in order to fund commitments. The delivery of these savings is of the highest priority for the Department, and to assist with delivery the equipment plan efficiency targets are being consolidated with legacy equipment plan efficiency targets to create a single efficiency target. This explains why the table at Figure 10 differs from that presented in last year's equipment plan summary. While Figure 10 does not

[1] The complex weapons target is £2.1bn gross savings, which gives £1.2bn actual savings after netting off the notional additional cost of single-source procurement from the benefits of the extant procurement strategy. While only £0.68bn has delivered to date a further £0.67bn is anticipated from contracts already in place that will be declared in due course.

currently detail the totality of the efficiency challenge facing Defence, the Department is working to reflect this more comprehensively in next year's equipment plan. DE&S have implemented a robust approach to identifying and driving efficiency savings to meet this challenge and, though it will take time, the Department is making good progress and remains confident of delivering the required savings in full.

Figure 10 - Planned SDSR equipment plan efficiencies (FY16/17 – FY20/21)

Efficiency Programme	Savings Identified £bn	Total Forecast Savings £bn
Equipment Plan Efficiency Measures Further Equipment Support Programme Efficiencies, DE&S Transformation Efficiencies, Single Source Contract Regulations and a number of more minor equipment plan efficiencies, including Testing and Evaluation, Logistics, and PFI savings	**1.5**	**2.3**

Single Source Procurement Reform

26. Following Lord Currie's independent report (2011) into single source procurement, the MOD established a new framework, known as the Single Source Contract Regulations (SSCRs) and underpinned by statute, which came into force in December 2014. At the heart of the new approach is the principle that industry should receive a fair and reasonable price in exchange for providing the MOD with the protections needed to assure value for money. This framework is based on greater transparency and standardised reporting, with stronger supplier efficiency incentives, underpinned by a stronger governance arrangement, and the creation of an independent body – the Single Source Regulations Office (SSRO). Another key change is that under the new framework, the onus is placed onto suppliers to demonstrate that their costs are "appropriate, attributable to the contracts, and reasonable".

27. These reforms represent a radical change to how the MOD approaches single source procurement, which amounts to around 40% - or around £8bn per annum - of the Department's overall procurement budget. A central MOD team, the Single Source Advisory Team (SSAT), has been set up to support project teams and to act as the Department's interface with the SSRO. A programme of training and guidance has been rolled out across the Department to ensure the MOD achieves the maximum possible savings from the reforms. This training and guidance is being adapted in light of lessons learned. A major review of the regulations is due for completion in December 2017 and will reflect lessons learned from implementation.

28. A key part of the reform lies in the creation of the SSRO as an independent, arms-length mediator between MOD and suppliers in cases where disputes on the costs of qualifying single source contracts cannot be resolved. The SSRO was set up in late 2014 and has been active in producing a range of statutory guidance for industry and MOD on how the reforms will work in practice. The SSRO is able to give opinions and make legally-binding judgements on issues specifically referred to it by either the MOD or the supplier. The SSRO is also responsible for making annual recommendations to Secretary of State on the baseline profit rate which is used as the basis for profit calculations on all new single source contracts.

29. As at August 2017, 110 single source contracts (96 prime and 14 sub-contracts) had been brought under the framework with a combined value estimated by the SSRO at £23.9bn. The Department calculates that, by this date, it had achieved reductions in the contract prices it would otherwise have paid of £314m through the application of the regulations, though a significant proportion of these reductions represent cost-avoidance rather than savings to the Defence budget. If this level of savings is extrapolated across all single source spending, we are confident of meeting the MOD objective of saving £637m by 2020, and our ten-year target of saving £1.7bn, but this will depend on bringing the management of single source contracts under the framework. These savings are needed to maintain the affordability of the equipment plan, both through cost avoidance and savings to the budget.

Project Performance Summary Table

30. Following the successful introduction of the Project Performance Summary Table (PPST) last year we embedded the reporting process into the Department's annual reporting cycle. The PPST reports the delivery progress of a subset of projects in the Equipment Plan, that being a selection of the largest equipment procurement projects in the demonstration and manufacture phases[2]. It provides the details of the approval position and completion forecasts for cost, time and key user requirements for the current phase of the project[3]. This maintains our commitment to Parliament to provide transparency of the delivery progress of our largest equipment projects. The project population has expanded to include several new projects that received a Main Gate or Demonstration Phase approval in 2016/17. We have continued to work openly with the National Audit Office who this year reviewed our internal controls and independent assurance process through which we produce this project delivery summary.

The Government Major Projects Portfolio

31. The most significant business change and capability change programmes in MOD are included within the Government Major Projects Portfolio (GMPP). The MOD reports on the performance of its GMPP programmes quarterly to the Infrastructure and Projects Authority (IPA) and selected performance data is published with the IPA's Annual Report. Though a number of the capability change programmes in the GMPP include equipment procurement projects reported on in the PPST, the scope of GMPP and PPST reporting is different and the two are not directly comparable. The PPST focuses on equipment procurement only, whereas GMPP reporting includes all Defence Lines of Development (DLoD i.e. equipment procurement plus infrastructure, training, manpower and other contributing areas) as well as some transformation programmes.

32. Information on the GMPP, including detail from MOD's reports, is published by the Cabinet Office on the GOV.UK website.

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[2] Defence procurement projects have a six-phase lifecycle: Concept, Assessment, Demonstration, Manufacture, In-Service and Disposal which is commonly referred to as "CADMID".

[3] By examining in detail progress on approved Demonstration and Manufacture phases of projects, these assessments do not reflect the full forecast costs of the projects within the Equipment Plan.

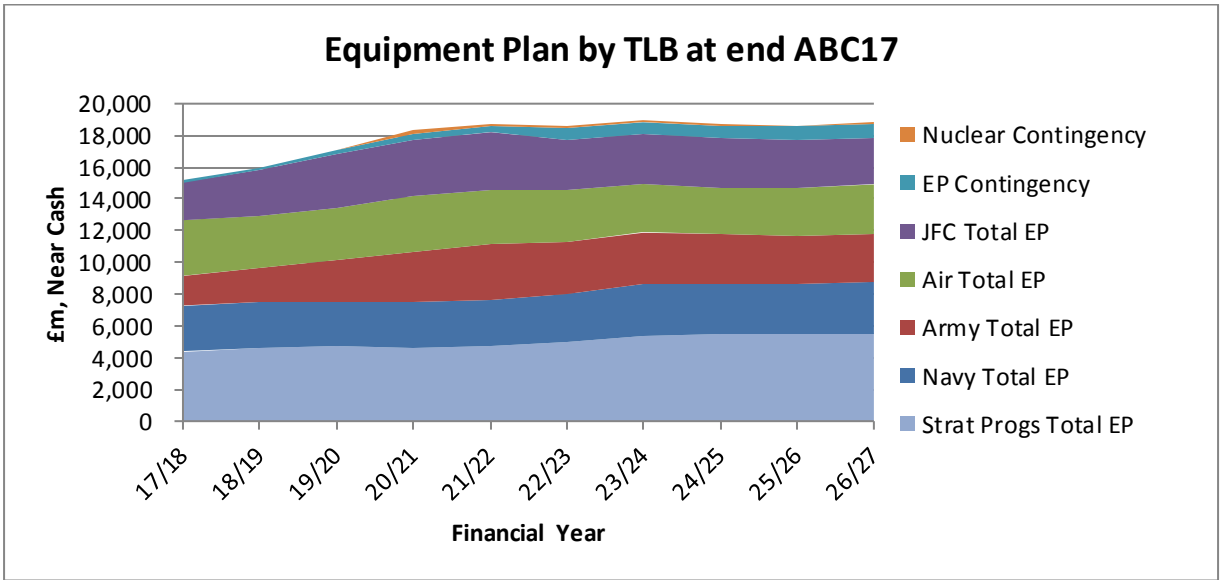
Industrial Strategy

33. The MOD is closely involved in the cross-government work on industrial strategy. Many of the themes in this apply to Defence and we already have a substantial amount of work under way to encourage the growth and competitiveness of UK industry, including as part of the commitment in the Strategic Defence and Security Review to refresh Defence industrial policy. Our core objective in defence procurement remains to obtain the best capabilities we can afford at the best value for money. In reinforcing our analysis of broader economic, industrial and social impacts in our value for money assessments, including over the longer term, we aim to develop a clearer understanding of the potential value of defence procurement to the UK economy as a whole. Open competition will continue to be the primary means of achieving value for money, and MOD is taking further steps to ensure that UK business, including small and medium-sized enterprises, are aware of the opportunities to compete for defence contracts. Where competition is not possible or feasible, we routinely expect to apply the Single Source Contract Regulations under the Defence Reform Act (2014).

34. The Modernising Defence Programme will also aim to improve performance on commercial and industrial issues.

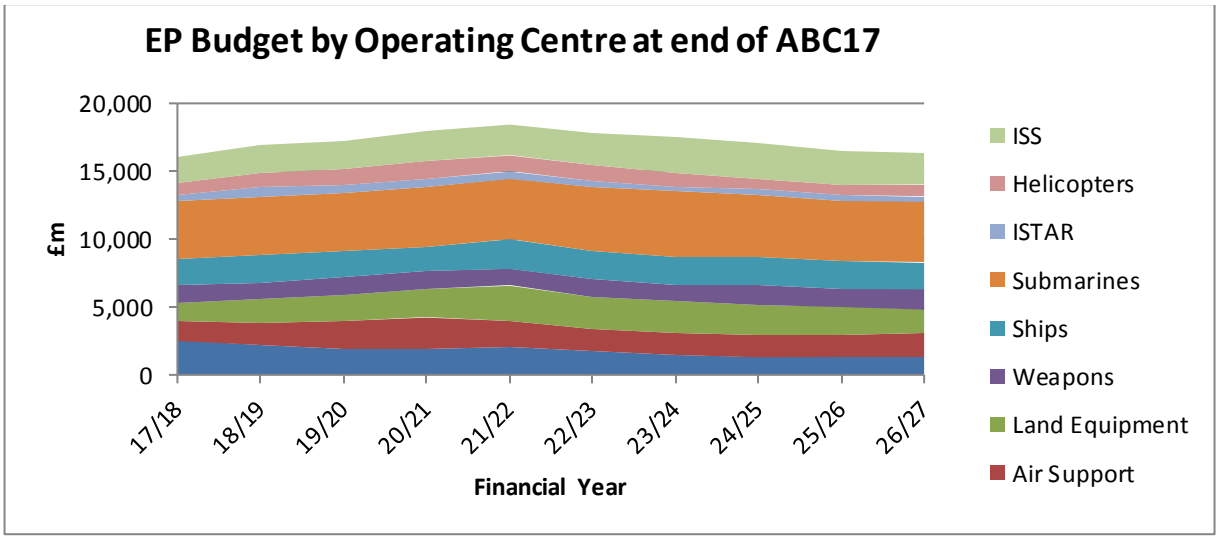
Section C: Sector Analysis – Where Does the Money Go?

35. The breakdown of the equipment plan by Top Level Budget (TLB) is shown in the graph below, along with the centrally held contingency[4].



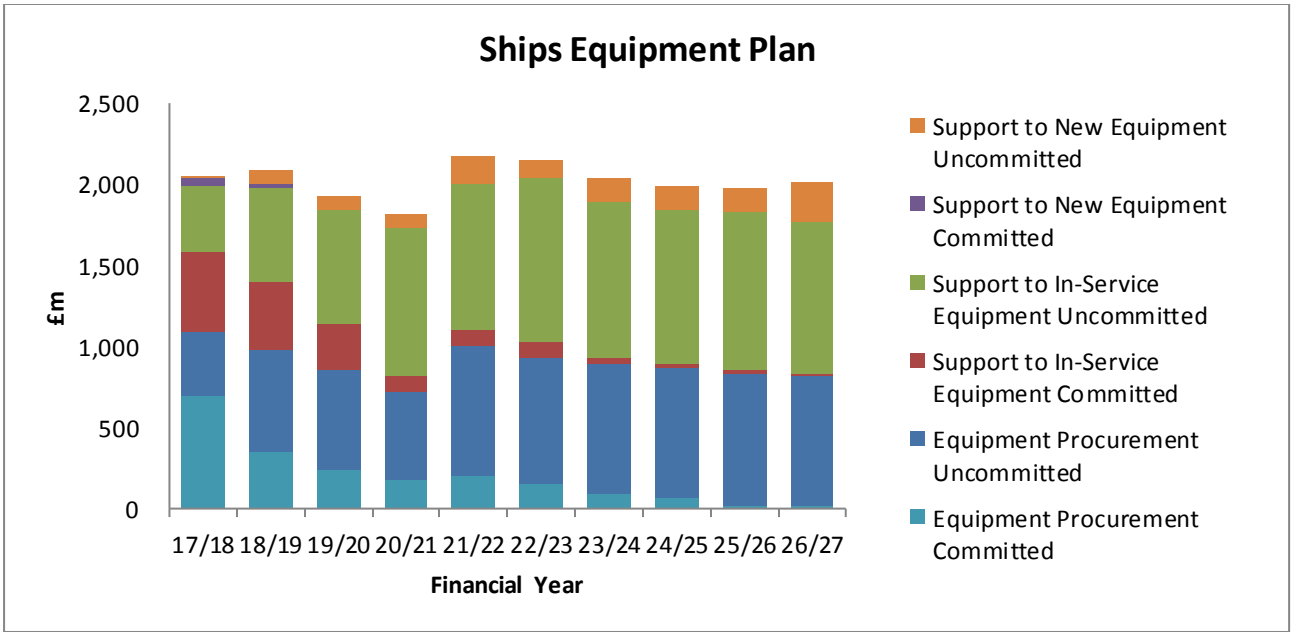
36. The FLCs manage and distribute their equipment budget to the individual DE&S and ISS teams that are responsible for delivering equipment and support projects. In DE&S these project teams are grouped into 'Operating Centres' based on the type of equipment delivered. A breakdown of the budgets issued to the eight main DE&S Operating Centres (Submarines (from 3 April 2017, the Submarine Delivery Agency), Ships, Land Equipment, Weapons, Air Support, Combat Air, Helicopters and ISTAR (Intelligence, Surveillance, Target Acquisition and Reconnaissance)), and ISS is shown in the graph below.

[4] At the time of the ABC17 planning cycle, the DG Nuclear equipment plan budget was still held within Strategic Programmes.



Ships

37. We currently plan to spend around £20bn on surface ships over the next ten years, in line with projected spend at the end of the previous planning cycle.



38. This sector covers spending on the design, build and maintenance of surface ships together with the supply and maintenance of the equipment on-board. This includes investment in:

- the completion of the two Queen Elizabeth Class (QEC) aircraft carriers;
- the design and development of the Type 26 Global Combat Ship. The Navy has 13 Type 23 Frigates; it is buying eight Type 26 platforms to replace the eight Anti-Submarine Warfare specialist Type 23 platforms, with the remainder

of the Type 23 General Purpose platforms being replaced by the Type 31e programme.

- four new Tide Class Tankers (also known as Maritime Afloat Reach and Sustainability – MARS – Tankers), to provide modern ships for the Royal Fleet Auxiliary. The innovative procurement strategy sees the initial build being undertaken overseas, prior to customisation and specialist trials in the UK;

- new Offshore Patrol Vessels (OPV), for which a firm price contract for five has been awarded to BAE Systems; and

- the implementation of a Common Support Model, transforming support delivered to all complex warships through a converged, cost effective support model centred on an improved Surface Ship Support Alliance, with an optimal, sustainable mix of MOD and Industry skills.

39. During 2016/17 we:

- completed the whole ship structure for the Prince of Wales aircraft carrier, bringing assembly work on this ship significantly closer to completion; and achieved Ships Staff Move on Board for the Queen Elizabeth aircraft carrier, a key precursor in the preparations for Sea Trials;

- cut steel on the fourth Royal Navy OPV (HMS Tamar) and completed Roll-Out of the first, HMS Forth;

- conducted pre-concept studies of the Type 31e Light Frigate aimed at replacing the Type 23 General Purpose Frigates;

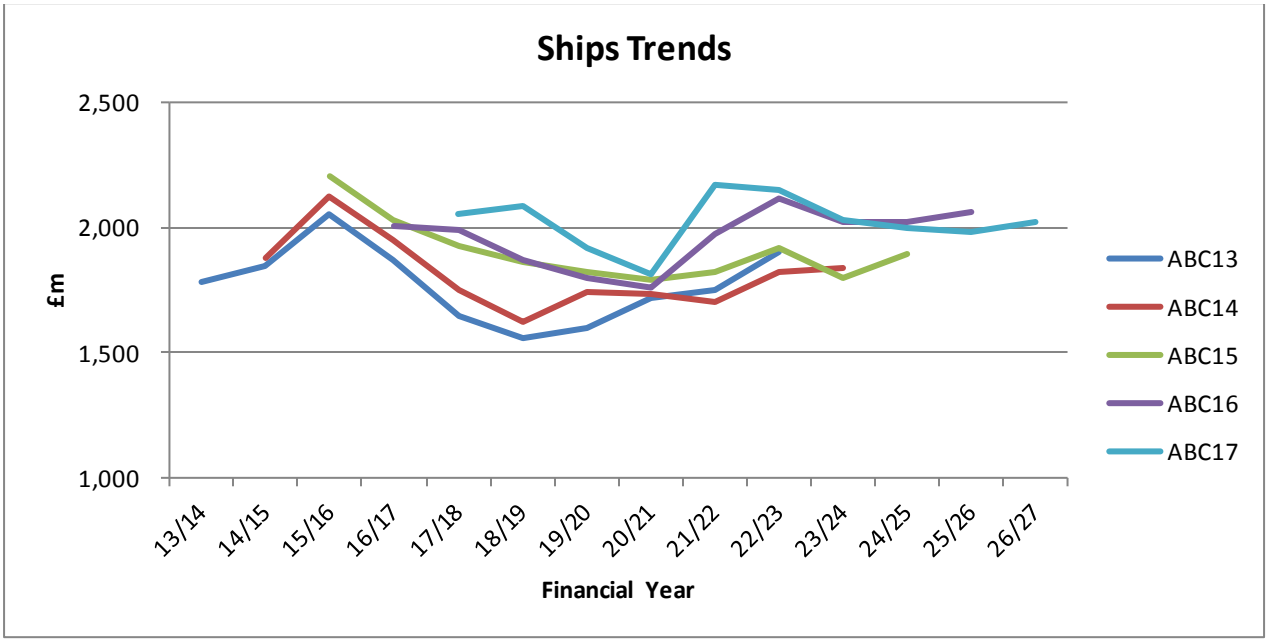
- accepted the first of the Tide Class Tankers, RFA TIDESPRING, Off Contract from Daewoo Shipbuilding and Marine Engineering's yard in South Korea and sailed her back to the UK for customisation and specialist trials;

- awarded a £191 million contract to BAE Systems Land and Armaments for the Maritime Indirect Fire Systems (MIFS), the main gunnery system on the new Type 26 Global Combat Ship. The contract covers the design and manufacture of the first three guns, as well as a training system and ammunition, and will sustain skilled UK jobs;

- awarded contracts worth c£180 million to QinetiQ Limited and BAE Systems Surface Ships Limited for continued Naval Combat System Integration and Support Services. The contract extensions will see both companies providing specialist staff to help support the key in-service Royal Naval platforms and future platforms, until March 2027; and

- awarded a £60 million contract to BAE SYSTEMS Surface Ships Limited to provide continued in-service support for the Type 45 Daring Class Destroyers,

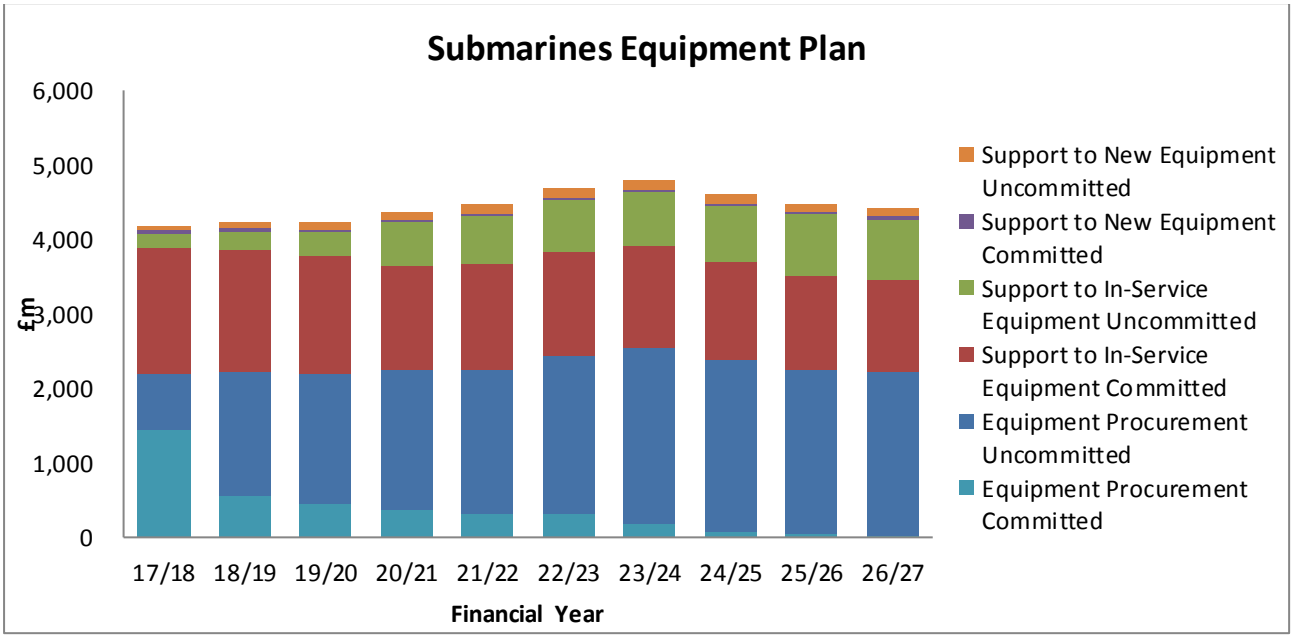
wherever they are in the world, and prepare for transition into the Common Support Model. The contract focuses on maximising the availability of the platforms for operational duties while keeping costs to the Ministry of Defence (MOD) to a minimum.



40. The planned spend profile over the next 10 years for the Ships Operating Centre has increased slightly because of many small changes across what is a wide and diverse portfolio of programmes and projects. The early years procurement reflects the current Surface Ships acquisition programmes, which spans the Queen Elizabeth Class aircraft carriers and Tide Class tankers. The profile peaks at FY 21/22 which is mainly due to the build-up in the Type 26 Frigates and Offshore Patrol Vessels procurement programmes.

Submarines

41. We plan to spend around £44bn on submarines over the next decade in line with the investment reported at the end of the last planning cycle.

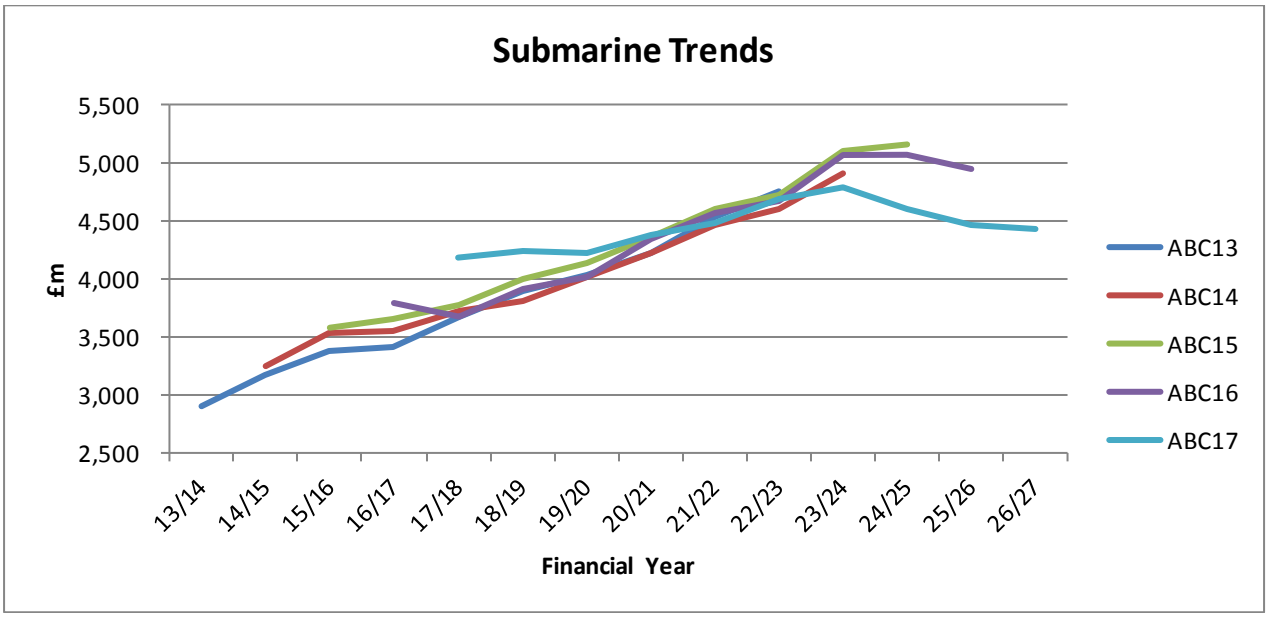


42. This sector covers spending on all submarine procurement and support. This includes investment in:

- support to in-service submarines, including the provision of engineering and design authority support to the UK submarine flotilla to ensure that they remain safe, available and capable;
- the delivery of seven Astute Class submarines, the initial support and training, as well as the delivery of the Astute Capability Sustainment Programme;
- the Dreadnought Class submarine design and build activities at Barrow, as successor to the current Vanguard Class nuclear armed submarines; the common missile compartment arrangements with the US; the command and control and naval base infrastructure upgrades required;
- the support, procurement and design of naval nuclear propulsion systems; and
- the nuclear warhead capability sustainment programme, which covers the operation, maintenance and updating of the Atomic Weapons Establishment; the Trident II D5 missiles with the US; the UK/French collaborative Teutates project, and the provision of other services and activities across the Strategic Weapons System.

43. During 2016/17 we:

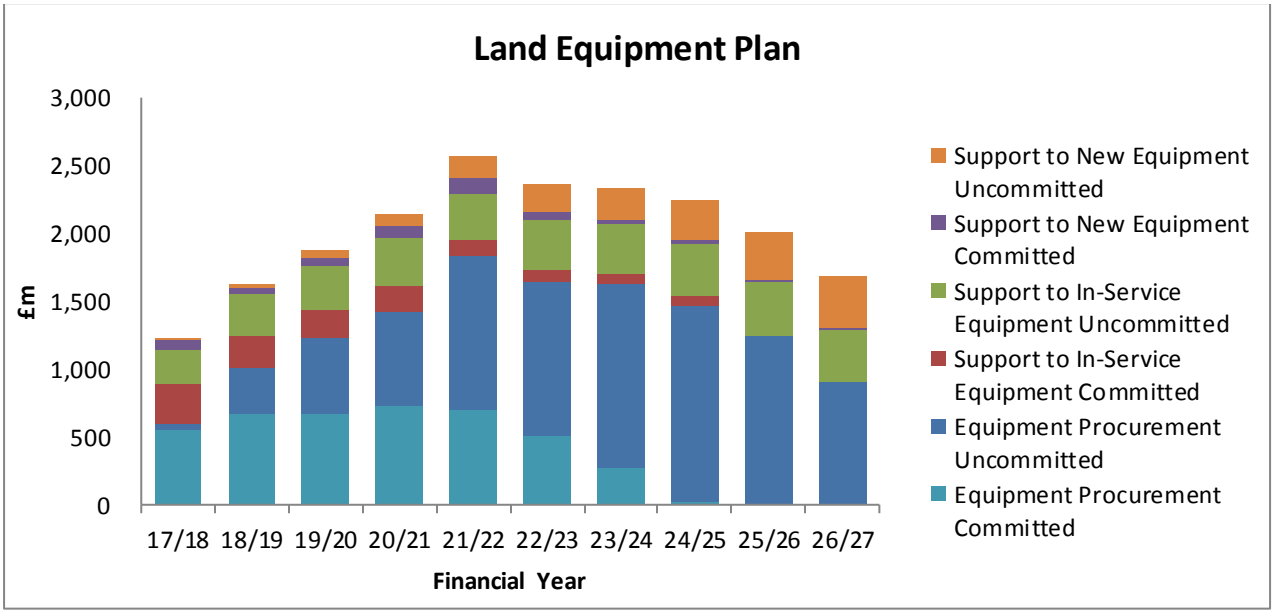
- maintained our Continuous At Sea Deterrence posture with the Vanguard Class submarines and provided Trafalgar and Astute Class submarines to support Fleet operations. This included ensuring that our plans for the ongoing operation of the submarines were robust;
- commenced production of the first of class of the four Dreadnought submarines in September 2016;
- placed an incentivised contract worth £1,462m for the sixth Astute Class submarine, AGAMEMNON on 31 March 2017;
- closed the pressure hull on the fifth submarine of the Class, ANSON; and
- completed the outfit of the fourth submarine, which was officially named AUDACIOUS by her Sponsor.



44. Variations in submarine programme costs towards the end of the first decade reflects departmental choices in respect of timing and capability requirements across the submarine programme.

Land Equipment

45. We plan to spend around £20.1bn on Land Equipment over the next decade in comparison to £19.1bn at the end of the previous planning cycle.



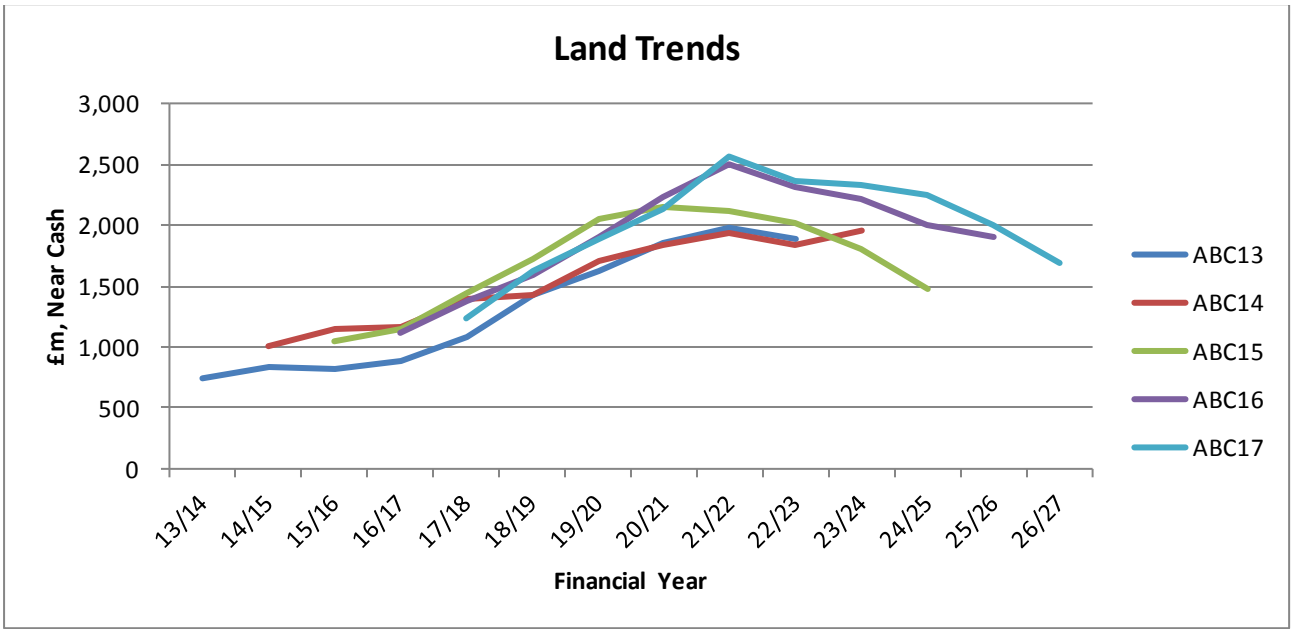
46. This sector covers spending on the delivery of Armoured Fighting Vehicles as well as Global White Fleet Services and support of armoured, protected and support vehicles; artillery systems; operational infrastructure; soldier fighting systems; and training solutions. It includes:

- the Warrior Capability Sustainment Project (WCSP), which will extend the life of the infantry fighting vehicle and deliver capability enhancements including a new target acquisition system, electronics and power management, and a modular protection system;
- the Challenger 2 Life Extension Programme, which will address platform obsolescence, develop advanced protection and extend the life of the platform from 2025 to 2035;
- the AJAX vehicle project, which will deliver a transformational armoured capability as part of the war-fighting division, including the new STRIKE brigades;
- the Multi Role Vehicle Protected programme delivering a family of adaptable, protected general purpose vehicles for command and logistics;
- the VIRTUS programme delivering a personal protection and load carriage system for the individual soldier; and
- the Mechanised Infantry Vehicle project, to equip the core of the future Mechanised Infantry's contribution to the STRIKE Brigades.

47. During 2016/17 we:

- supported fleets of Protected Mobility vehicles for our Armed Forces deployed in Afghanistan and Iraq;
- supported operations in Afghanistan, Iraq and South Sudan through the provision and support of technical and domestic accommodation, specifically a temporary field hospital in South Sudan;
- co-ordinated the delivery of 3.9 million items to eight Priming Equipment Packs[5] (PEPs), worth £97m, across over 10,700 NATO Stock Numbers at a cost of £66m for Army Contingent Forces;
- signed a contract for Surveillance and Target Acquisition Support for Dismounted Close Combat systems, saving £47m over the six years of the contract;
- facilitated the loan of 18 Heavy Equipment Transporter vehicles to the US Army in Europe generating an expected saving of £9m over three years;
- produced seven AJAX prototype vehicles which are now actively engaged in trials and commenced the manufacture of production vehicles;
- conducted unmanned firing trials of weapon systems for AJAX with manned firing due to commence in Quarter three 2017;
- continued with the production of 11 Warrior Capability Sustainment Programme Demonstration Vehicles;
- procured an additional 14,000 VIRTUS systems;
- implemented the Phoenix 2 Service Provision Contract for Global White Fleet Services; and
- placed BAE Systems and Rheinmetall Land Systems on contract for the Assessment Phase of the Challenger 2 Life Extension Programme.

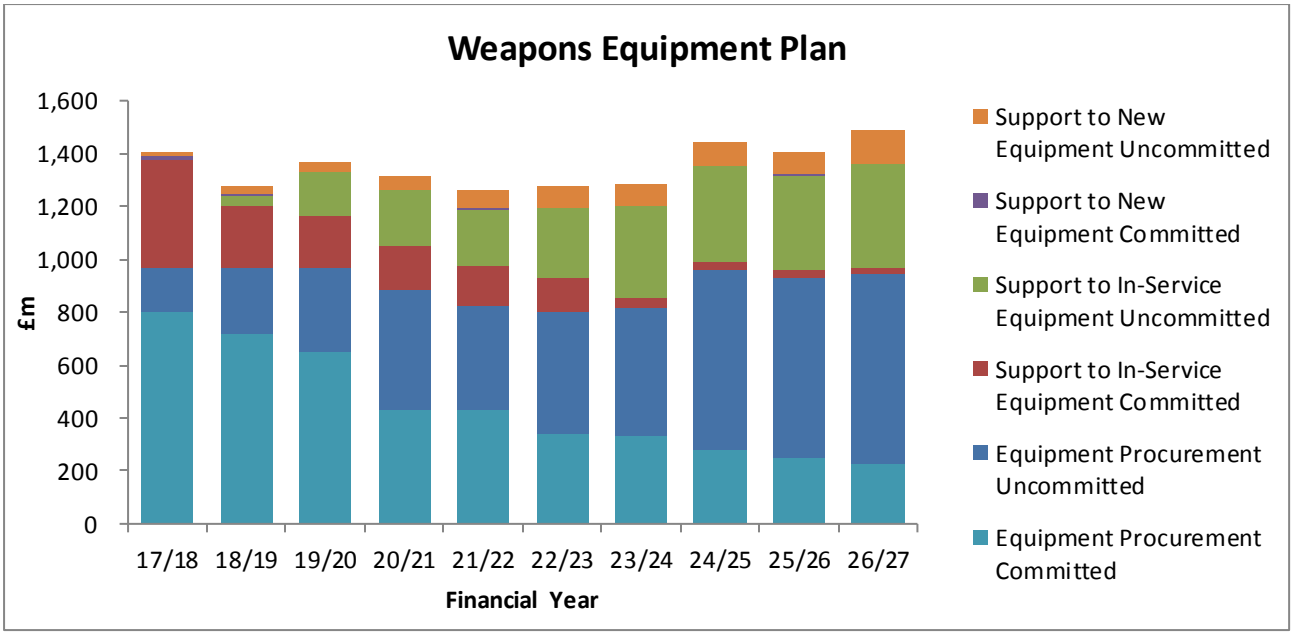
[5] A PEP is an Equipment Pack that is provided to a unit when it is warned for operations and is designed to improve the availability of the equipment the unit deploys with.



48. There has been a relatively small increase in planned spend compared to last year.

Weapons

49. We plan to spend £13.4bn on the Weapons Programme over the next ten years, in comparison to £13.5bn at the end of the previous planning cycle.



50. We plan to procure the majority of our more sophisticated weapon systems through a partnering agreement with industry termed the Complex Weapons Portfolio Management Agreement. Systems that we plan to deliver under this arrangement include:

- Brimstone Capability Sustainment Programme, short-range precision strike capability for Typhoon (with the potential to fit it to Protector and Attack Helicopter in the future);
- Sea Ceptor and Land Ceptor, both utilising the Common Anti-air Modular Missile to provide Future Local Area Air Defence capability in the Maritime (on the Type 23 and Type 26 Frigates) and Land environments;
- ASRAAM Block 6, short-range air-to-air air defence capability for Typhoon and Lightning II;
- Sea Venom and Lightweight Multirole Missile, which are helicopter-launched Future Heavy and Light Anti-Ship capabilities for Lynx Wildcat;
- SPEAR Capability 3, a medium-range precision strike capability on Lightning II (with the option also to fit it to Typhoon);
- Storm Shadow Mid-life Re-life, long-range precision strike capability for Typhoon;

- Meteor, a beyond visual range air-to-air air defence capability for Typhoon and Lightning II; and

- Future Long Range Cruise Missile/Future Offensive Surface Warfare capability (in co-operation with France)

51. We plan to provide Test, Evaluation and Training Support services through the Long Term Partnering Agreement with QinetiQ. These services include:

- Design, management and conduct of trials; and

- Evaluation and analysis of results.

52. We will provide a range of aerial target capabilities through the Combined Aerial Target Service Contract with QinetiQ in support of in service weapon firings and weapon development testing including associated telemetry analysis. We will provide Very Low Observable Radar Cross Section measurement services through a contract with Thales to independently assess equipment radar signatures.

53. We plan to support and deliver upgrades to existing weapon systems and munitions:

- complete further Submarine Trials as part of the Spearfish Upgrade programme;

- progress Project Whitehead (future Torpedoes support contract);

- by working with US colleagues deliver upgrades to the Tomahawk weapon control and mission planning systems;

- implement a 2 year extension to the Harpoon capability; and

- deliver countermeasure capability to various platforms including F-35.

54. During 2016/17 we:

- completed the Sting Ray Insensitive Munitions Warhead Manufacture contract;

- completed the first Spearfish Upgrade submarine firings;

- endorsed the Sea Ceptor Ready to Embark commitment and progressed work on route to the First of Class Firings;

- completed development of the new Radar Type 997 destined for the T23 frigate class, future T26/T31 Frigates and QEC Aircraft Carriers. Installation on all but one of the T23 frigates was complete in-year;

- awarded contracts for in-service support of the Sea Viper weapons system on the T45 Destroyer under the Unified Support Environment (USE) initiative;

- awarded a contract for production of the Common Anti-air Modular Missile (CAMM) for T23 and T26 Frigates and the Land Ceptor air defence missile system;

- achieved the In-Service Date for the Brimstone 2 missile on Tornado;

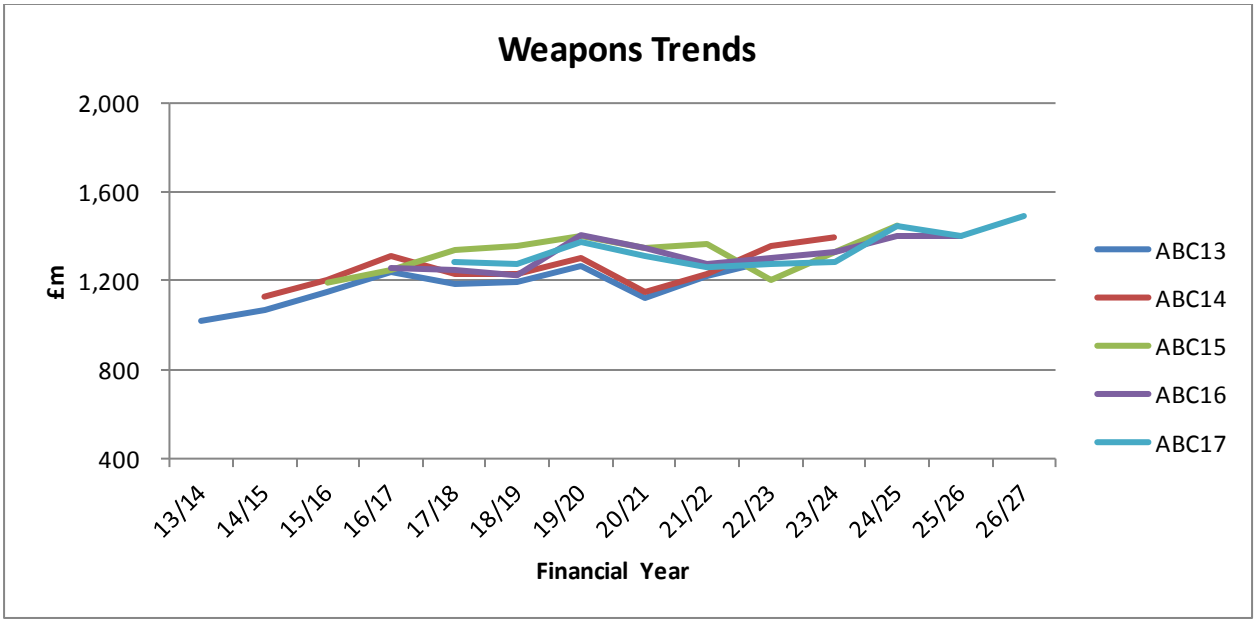
- awarded a contract for the integration of the Meteor Advanced Beyond Visual Range Air to Air Missile onto Lightning II;

- completed the first air-carriage and release of the SPEAR Capability 3 missile;

- delivered significant replenishment orders of Paveway IV;

- completed the Critical Design Review for the Paveway IV Penetrator Warhead development programme; and

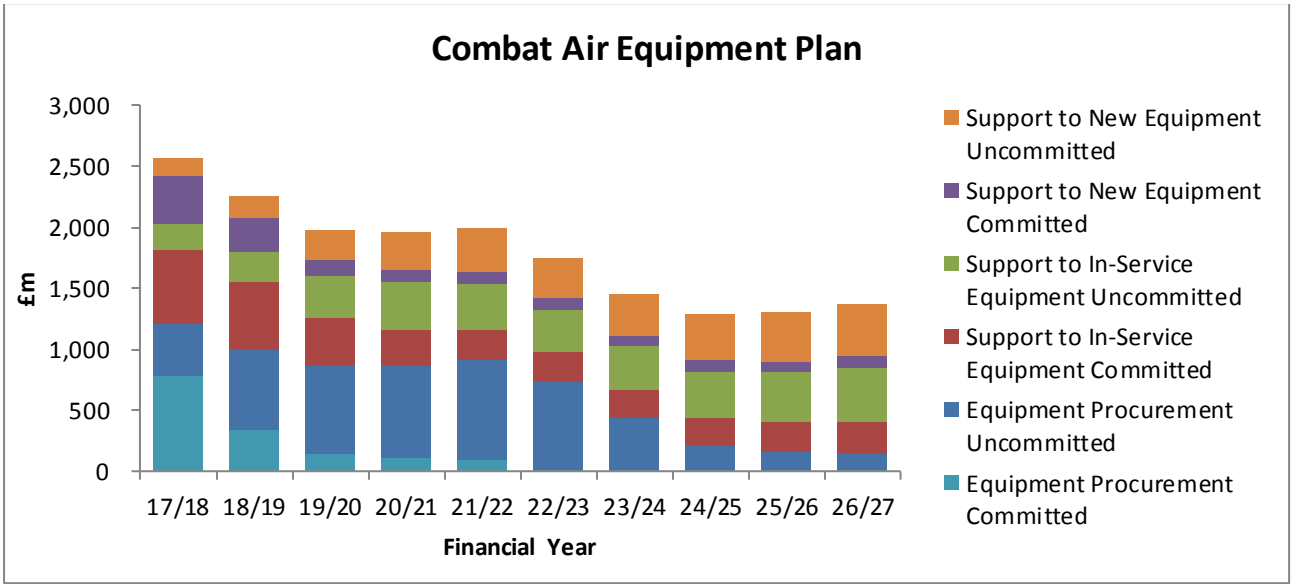
- completed Critical Design Review for the integration of the Future Light Anti-Ship missile onto Wildcat.



55. The planned spend profile of the next 10 years for the Weapons Operating Centre broadly follows a straight line at £1.2bn to £1.4bn p.a. Minor peaks and troughs reflect the variations in production output as projects progress through the CADMID lifecycle, as well as increases and reductions in platform related integration activity.

Combat Air

56. We plan to spend around £18bn on combat air over the next decade in line with the investment reported at the end of the last planning cycle.



57. This sector covers fast jets, Unmanned Air Systems and Military Flying Training, including the procurement of training aircraft. This investment includes:

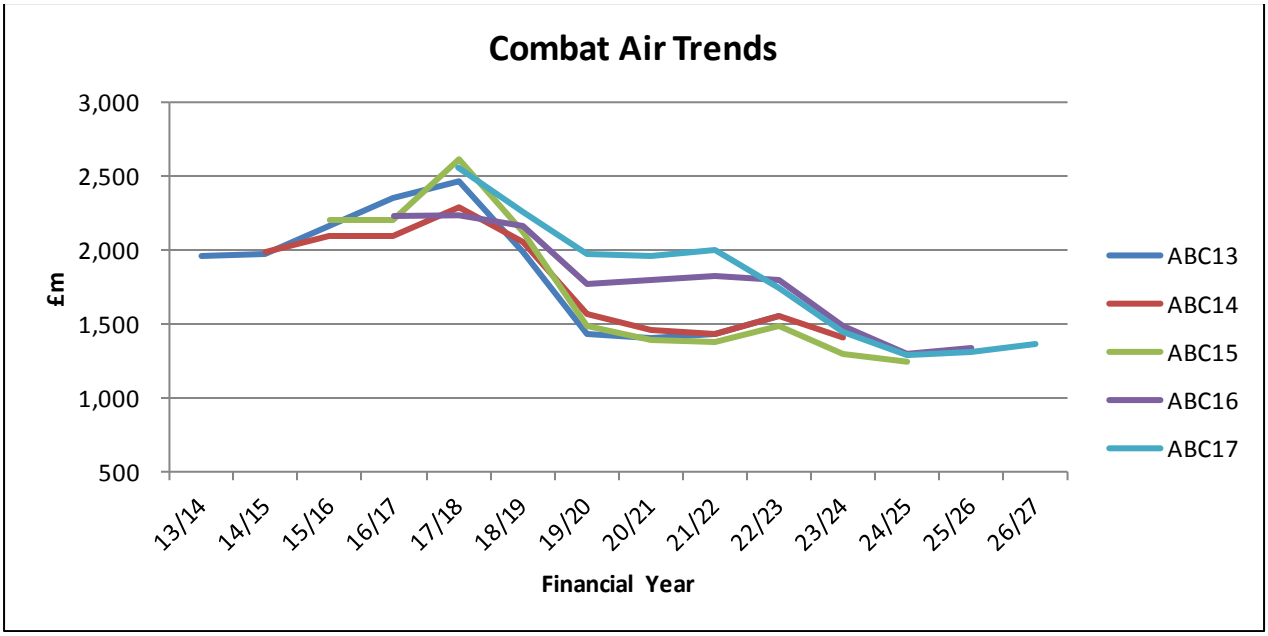
- Typhoon capability, including the integration of a suite of weapons and enablers that will enhance the Ground Attack and Air-to-Air roles;
- delivery of the F-35 Lightning II project, which will be a cornerstone of Combat Air operations for decades to come;
- Unmanned Air Systems, bring into core existing capabilities and investing for the future in replacement systems, including the SDSR commitment to more than double the existing Reaper fleet; and
- Military flying training, including new aircraft systems and synthetic training environments to enhance delivery of trained aviators until 2033.

58. During 2016/17 we:

- took delivery of five Tranche 3 Typhoon aircraft taking the fleet from 133 to 138 aircraft;
- continued to progress Project CENTURION, the transfer of combat air capability from Tornado to Typhoon required by December 2018;
- took delivery of five F-35 Lightning II aircraft and achieved initial Release to Service in February 2017;

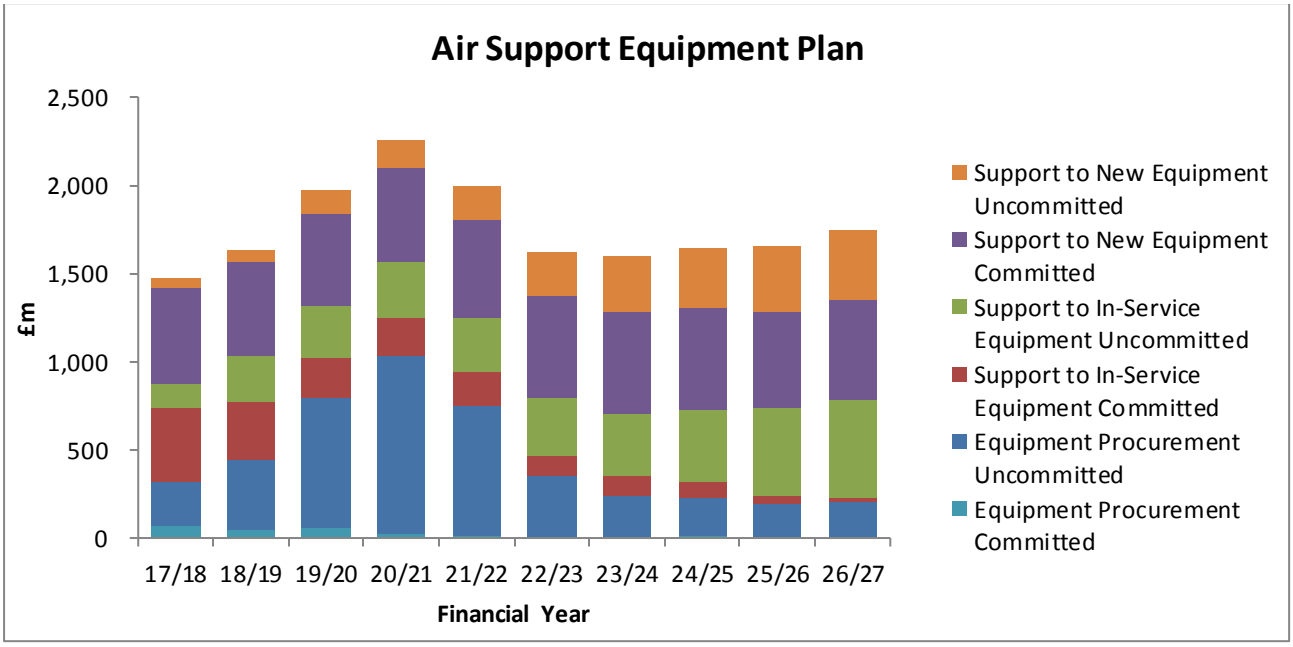
- approved the procurement of the next 30 F-35 aircraft and awarded a £90m contract providing essential support services for the Lightning F-35 until 2020; and

- committed to delivery of Future Fixed Wing and Rotary Wing flying training out to 2033 and enhanced safety of legacy training aircraft.



Air Support

59. We plan to spend around £17.6bn in the Air Support sector over the next ten years, in comparison to £16.6bn at the end of the previous planning cycle.

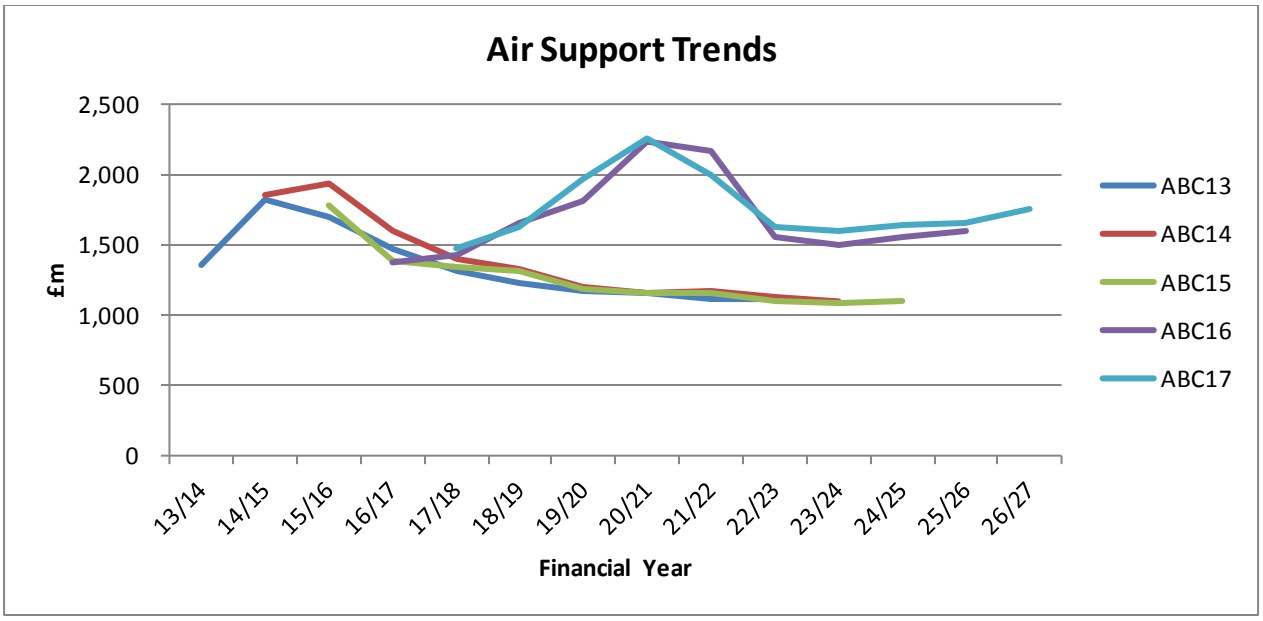


60. This sector covers all large aircraft, including transport, air-to-air refuelling and large ISTAR platforms. This investment includes:

- procurement of nine Boeing P-8A Poseidon Maritime Patrol Aircraft;
- the A400M future generation of strategic/tactical air transport aircraft;
- the delivery of the Voyager air transport and air-to-air refuelling service;
- upgrades to the AWACS fleet to address obsolescence and sustain the fleet's capability to its extended out of service date of 2035; and
- procurement of Airseeker capability to acquire a state-of-the-art airborne signals intelligence collection capability.

61. During 2016/17 we:

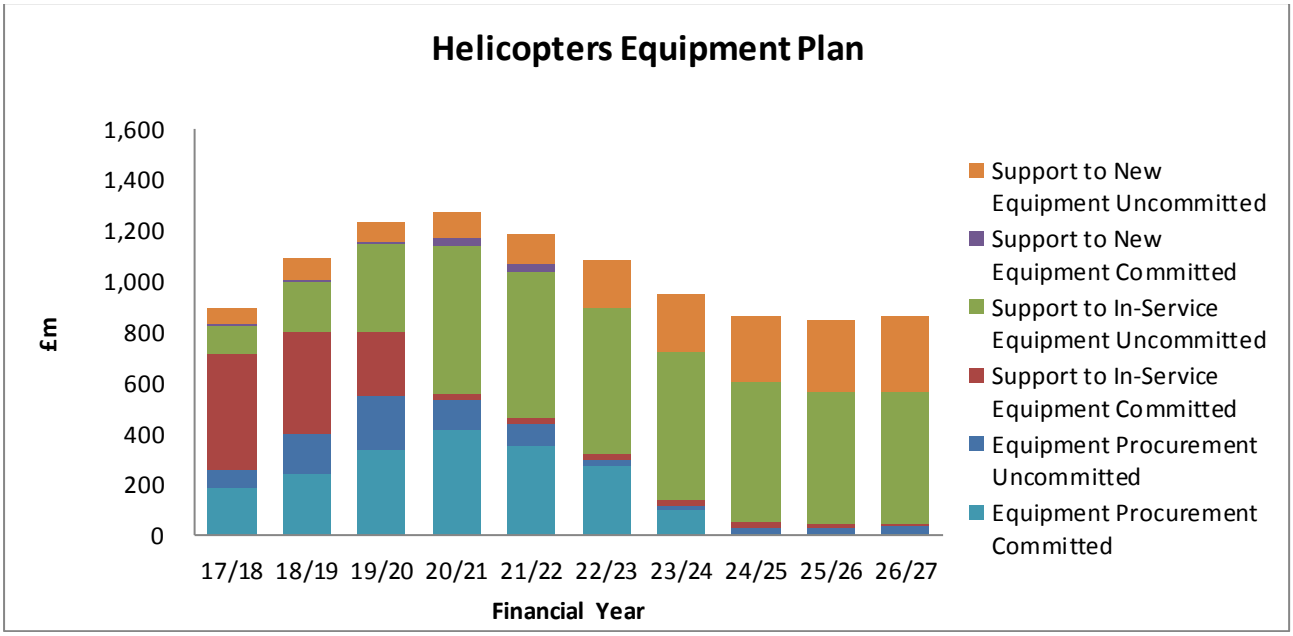
- took delivery of the 14th and final Voyager aircraft in July 2016 and Full Service Delivery for Voyager was formally declared on 30 September 2016; and
- continued growing the A400M fleet at RAF Brize Norton with a further eight operational A400M aircraft delivered, including another two modified with UK-specific defensive aids. At the end of March 2017 the UK had received 15 of 22 aircraft ordered, with the last due in 2020.



62. The increasing investment in the Air Support portfolio resulting from SDSR 2015 can be seen above. The profile of the additional investment aligns with the planned procurement of the nine P-8A Maritime Patrol Aircraft, the first of which is forecast to be delivered in 2019, and the major upgrade to the AWACS fleet which we plan to undertake in the early half of the next decade to extend the capability to at least 2035. SDSR 2015 also extended the Out-of-Service Date of the C130J fleet to 2035, requiring investment to replace the centre wing over the next five years, and an extension of the Airseeker capability to 2035.

Helicopters

63. We plan to spend around £10.3bn on helicopter capabilities over the next ten years, in comparison to £10.6bn at the end of the previous planning cycle.



64. This sector covers spending on all helicopter procurement and support. This investment includes:

- upgrades to our existing airframes and investment in new ones that will allow Defence to sustain the core capabilities in the Land, Maritime and Special Forces domains;
- support to our existing fleets: primarily, Chinook, Merlin, Apache and Wildcat, together with Puma until its current Out-of-Service Date of 2025; and
- contractor provided services for niche roles in the UK and overseas.

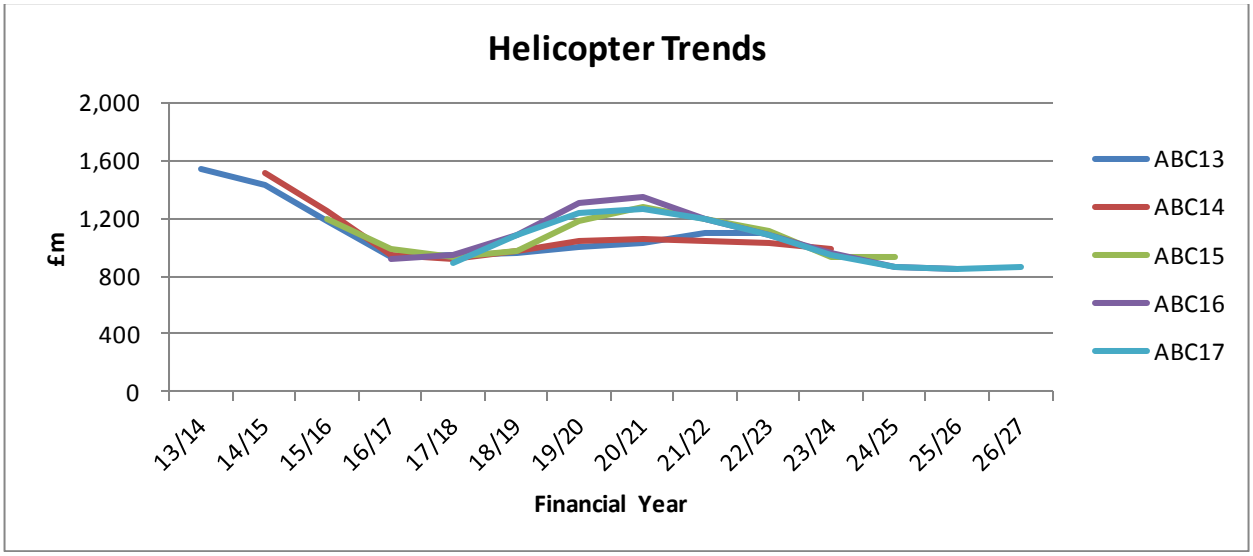
65. During 2016/17 we:

- continued the delivery of new helicopter capabilities to our Armed Forces, including achievement of the Full Operating Capability for the Chinook Mk6;
- secured the Main Gate approvals for the Apache Capability Sustainment Programme which led in June 2016 to a $2.3bn Foreign Military Sales agreement with the US Government for the delivery of 50 AH-64E aircraft;
- Agreed a £23m contract for the development and manufacture of a Traffic Advisory System for Chinook in December 2016 and secured approval to commence the Assessment Phase for the Chinook Capability Sustainment Programme;

- Agreed a £269m contract for the demonstration and manufacture of the CROWSNEST airborne surveillance capability and control system for the Merlin Mk2 in January 2017;

- retired the Lynx Mk8 from service in line with previous plans and the introduction of Wildcat; and negotiated the second Pricing Period for the Wildcat Integrated Training and Support at a price of £271m over five years; and

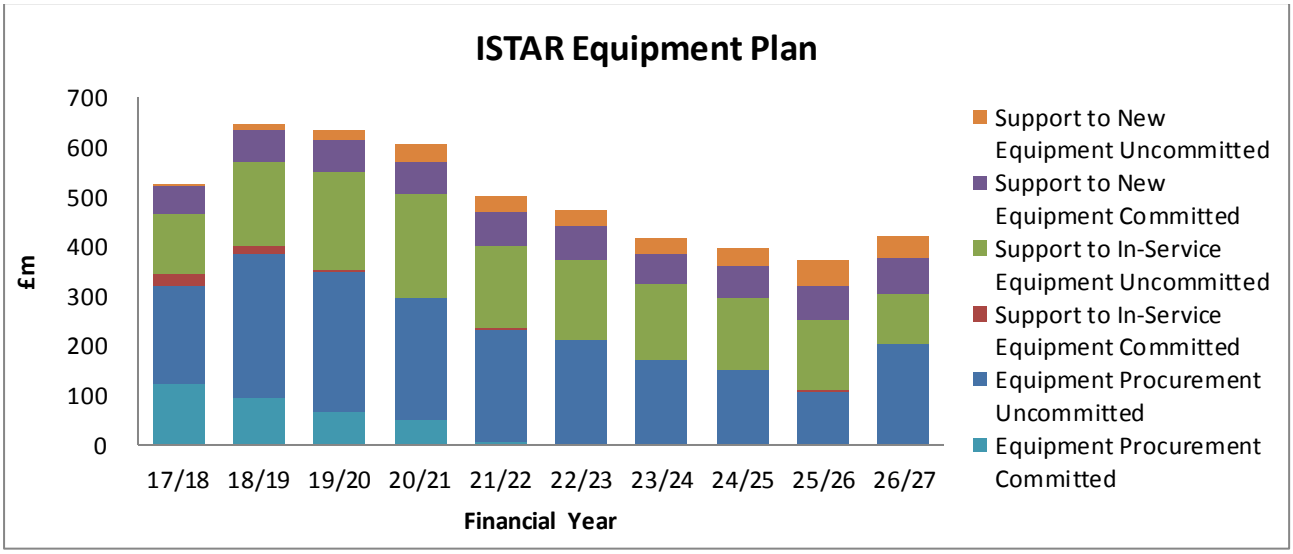
- signed a 10-year Strategic Partnering Arrangement with Leonardo Helicopters to work together to enhance national prosperity through export success and ensure the right innovation and technologies are available in the UK to meet future defence requirements. As part of this Arrangement, MOD invested £3m in the second phase of a Rotary Wing Unmanned Air Systems capability concept demonstrator, in September 2016.



66. The helicopter programme continues to be relatively stable, underpinned by the Rotary Wing Strategy that was agreed in 2009. The modest reduction in funding is the net effect of continued reductions in the cost of supporting our military helicopter fleet (such as the benefits secured through the second Pricing Period for the Wildcat Integrated Training and Support) and minor variations in spending priorities.

ISTAR

67. We plan to spend £5bn through the ISTAR Operating Centre over the next decade, in comparison to £4.6bn at the end of the previous planning cycle.



68. This investment includes spend on Chemical, Biological, Radiological and Nuclear (CBRN) detection and countermeasures; electronic countermeasures; a range of equipment including communications, intelligence, surveillance and reconnaissance; air defence; air traffic management and tactical data links. It excludes expenditure on Air ISTAR platforms in the Air Support Operating Centre, including Airseeker and the Maritime Patrol Aircraft and other capabilities delivered by DE&S and ISS.

69. During 2016/17 we:

- managed the £1.89bn Project Marshall contract towards Initial Operating Capability. The 22 year contract will deliver modern, reliable and safe military Air Traffic Management services at some 65 MOD airfields and associated sites in the UK and overseas. It rationalises some 70 traditional contracts into a single service provision contract and realises almost £1bn in efficiencies over the 22 year life;

- delivered the Full Operating Capability of a new wind farm-tolerant air defence radar at Framingham;

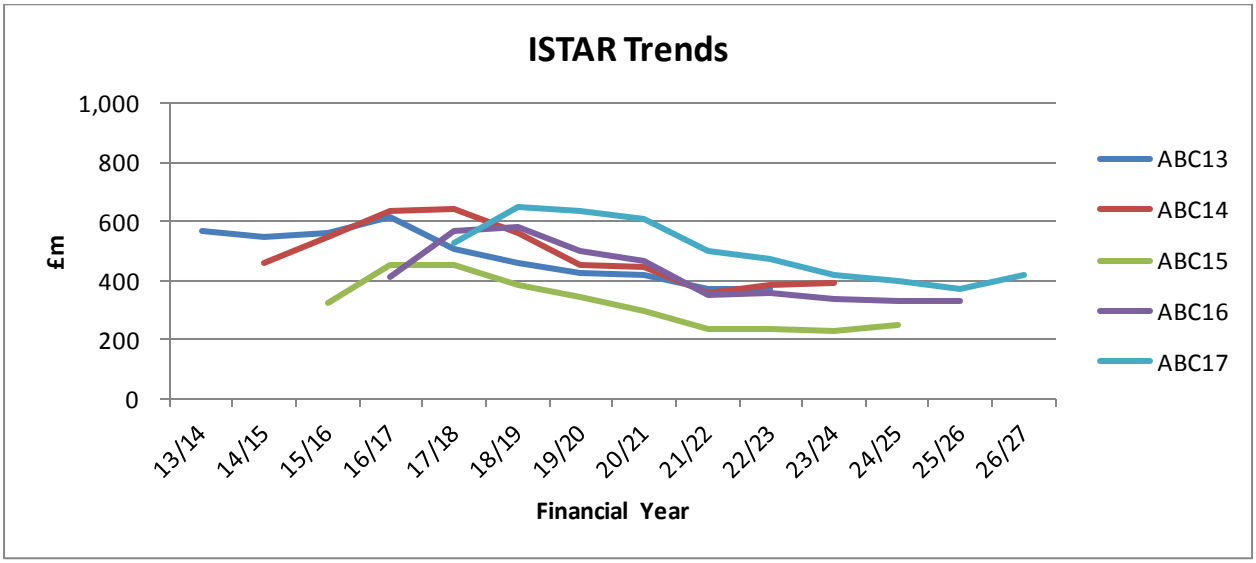
- working with the SRO, DSTL and Industry we managed the early delivery of the Biological Surveillance Collection System a critical component to a layered CBRN defence, which was planned to achieve Initial Operating Capability in May 2017;

- managed the OXYGENIC project towards Initial Operating Capability. This project will ensure a modern Secure IT system for some of our most demanding users in Defence where DE&S is the prime, avoiding vendor tie

in and maintaining the agility to evolve the system to meet emerging operational needs;

- delivered over 90% of our portfolio of smaller Category D projects including Urgent Capability Reviews within approvals, many contributing immediately and directly to counter terrorism operations; and

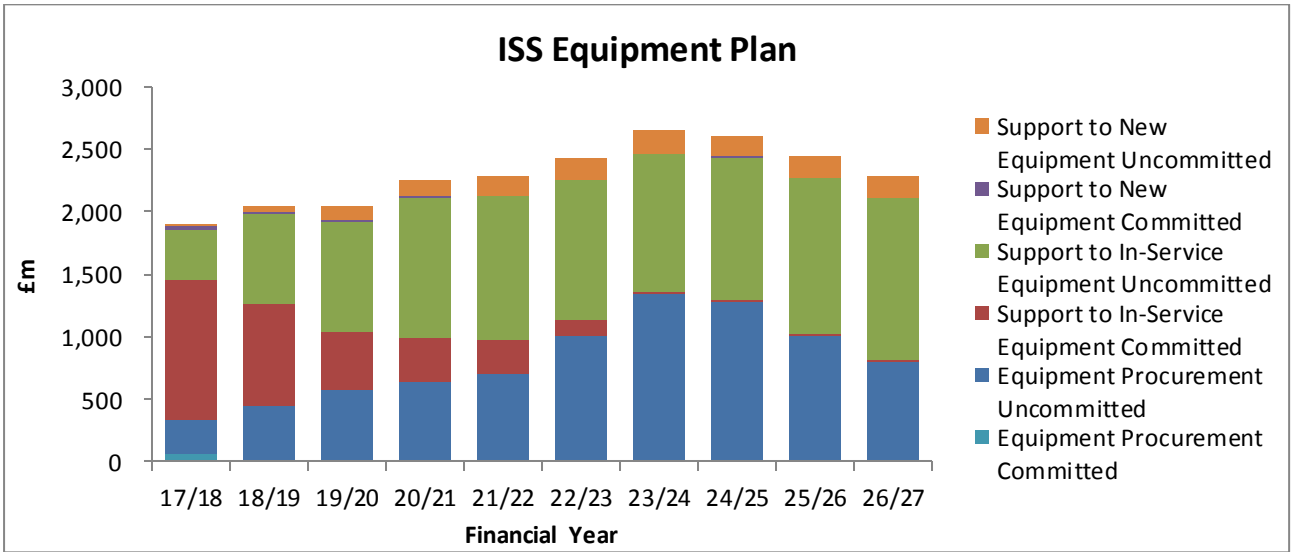
- won the Civil Service Project Team of the Year award which recognised the CBRN DT's achievement in delivering the Op Honeysuckle CBRN requirements.



70. ISTAR plan to spend £2.3bn on Air Command projects, £2.7bn on Joint Force Command Projects, but also undertake projects for Navy Command, Land Command and Strategic Programmes.

Information Systems and Services (ISS)

71. We plan to spend around £22.9bn with Information Systems and Services over the next decade. This is in comparison to the planned spend of approximately £23.5bn at the end of the previous planning cycle. The main drivers of this reduction by programme are: a change in procurement strategy for the Future Beyond Line of Sight Strategic Communications programme from the previous funding profile based on a Private Finance Initiative to the acquisition of satellites by the Department reducing costs by £260m; revised costing approach for Cyber Defence provision reducing costs by £62m; and reduced spend on the existing Satellite Communications solution as it nears the end of its life cycle (£240m). This is in addition to ISS absorbing a wide range of saving initiatives and efficiencies around New Style of IT and Communication provision.



72. This sector covers all of our expenditure on procurement of data and voice communications and the development and upkeep of our entire supporting network infrastructure.

73. During 2016/17 we:

- maintained and defended the communications essential for operations and more routine activities, including the provision of satellite communications for deployed forces from routine deployments of naval vessels to the support of forces in Operations around the world;

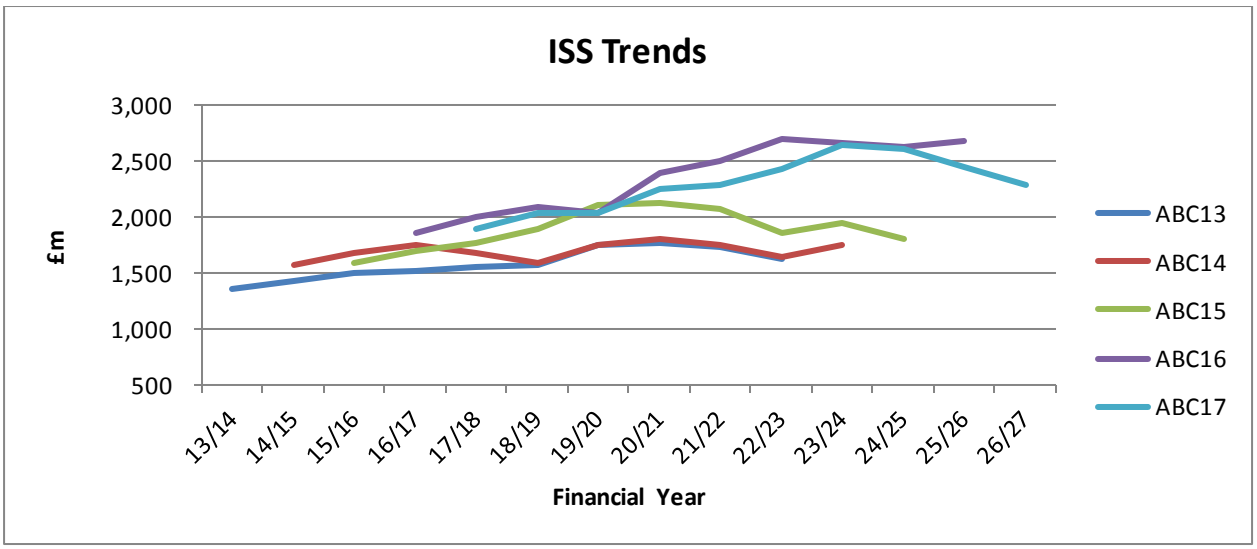
- delivered a range of capability enhancements to existing Defence core Information Communication Technology (ICT) systems and services, including mobile data and voice communications to support both UK and operational requirements;

- placed contracts to enhance UK MOD Cyber Defence capability;

- successfully initiated a cross-departmental programme to ensure the UK's continued ability to securely communicate and share data with current and future international partners;

- completed ISS transformation to meet future demands including improved customer service, and the delivery of enhanced and better value for money core ICT services and networks; and

- Continued to develop and embedded the new MOD ICT 'Design Authority' into MOD ICT procurement structures, in order to bring back in-house core ICT strategy, policy, architecture, standard-setting and customer service functions, with the aim of improving interoperability and cost-effectiveness.



74. The increase in the forecast cost of ISS in the later years of the plan is mainly driven by the change in procurement strategy for the Future Beyond Line of Sight programme from a Private Finance Initiative to the acquisition of satellites by the Department.

Other Elements of the Equipment Plan

75. Other elements of the equipment plan not individually broken down in this analysis total around £7.2bn, which is a decrease on last year's £7.5bn. This is due to the Naval Authority Group no longer being counted as a separate operating centre outside of the Submarines and Ships Operating Centres. The largest individual section of this (approximately £3bn) represents our planned spend on supporting our three naval bases. Also included in this area is spend on the Support Enablers, and other smaller areas, including a line for the minor adjustments that Front Line Commands make as part of managing their budgets. The total spend is broken down in the table below.

Other Elements of the Equipment Plan, £m

Other Elements of the EP (Near Cash)	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	Total
Naval Bases	306	301	293	285	290	298	305	314	325	329	3047
Logistics Delivery Ops Centre	237	241	236	232	232	213	226	213	177	190	2197
Support Enablers	137	170	173	165	171	198	202	211	188	192	1808
Director Technical	23	16	13	13	13	14	14	14	14	15	149
Total	703	728	715	696	706	723	748	752	705	726	7201

Section D: Project Performance Summary Table 2017

76. This is the second year that the Department has published the Project Performance Summary Table (PPST) within the Equipment Plan. Independent validation of the data has again been conducted by the MOD's Cost Assurance & Analysis Service. This year the NAO have reviewed our PPST assurance process and controls.

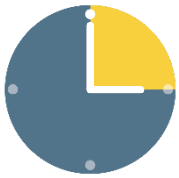
77. The purpose of the PPST is to provide an overview of the delivery performance of the Department's largest equipment procurement projects that have been approved for Demonstration and Manufacture[6] phases. We report on the forecast cost of the project, the forecast timescales for achieving the In-Service Date (ISD), and the forecast achievement of the Key User Requirements (KURs), all of which are approved as part of the Main Gate business case or when we commit to manufacture of the equipment.

78. The PPST is aligned with departmental project reporting policy, which means some minor adjustments have been made to align our publicly reported position with validated project performance figures. This is part of our drive to improve data quality in our corporate information systems. See the publication notes under Figure 18 below for details. The headlines are summarised here in Figure 11.

Figure 11 – PPST17 Key findings

+£358 million

0.8 per cent increase in forecast costs, predominantly driven by two projects



+57 months

2.9 per cent increase in forecast time from a total combined approved duration of 1,942 months

99 per cent

Of key user requirements (196 of 198) are forecast to be met

Changes to the PPST Population

[6] Previous sections of the Equipment Plan look at the overall 10-year forecast for a project which includes contractually committed costs, uncommitted costs and, where applicable, future phases of work. Consequently a direct comparison cannot be made with approved Demonstration and Manufacture phase costs presented here in Section D which are a portion of that total.

79. We have taken the opportunity to refresh the project population for 2017 as there were a number of major projects that received a Main Gate or Demonstration Phase approval in 2016/17 including Dreadnought, Protector, Poseidon and Apache Capability Sustainment Programme. While continuity with the NAO's Major Projects Report (MPR) population has allowed approximate comparisons of delivery performance from year to year, a number of projects that have featured for many years in the MPR and PPST are expected to reach their ISD in the next few years (including Queen Elizabeth Class carriers, Astute Boats 4 to 7, Lightning II and Tide Class tankers). To maintain a broad spectrum of projects from across the Equipment Plan we must therefore add new projects.

80. Within the Complex Weapons Pipeline some additional projects were introduced this year, bringing the total number of projects in the pipeline to 10. The new additions are Future Local Area Air Defence System (FLAADS) for the Type 26 Global Combat Ship, Short Range Air-to-Air Missile (SRAAM) Sustainment Main Gate 2, Brimstone Capability Sustainment Programme, Beyond Visual Range Air-to-Air Missile (BVRAAM) on Lightning II and Spear Capability 3.

81. Additionally, a number of projects which have achieved ISD in previous years have been removed from the PPST population: Astute Boats 1 to 3, Atlas A400M, Typhoon Fighter Aircraft and Typhoon Future Capability Programme.

82. We have also updated our terminology. Last year's PPST, and before it the Major Projects Reports, referred to programmes and portfolios as 'projects'. We now refer to each project in the Typhoon and Complex Weapons portfolios as discrete projects – that is to say we are reporting on 10 Complex Weapons projects in the population rather than treating the portfolio itself as a project. In total there are 28 projects in the PPST17 population.

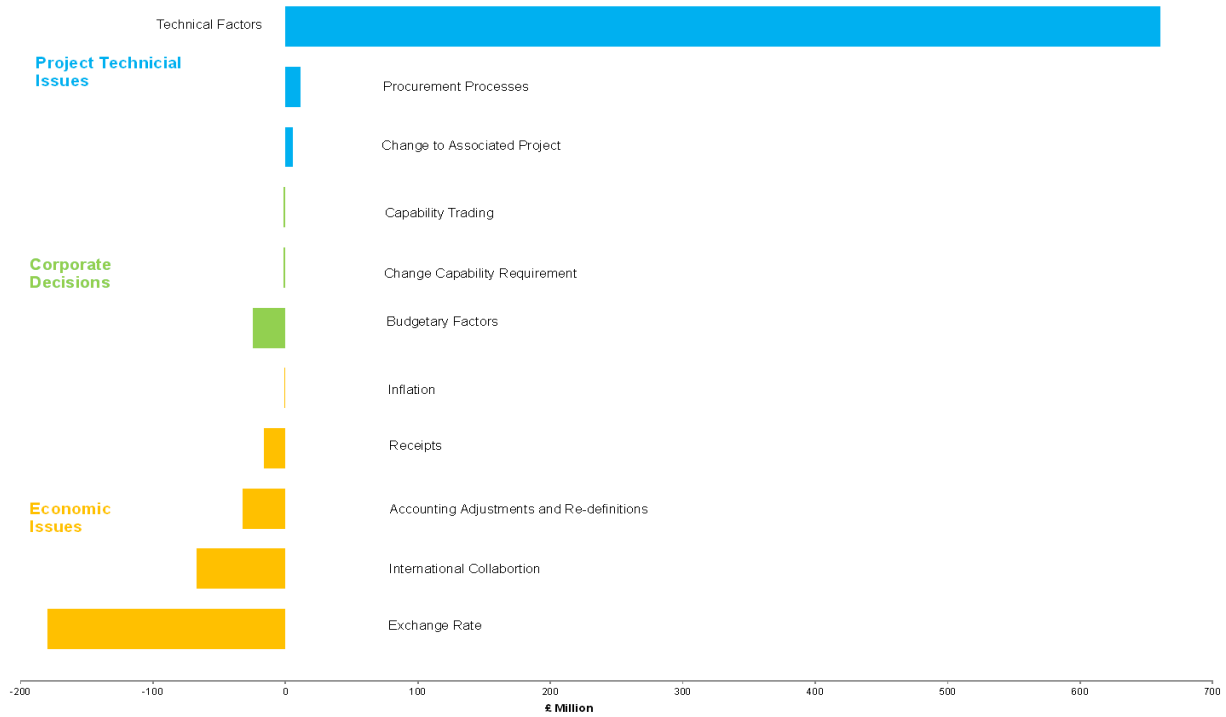
Forecast Cost

83. During 2016/17 the aggregate forecast costs of the current phase of the 28 projects in the population increased by £358m (0.8 per cent of the total costs). Of the seven projects reporting an increase in their costs, the two largest were Astute Boats 4-7 (£516m), and Warrior Capability Sustainment Programme (£136m). Astute forecast costs rose due to a range of factors including increased schedule durations for the later boats and Warrior Capability Sustainment Programme encountered technical and engineering challenges associated with the new cannon build standard. These were offset by nine projects reporting a decrease in costs. The largest decrease was on Lightning II (-£210M) due to a routine adjustment to align the cost forecast for new approvals with foreign exchange rate assumptions used in the Department's financial planning process[7]. The full cost of projects at forecast exchange rates is recognised separately in the Department's budgetary planning process with a provision for the difference in forecast exchange rates and planning assumption rates.

[7] The Department's annual budgetary cycle uses standard exchange rate assumptions for forecasting project costs. This enables foreign currency demand to be managed centrally through an annual revision of exchange rates rather than continually re-forecasting in response to changes in exchange rates.

84. Forecast cost variations are attributed to a number of categories, consistent with those used previously by the NAO. The principal cause of cost increases comes under the 'technical factors' category, comprising issues which are predominantly supplier related, whilst the main cause of cost decrease is due to foreign exchange rates. Figure 12 presents an overview of variances by category.

Figure 12 – In-year Cost Variations by Factor



Forecast Time

85. A total of 18 of the 25 projects which have an ISD approved report no change to their forecast in-service date[8]. However, there was a total project duration increase of 57 months which represents a 2.9 per cent change from the total approved duration of 1,942 months.

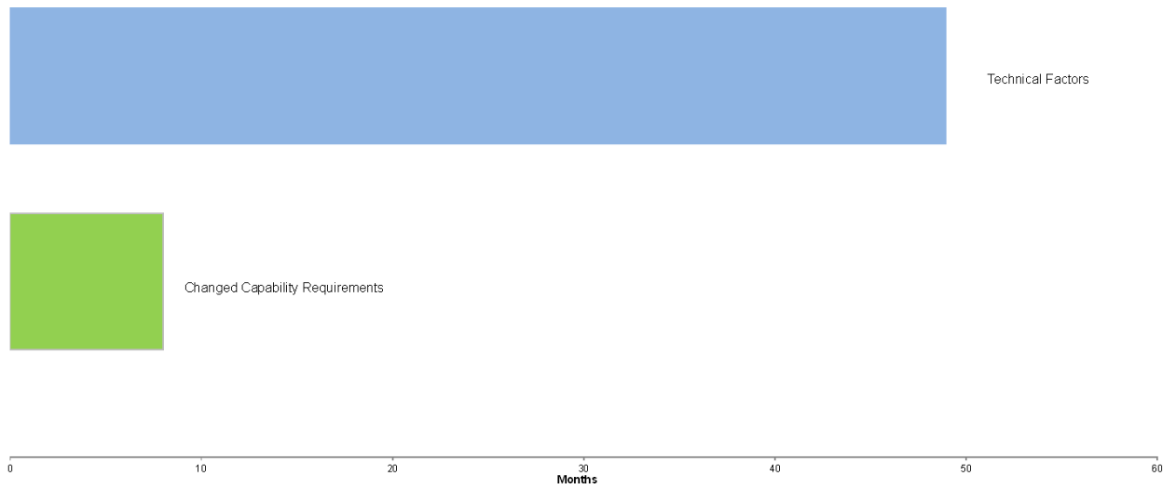
86. Increases are reported on four projects; Marshall (28 months), Warrior Capability Sustainment Programme (19 months), Tide Class Tanker (14 months) and Complex Weapons Sea Ceptor Type 23 (eight months). The delay to Warrior Capability Sustainment Programme is directly tied to the cost increase outlined in Paragraph 82. For Marshall and Tide Class Tanker, both projects encountered technical difficulties but project costs are currently protected due to their commercial arrangements.

87. Three projects reported reductions to their forecast in-service dates; Core Production Capability (eight months), Typhoon Brimstone 2 Integration (three months)

[8] Type 26 Global Combat Ship, Dreadnought and Spear Capability 3 do not yet have an ISD. The ISD will be set when the decision to manufacture is taken.

and Complex Weapons Brimstone 2 Integration (one month). Figure 13 shows that overall the main cause of time variance was technical factors.

Figure 13 – In-year Time Variations by Factor



Key Performance Measures

88. Forecast delivery of key performance measures remains at 99 per cent with 196 of the 198 Key User Requirements (KURs) forecast to be met across 26 projects[9]. There are two KURs that will not be met during the current approved phase of New Style of IT (Deployed) as they rely on delivery of subsequent tranches of activity. While these KURs were approved under Main Gate 1 they are not planned to be delivered as part of the current scope of work, so the KUR delivery forecast is expected to improve when future phases of work are approved.

Comparison with Performance in PPST16

89. A comparison on a like for like basis cannot be made against last year or prior years due to projects entering and leaving the population and projects which have received uplifts to their approval.

Figure 18 – PPST Comparison

Year	Cost forecast variation	Time forecast variation	Forecast achievement of performance measures (KURs)	Number of projects
2017	+£358m	+57 months	99%	28

[9] Type 26 Global Combat Ship and Dreadnought do not yet have KURs approved. The KURs will be approved when the decision to manufacture is taken.

2016	+£237m	+34 months	99%	22[10]

[10] We have changed the way we categorise projects in the PPST by counting projects individually instead of counting a portfolio of projects as one project. PPST16 referred to 12 projects which under our new description is 22 projects. See the Defence Equipment Plan 2016 for full details of last year's population.

Figure 19 – Project Performance Summary Table 2017

Portfolio	Project	Description	Cost				Time				Key User Requirements (KURs)						
			Expected cost to completion at approval (£m)	Current forecast cost to completion (£m)	Total cost variation (£m)	In-year change on costs to completion (£m)	Expected In-Service Date at approval	Current forecast In-Service Date	Total time variation (months)	In-year change to In-Service Date (months)	Number of Key User Reqts	To be met	To be met, with risks	Total number of Key User Reqts to be met	Not to be met	In-year change, to be met, with risks	In-year change - not to be met
-	AJAX (formerly Scout Specialist Vehicle)	Armoured Fighting Vehicle	5,479	5,406	-73	-23	Jul-20	Jan-20	-6	0	11	11	0	11	0	0	0
-	Apache Capability Sustainment Programme	Sustainment of Attack Helicopter	1,778	1,778	0	0	Apr-22	Apr-22	0	0	0	0	0	0	0	0	0
-	Astute Boats 4-7	Attack Submarine	5,859	6,697	838	516	Aug-15	Nov-18	39	0	10	8	2	10	0	0	0
Complex Weapons Pipeline	Brimstone 2 Integration	Integration of Air to Ground Missile	166	149	-16	-16	Oct-12	May-16	43	-1	9	9	0	9	0	0	0
	Brimstone Capability Sustainment Programme	Sustainment Programme of Air to Ground Missile	521	521	0	0	Oct-22	Oct-22	0	0	8	8	0	8	0	0	0
	BVRAAM on Lightning II	Fighter Integration of Air to Air Missile	80	80	0	0	Dec-24	Dec-24	0	0	8	8	0	8	0	0	0
	Future Anti Surface Guided Weapon (Heavy)	Maritime Air to Ground Missile (Heavy)	392	347	-45	-4	Oct-20	Oct-20	0	0	5	5	0	5	0	0	0
	Future Anti Surface Guided Weapon (Light)	Maritime Air to Ground Missile (Light)	311	303	-8	-4	Oct-20	Oct-20	0	0	5	5	0	5	0	0	0
	Sea Ceptor FLAADS (M) Type 23	Maritime Ground to Air Missile (Type 23)	850	856	5	6	Nov-16	Mar-18	16	8	10	10	0	10	0	0	0
	Sea Ceptor FLAADS (M) Type 26	Maritime Ground to Air Missile (Type 26)	130	128	-2	-2	Dec-19	Dec-19	0	0	0	0	0	0	0	0	0
	Spear Capability 3	Fighter Air to Ground Missile	473	473	0	0	ISD to be set at Main Gate				8	8	0	8	0	0	0
	SRAAM Sustainment (MG1)	Sustainment Programme of Air to Air Missile	415	386	-28	-28	Nov-18	Nov-18	0	0	8	8	0	8	0	0	0
	SRAAM Sustainment (MG2)	Sustainment Programme of Air to Air Missile	246	257	11	11	Aug-22	Aug-22	0	0	0	0	0	0	0	0	0
-	Core Production Capability	Core Manufacturing Facility	1,385	1,609	224	-9	Jun-26	Oct-25	-8	-8	2	1	1	2	0	0	0
-	Dreadnought	Ballistic Submarine	2,587	2,587	0	0	ISD to be set at Main Gate				KURs to be set at Main Gate						
-	Lightning II	Fighter / Attack Aircraft	8,915	8,017	-897	-210	Dec-18	Dec-18	0	0	7	6	1	7	0	0	0
-	Marshall	Air Traffic Control System	1,890	1,890	0	0	Feb-17	Jun-19	28	28	7	7	0	7	0	0	0
-	New Style of IT (Deployed)	Information Capability to the Frontline	166	166	0	0	Mar-18	Mar-18	0	0	9	7	0	7	2	0	0
-	P-8A Poseidon	Maritime Patrol Aircraft	2,392	2,392	0	0	Apr-20	Apr-20	0	0	9	9	0	9	0	0	0
-	Protector	Unmanned Aircraft	704	704	0	0	Jul-21	Jul-21	0	0	14	14	0	14	0	0	0
-	Queen Elizabeth Class Carriers	Aircraft Carrier	3,541	6,102	2,561	0	Jul-15	Feb-18	31	0	9	7	2	9	0	0	0
-	Sky Sabre	Ground Based Air Defence System	618	599	-19	4	Mar-20	Mar-20	0	0	9	9	0	9	0	0	0
-	Tide Class Tanker	Naval Logistics Support	596	550	-45	0	Oct-16	Dec-17	14	14	11	11	0	11	0	0	0
-	Type 26 Frigates	Global Combat Ship	1,822	1,822	0	0	ISD to be set at Main Gate				KURs to be set at Main Gate						
Typhoon	Meteor Integration	Integration of Beyond Range Visual Air to Air Missile	130	107	-23	5	Jun-18	Jun-18	0	0	10	7	3	10	0	3	0
	Storm Shadow Integration	Integration of Deep Strike Missile	172	114	-58	4	Aug-18	Aug-18	0	0	10	9	1	10	0	1	0
	Brimstone 2 Integration	Integration of Precision Attack Missile	186	207	22	-28	Dec-18	Dec-18	0	-3	10	7	3	10	0	3	0
-	Warrior Capability Sustainment Programme	Infantry Fighting Vehicle	1,319	1,488	170	136	Nov-18	Feb-22	39	19	9	9	0	9	0	0	0
			43,121	**45,735**	**2,613**	**358**	**-**	**-**	**196**	**57**	**198**	**183**	**13**	**196**	**2**	**7**	**0**
						358				**57**				**99%**			

Publication Notes:

Apache Capability Sustainment Programme. New to the PPST population for 2016/17.

Complex Weapons - Brimstone Capability Sustainment Programme. New to the PPST population for 2016/17.

Complex Weapons - BVRAAM on Lightning II. New to the PPST population for 2016/17.

Complex Weapons - Spear Capability 3. New to the PPST population for 2016/17.The In-Service Date will be approved when the decision to manufacture the munitions is taken at Main Gate.

Complex Weapons - SRAAM Sustainment Main Gate 2. New to the PPST population for 2016/17.

Core Production Capability. Revisions have been made to cost and time details in order to align with the approval and forecast details held in the DE&S corporate performance reporting system and departmental approvals.
In an update from PPST16, the expected cost to completion incudes an additional £13m of which £10m was spent and is reflected in the forecast cost. In previous years these figures were included under assessment phase costs, but although this activity was completed in advance of contract award these figures are now reported here to align project forecasts with the Main Gate approval. In aligning the time approval to our reporting system, the total time variation has changed from 61 months to -8 months. This incorporates the approval granted on 9 March 2015 for the Core H Refuel and Resilience - a decision taken by the Department to prioritise supplying new nuclear cores to in-service submarines and defer the redevelopment of the core production facility.

Dreadnought. New to the PPST population for 2016/17. The In-Service Date and Key User Requirements will be approved when the decision to manufacture the vessels is taken at Main Gate.

Lightning II. The procurement of a 2nd operational squadron, as well as the UK's annual contribution to the F-35 programme Composite Share Ratio, was made through an agreed uplift of £3,248m to the approved budget position. In an update from PPST16 there has been a minor adjustment to the forecast cost with the addition of £10.3m for a Deployable Mission Rehearsal Trainer. PPST16 included this figure in the expected cost (the approved cost of the project) though not in the forecast cost. Lightning II has approval for an additional £218M solely to mitigate future foreign exchange rate risk; this is over and above the expected cost to completion.

New Style of IT (Deployed). New to the PPST population for 2016/17.

P-8A Poseidon. New to the PPST population for 2016/17.

Protector. New to the PPST population for 2016/17.

Sky Sabre (formerly Ground Based Air Defence). The project has moved from under the Complex Weapons Portfolio following approval of Phase 2 and it is now a separate project delivered by the DE&S Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) Operating Centre.

Type 26 Global Combat Ship. A second investment in March 2016 extended the Demonstration Phase and committed to almost all the equipment for the first three ships. The In-Service Date and Key User Requirements will be approved when the decision to manufacture the vessels is taken at Main Gate.