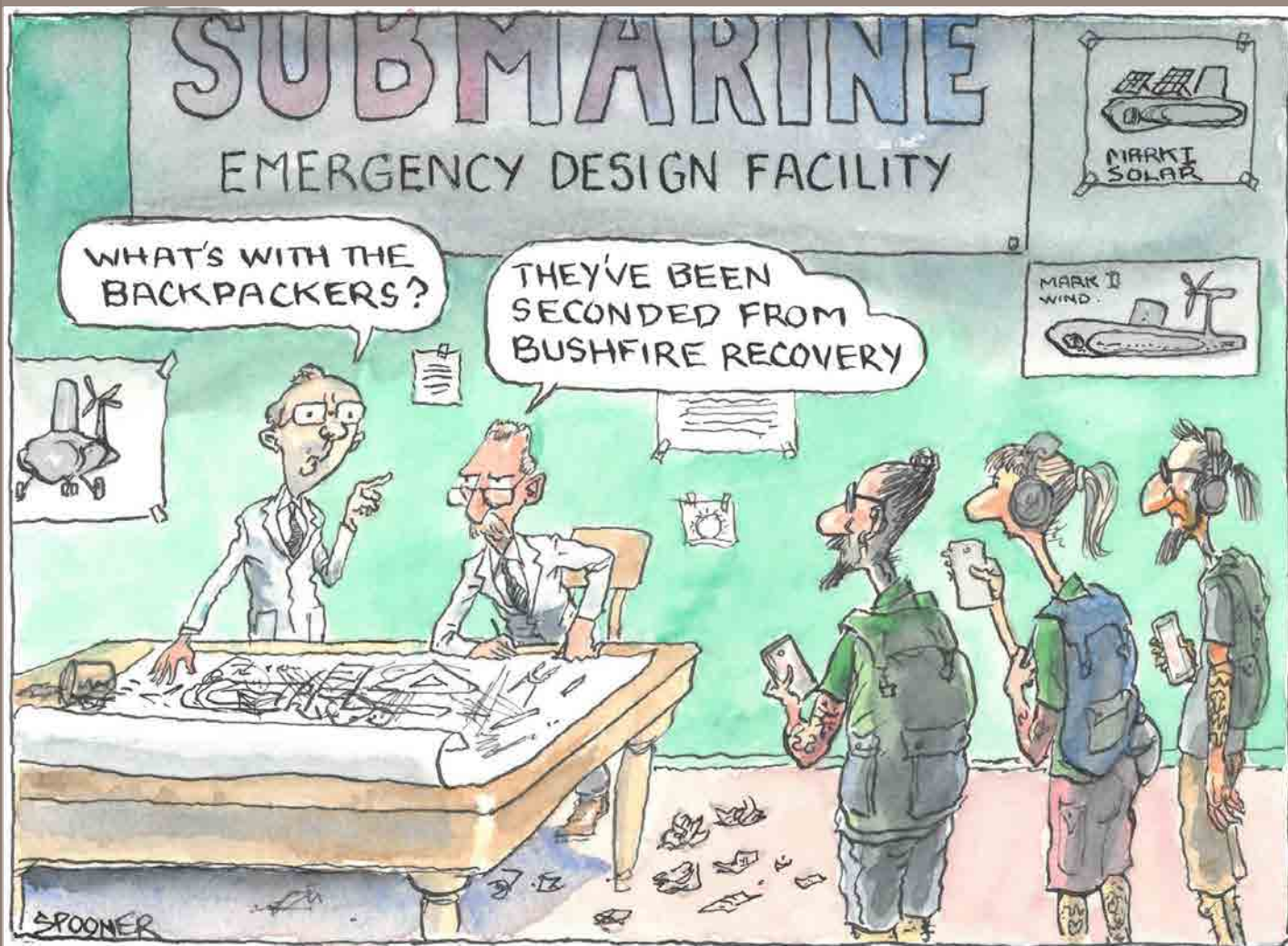


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The Cost of Defence 2020–2021

Part 2: ASPI 2020–2021 Defence Budget Brief



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One hundred & seventeen million,
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Prepared by:
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Defence Economics

Cover graphic by John Spooner.
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About ASPI

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Note on title: The figure of \$117,112,446.58 represents the daily average of the consolidated 2020–21 Defence budget (including the Australian Signals Directorate) of \$42,746,043,00.



This report is in
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Executive summary

The big defence news in the past year was in the 2020 Defence Strategic Update (DSU) released by the Australian Government on 1 July. Despite the economic impact of the Covid-19 pandemic, the DSU ended speculation about the defence budget and reaffirmed the government's commitment to the robust funding line presented in the *2016 Defence White Paper* (2016 DWP). It also extended that funding line for a further four years.

Part 1 of this year's *The cost of Defence* focused on the DSU. It noted that the defence budget is projected to grow past 2% of GDP, and at a faster rate than before the Covid-19 pandemic hit, potentially to around 2.4% of GDP. Measured from a starting point in 2019–20, the budget is planned to grow by a remarkable 87.4% over the coming decade.

Part 2 of *The cost of Defence*, this one, focuses on the 2020–21 defence budget, the release of which, along with the rest of the Budget, was delayed from May to October due to the pandemic.

The 2020–21 Budget delivers the funding promised by the government in the 2020 DSU and, indeed, before that in the 2016 DWP. Despite the pandemic, the defence budget grows by around 9% this year, to \$42.7 billion. At 2.19% of GDP (based on the Budget papers' prediction of GDP), that easily meets the government's commitment to spend 2% of GDP on defence by 2020–21. For those who might suggest that that occurred only because GDP fell, that funding would still have reached 2% in a hypothetical economy that hadn't been hit by a pandemic.

The budget is consistent with the DWP and DSU in funnelling much of the increased funding into Defence's capital budget. Over the longer term, capital acquisitions grow to 40% of the total budget; this year, they reach 34%. While that funding is necessary to deliver the new capabilities that the DSU assesses are needed to meet our strategic circumstances (such as long-range strike and area-denial capabilities), the growth rate presents risks for Defence. We noted in Part 1 that, when we combine the overall budget growth, capital's growing share of the total budget and the government's clear expectation that Australian industry will get a big share of that money, then it becomes apparent that the local equipment spend will need to grow from around \$2.6 billion last year to \$10 billion a year by the end of the decade.

The 2020–21 defence budget shows that the challenges for the capital program aren't off in the distance; they're very immediate. The total capital budget is projected to grow by over \$3 billion to \$14.3 billion this year, or by 27.4%. It's followed by growth of 17.7% and 11.7% in subsequent years. Considering that the capital program has averaged only around 5% annual growth since the 2016 DWP, achieving that surge will be difficult, particularly with global supply chains disrupted by the pandemic.

As the defence budget grows well beyond 2% of GDP, Defence will need to demonstrate to the government that it can spend it, both to deliver necessary military capability and to give local industry a stimulus. If Defence can't spend it, it risks losing it in an age of surging deficits and government debt.

Workforce spending increases moderately but continues its decline as a share of the total, down to 31% this year, and is projected to reach 26% by the second half of the decade. The DSU says that the government will

Defence funding 2020–21	
Consolidated defence funding (including Australian Signals Directorate), 2020–21	
Funding:	\$42.746 billion
Share of GDP:	2.19%
Real growth on prior year:	9.1%
Department of Defence funding	
Funding:	\$41.715 billion
Key cost categories, 2020–21¹	
Acquisition:	\$14.3 billion (34%)
Workforce:	\$13.4 billion (31%)
Operating (incl. sustainment):	\$14.9 billion (35%)

consider increases to workforce numbers next year (the funding for those people is already built into the DSU funding model). Substantial numbers could be needed to operate the future force being delivered by the hefty increases in acquisition spending, but getting there will take time. In the four years since the 2016 DWP, Defence has managed to grow its uniformed workforce by only 1,000. It's still well short of the DWP target, let alone any planned but as yet unannounced increases.

While successive governments have consciously reduced the numbers of Defence's civilian workforce, the amount of work needed to deliver and sustain the force has increased. Consequently, Defence's external workforce of consultants, contractors and outsourced service providers is now its second biggest 'service' at 28,632 people.

Moreover, because Capability Acquisition and Sustainment Group (CASG) has been hardest hit by the reductions (losing nearly 40% of its civilians), it has increasingly turned to industry to provide 'above the line' project management and professional services traditionally delivered in house. Analysis of AusTender suggests that Defence signed nearly 2,000 professional services contracts valued at over \$2 billion in 2019–20. The four major service providers that CASG is partnering with to provide above the line management services have also secured substantial contracts. With only moderate growth in public servant numbers forecast as the acquisition budget grows dramatically, it appears inevitable that Defence's reliance on its external workforce will continue to grow.

The sustainment budget stays relatively steady as a share of the total, but the systems that Defence is planning to acquire will come with very large sustainment costs. Some of those increases, such as for the future frigates and submarines, are still a long way off, but others are here right now. The F-35A / Super Hornet / Growler air combat force is costing many times more than the legacy fleet. Granted, we have only a few data points for the F-35A, but achieving an operating cost similar to those of legacy aircraft isn't looking feasible.

Despite the 2020 DSU's assessments of our strategic circumstances and its conclusion that we need new offensive capabilities to impose cost and risk on a potential major-power adversary, and that we won't have 10 years of warning time to acquire those capabilities, the 2020 Force Structure Plan that accompanied the DSU still had a business-as-usual look to it. That continues in the Portfolio Budget Statements (PBS).

Spending on the Naval Shipbuilding Plan continues to ramp up and is forecast to reach nearly \$2 billion this year, even though we're still two years from the start of construction of the future frigates and three years from the start for the submarines. That \$2 billion has a lot further to climb, but there's no sign that the sense of urgency in the DSU has flowed through to project schedules. We noted in Part 1 that, with the third air warfare destroyer now delivered, the Navy doesn't get another combat vessel to sea for 10 years under the Force Structure Plan. There's nothing in the PBS to suggest that that's changed. It's a remarkably slow return on the government's \$575 billion investment in Defence. Compared to the spending on acquiring manned platforms, the Navy's spending on autonomous and unmanned systems is virtually invisible in the PBS.

Land capabilities also seem to be following a business-as-usual approach. That approach is delivering a range of substantial capability enhancements in digital systems and protected vehicles. However, if the increase in the budget for the Army's future infantry fighting vehicles from \$10–15 billion to \$18.1–27.1 billion (or around \$50 million per vehicle)—while the threat posed by guided weapons delivered by drones, manned aircraft and ground forces proliferates rapidly—doesn't make Defence reconsider its plan, one wonders what will. It's time for the government to call for a timeout.

The business-as-usual approach can also be seen in Defence's management of underperforming helicopters. After stating for many years that it would make the Tiger armed reconnaissance helicopter work, and then telling parliament it was working, the Army appears to have lost patience with the aircraft due to its high cost and low rates of availability. That's understandable, but rushing to replace it with another manned helicopter is a high

risk in the light of the vulnerabilities inherent in helicopters. The sunk-cost fallacy has also kept Defence from replacing another chronic underperformer, the MRH-90. Incredibly, it's Defence's fourth most expensive capability to sustain. Between the two, Defence is spending \$460 million this year to sustain them.

So there's plenty of money coming into Defence, but there's also plenty of room for Defence to do business differently, to get better value for money, to deliver faster and to demonstrate to the government that it can deliver the military capabilities that align with the government's strategic assessments.

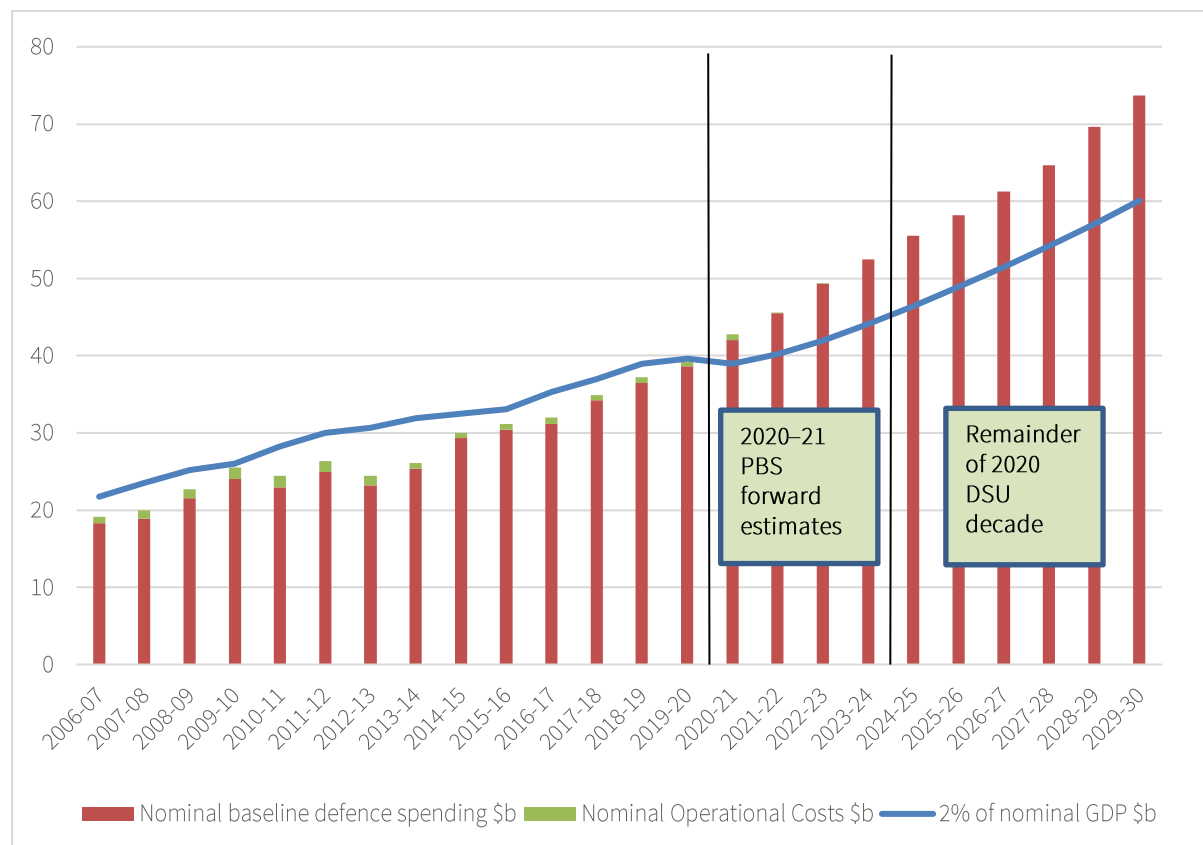
The 2019–20 Defence annual report was published just as this brief was being finalised. We didn't have time to update the brief's cost data with the annual report's actual achievement numbers for 2019–20, so we've used the 2020–21 PBS's estimated actuals for 2019–20. There are some small differences between the two sets of numbers, but they don't change the overall picture.

Defence in 10 tables

The tables presented here are discussed further in later chapters, so we won't provide detailed explanatory notes, but we have noted where the material illustrated in the tables is discussed in more detail in this brief.

Defence spending

Figure A.1: The Australian defence budget 2006–2007 to 2029–30 (nominal A\$ billion) (see Chapter 1)

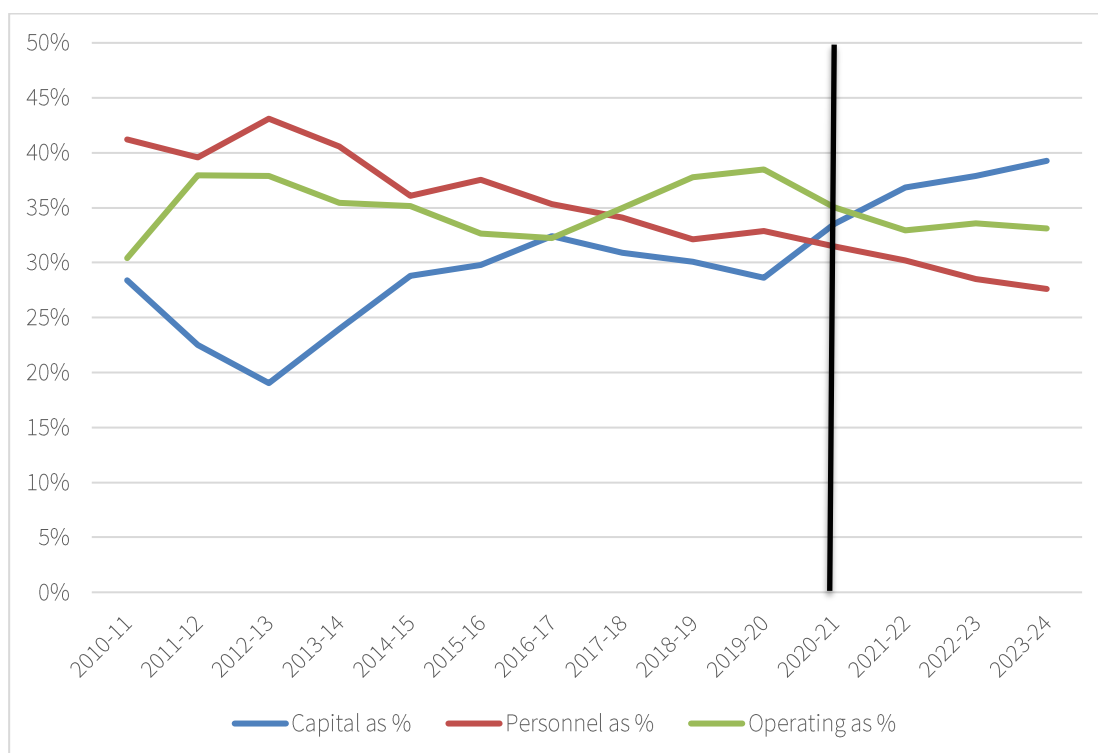


Sources:

Defence funding line: Historical defence spending is taken from ASPI's Cost of Defence database, derived from the PBS. Funding for the forward estimates is taken from the 2020–21 PBS. Funding from 2024–25 is taken from the 2020 Defence Strategic Update.

2% of GDP line: Historical data on GDP is taken from the Australian Bureau of Statistics. Estimates for GDP over the forward estimates are taken from 2020–21 Budget paper no. 1. We have generated estimates for GDP beyond the forward estimates by projecting 5.3% nominal GDP growth.

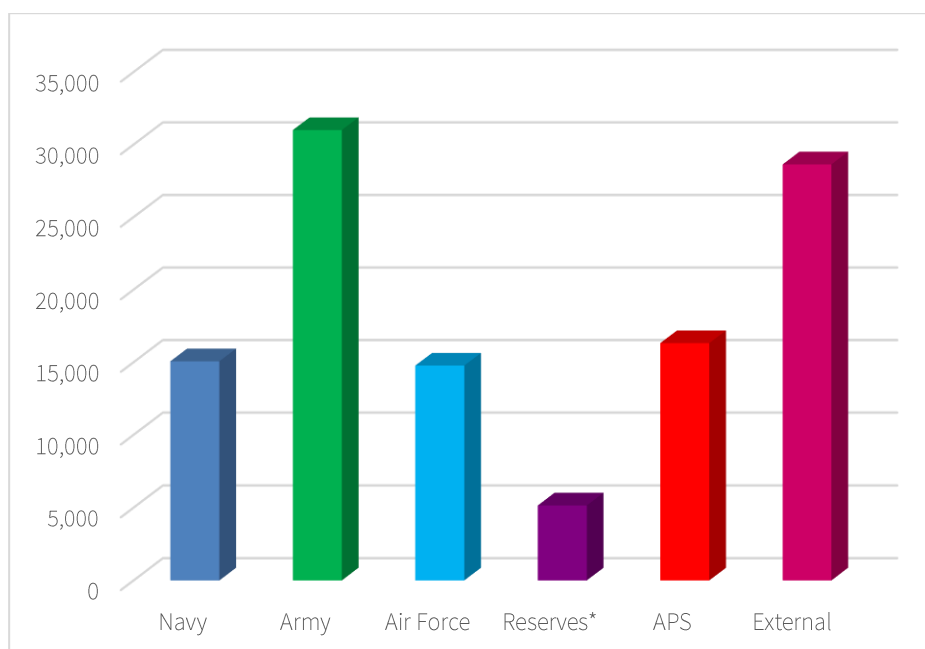
Figure A.2: The Big 3—the balance of the defence budget, 2010–11 to 2023–24 (%) (see chapters 1 and 2)



Source: PBS 2020–21 for 2019–20 onwards; previous ASPI budget briefs, derived from PBS, for earlier years.

Defence workforce

Figure A.3: 2020–21 Defence personnel, by full-time equivalent (see chapters 2 and 4)

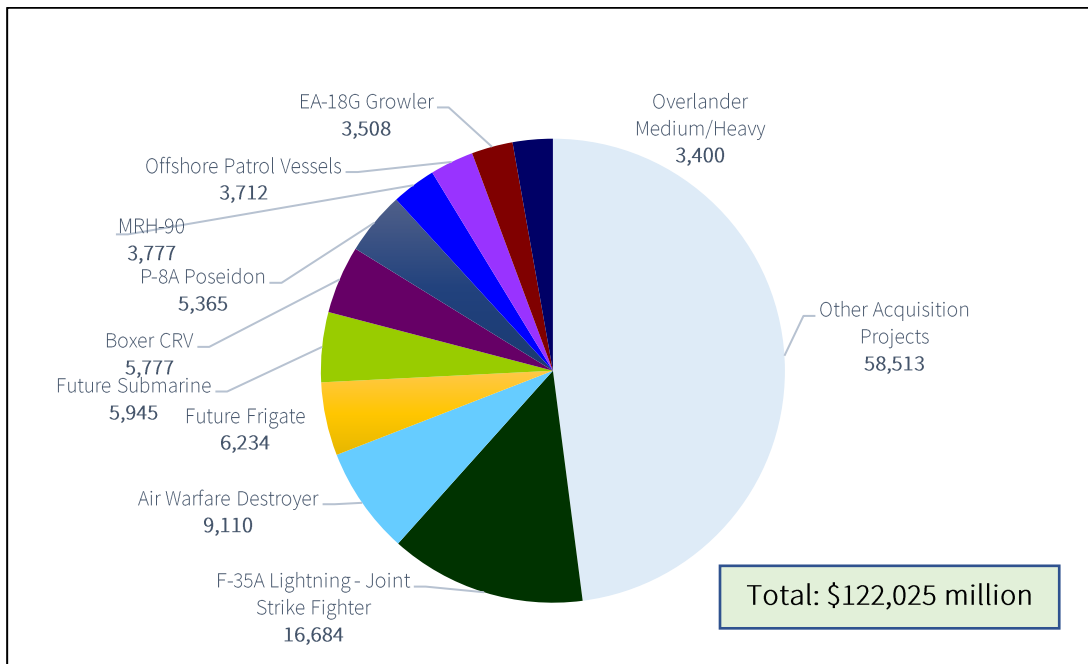


Source: ADF and APS numbers are from PBS 2020–21 allocation. External workforce from March 2020 Defence External Workforce Census, [online](#).

* Reserve FTE calculated by ASPI by dividing allocated workforce days by 220.

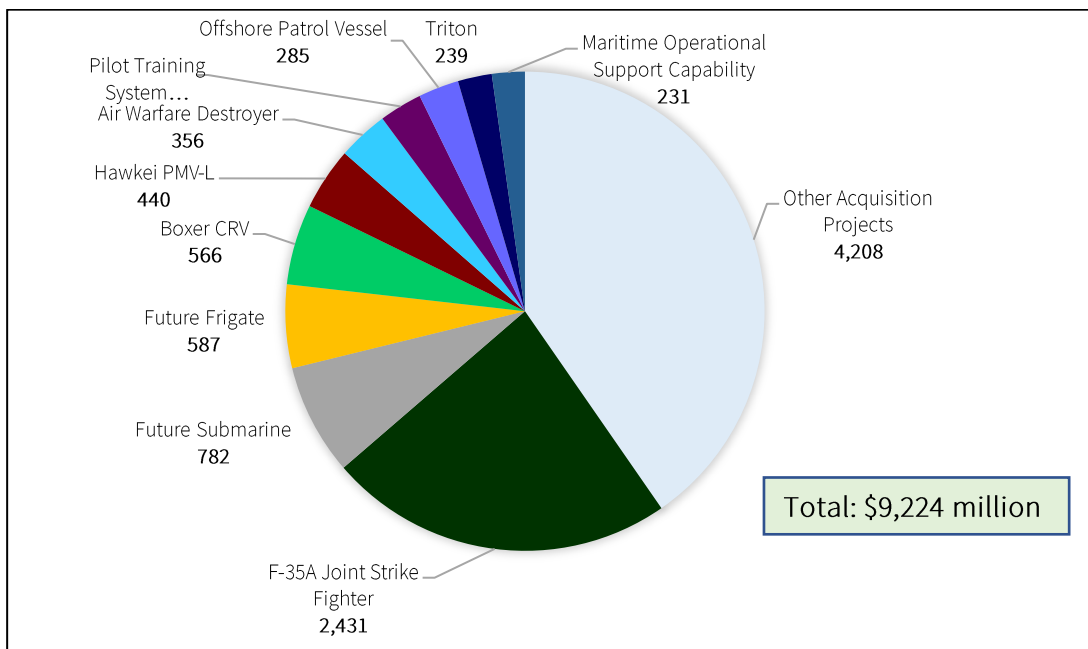
Defence capability

Figure A.4: Top 10 acquisition projects, 2020–21, by total approved project budget (A\$ million) (see Chapter 3)



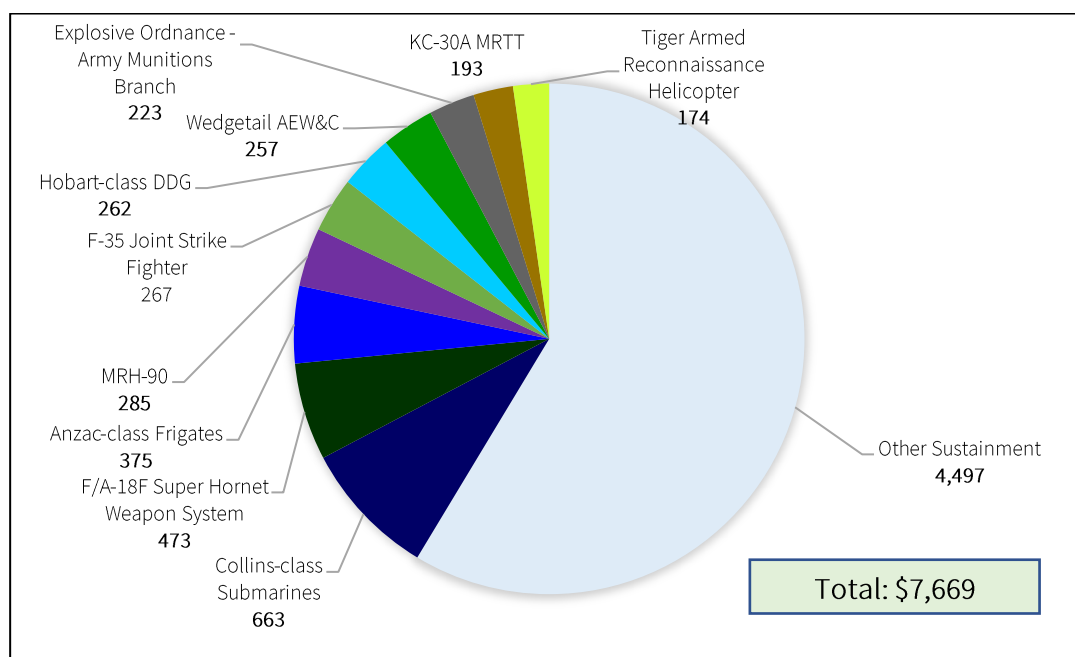
Source: PBS 2020–21, Table 55. Figures include only CASG spend.

Figure A.5: Top 10 acquisition projects, by forecast 2020–21 spend (A\$ million) (see Chapter 3)



Source: PBS 2020–21, Table 55. Figures include only CASG spend.

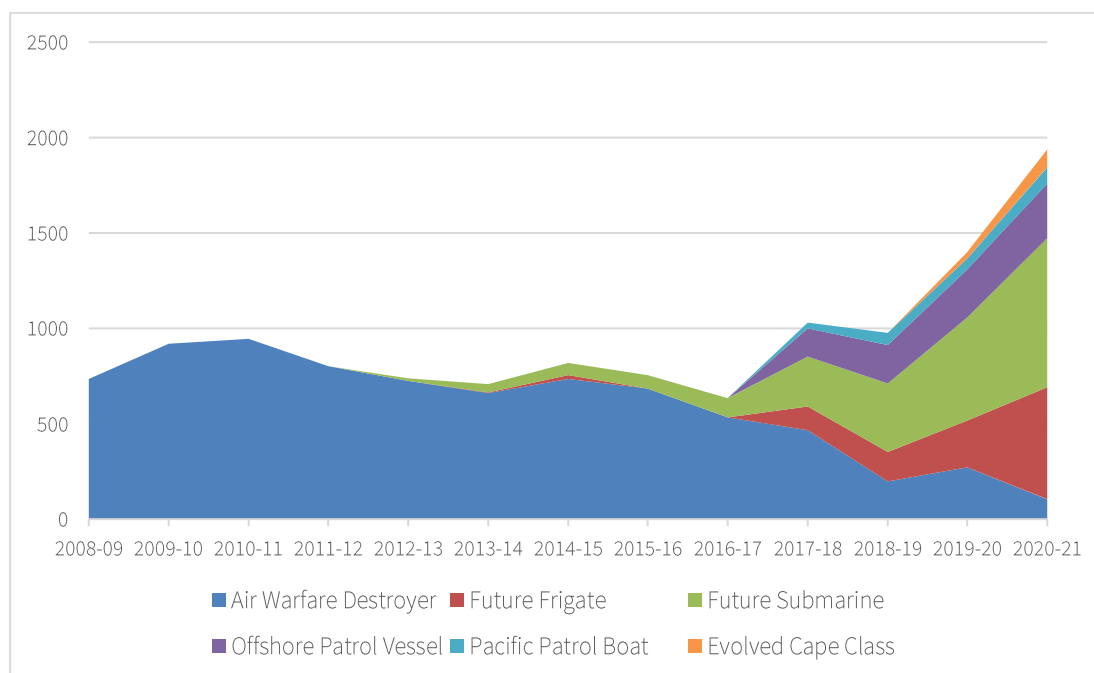
Figure A.6: Top 10 sustainment products, by budgeted 2020–21 spend (A\$ million) (see chapters 2 and 3)



Source: PBS 2020–21, Table 56.

The cost of shipbuilding

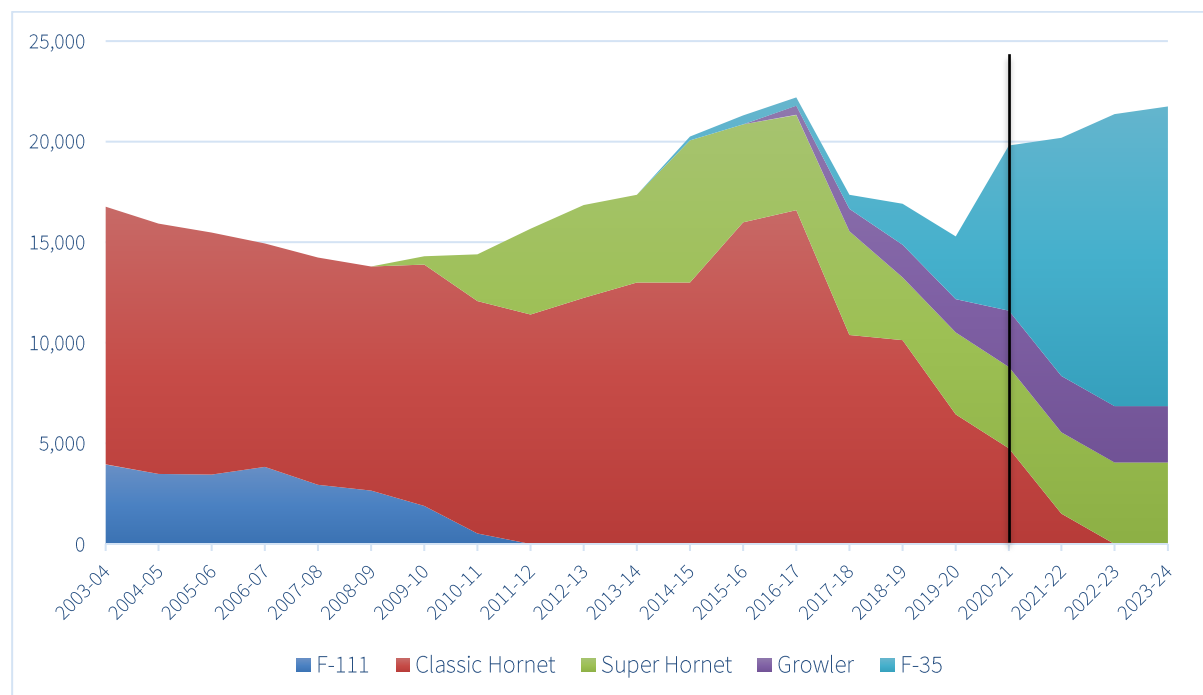
Figure A.7: Naval Shipbuilding Plan cash flow, 2008–09 to 2020–21 (\$ million)



Source: Defence annual reports, PBS.

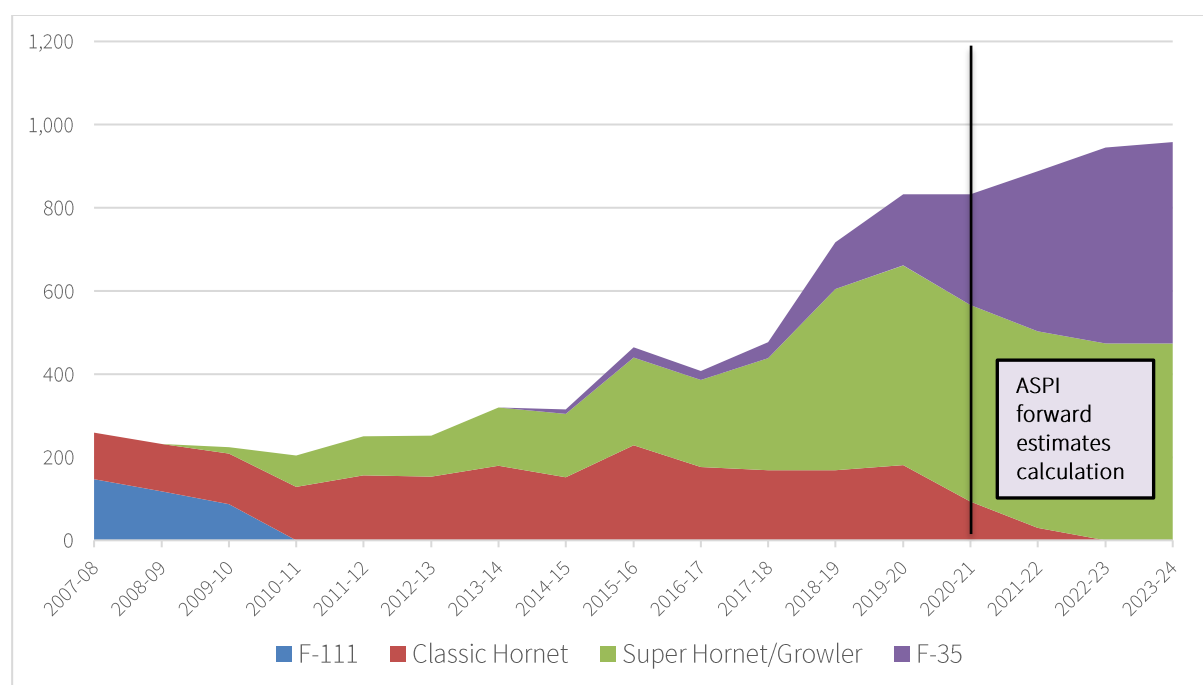
The air combat transition

Figure A.8: Flying hours for combat aircraft, 2003–04 to 2023–24 (see Chapter 3)



Source: Defence annual reports, PBS.

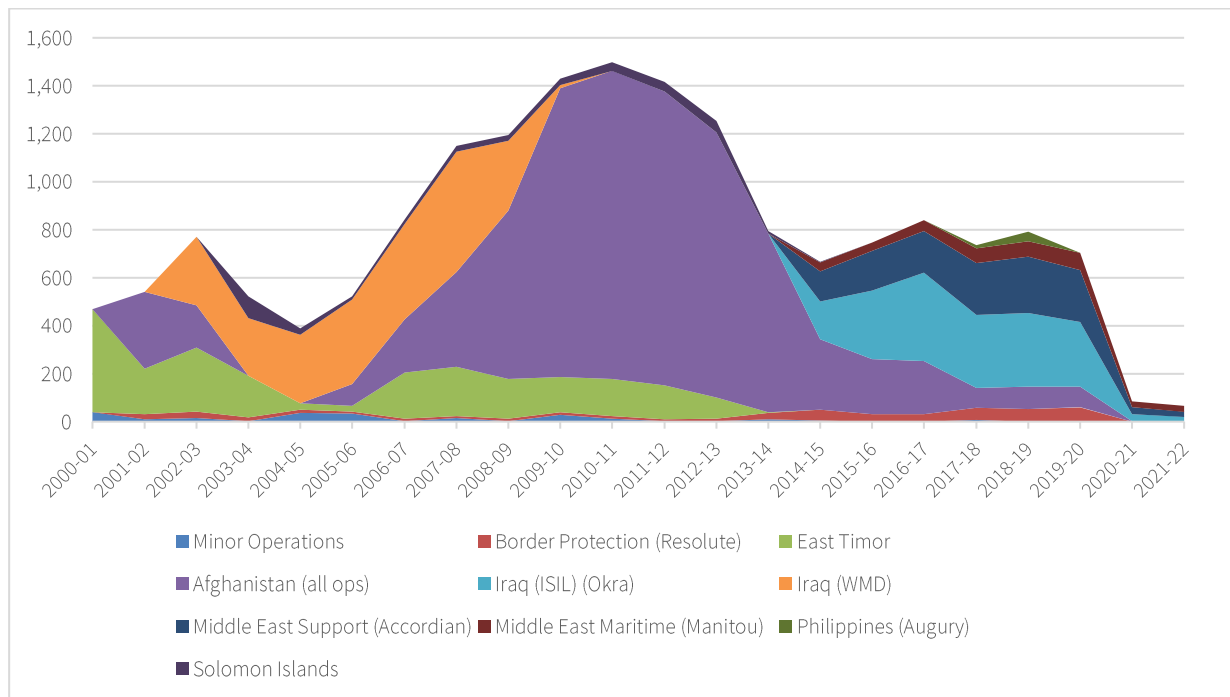
Figure A.9: Sustainment cost of combat aircraft, 2007–08 to 2023–24 (nominal A\$ million) (see Chapter 3)



Sources: PBS, PAES, Defence annual reports. The PBS presents a single, combined sustainment cost for both Super Hornet and Growler. The cost for the F-35A for the years before 2019–20 was generated by multiplying those years' flying hours by 2019–20's hourly cost. PBS sustainment cost projections do not extend beyond 2020–21, so ASPI generated costs for later years by multiplying the PBS's predicted flying hours for those years by 2020–21's predicted hourly flying cost—it's an assumption-rich environment.

Operations

Figure A.10: Operational supplementation, 2000–01 to the present; total spend \$17.3 billion (nominal A\$) (see chapters 1, 2 and 3)



Sources: Defence annual reports, PBS.

Chapter 1: How much money is it?

Key points

- This year's defence budget delivers the 2020–21 funding the government laid out in the 2016 DWP and 2020 DSU.
- The consolidated defence budget (that is, including the Australian Signals Directorate) is \$42,746 million, representing growth of 9.1% from the previous financial year.
- At 2.19% of GDP, it comfortably meets the government's commitment to grow the defence budget to 2% of GDP by 2020–21. This is the highest percentage since 1987–88.
- Based on the Budget papers, Defence funding will continue to grow, reaching 2.38% of GDP by the end of the forward estimates.

This chapter looks at how much money the government is providing Defence.² Since Defence's PBS are available online on Defence's website, we won't reproduce PBS tables here.³ When we're referring to a PBS table (as opposed to one in this brief), we flag that with the prefix 'PBS'. If we don't specify a year, the default assumption is 2020–21.

On 1 July 2018, the Australian Signals Directorate (ASD) became a statutory agency within the Defence portfolio. Its funding is now treated separately within the PBS. Because the government's White Paper funding line and its commitment to increase the defence budget to 2% of GDP included ASD, our analysis of total defence funding still includes ASD. We refer to this as 'consolidated' defence funding. The top-level consolidated funding line is presented in PBS Table 4a. Most of our detailed analysis, however, focuses specifically on the Department of Defence.

There have been several positive changes to the presentation of the PBS this year. They're discussed in more detail in Section 1.4.

1.1 This year's budget

How did the defence budget end up in 2019–20?

In the 2019–20 PBS, the estimated consolidated defence budget for that year was \$37,566 million, which was around 1.93% of GDP based on GDP predictions at the time.

That amount was increased to \$39,329 million in the mid-year budget update, the 2019–20 PAES. The primary driver of the increase was an additional \$488.7 million in foreign exchange supplementation to compensate for the decline in the value of the Australian dollar, along with \$87.9 million in funding for Operation Bushfire Assist. That brought the budget to around 1.96% of GDP.

That was before the Covid-19 pandemic. Once GDP started to fall, the possibility arose of the defence budget reaching 2% of GDP in 2019–20, a year early. Based on the 2020–21 PBS's figures for 2019–20, that didn't quite happen. Nevertheless, it did reach 1.98%—the highest percentage since 1994–95, when the defence budget was in a post–Cold War downwards trajectory. In contrast, the current defence budget is on a steep upwards trajectory.

What's the total Defence appropriation for 2020–21?

The consolidated Defence appropriation for 2020–21 is \$42,746 million (Table 1.1). The PBS now includes a table that shows the consolidated Department of Defence and ASD funding (PBS Table 4a).

Table 1.1: Consolidated defence budget, 2019–20 and 2020–21 (\$ million)

Year	Department of Defence	Australian Signals Directorate	Consolidated total
2019–20 estimated actual	38,305.2	879.7	39,184.9
2020–21 estimated	41,715.1	1,030.9	42,746.0

Source: PBS 2020–21.

Is this funding consistent with the 2020 Defence Strategic Update funding line?

Defence gets a little more this year than the \$42,151 million set out in the government's 2020 DSU, which was released at the start of July. That's because of the addition of \$643 million for operations that wasn't in the update's funding model, including \$80.7 million for the Covid-19 response.

Over the next few years, however, Defence gets a little less than was provided in the update's line. That's because of reductions in funding to compensate for the strengthening of the Australian dollar's buying power. These numbers can be substantial due to the amount of money that Defence spends overseas on acquisition and sustainment (about \$8 billion in 2019–20). For example, in the 2020–21 PBS, Defence loses \$862.2 million for 2022–23 due to exchange rate adjustments. Once we take those into account for 2020–21, the PBS numbers align very closely with the DSU; plus Defence is likely to receive additional supplementation for operations in those years.

How much has the defence budget increased since last year?

The funding for 2020–21 is an increase in nominal terms of \$3,561 million from 2019–20, or 9.1% (Table 1.2). It's virtually identical in real terms, due to the lack of inflation.

Table 1.2: Defence budget increases, 2017–18 to 2023–24 (\$ million)

	Nominal budget	Nominal increase	Real budget (2020–21 baseline)	Real increase	% of GDP
2017–18	34,926	9.1%	35,976	7.1%	1.89%
2018–19	37,239	6.6%	37,737	4.9%	1.91%
2019–20	39,185	5.2%	39,185	3.8%	1.98%
2020–21	42,746	9.1%	42,746	9.1%	2.19%
2021–22	45,610	6.7%	44,894	5.0%	2.27%
2022–23	49,406	8.3%	47,839	6.6%	2.35%
2023–24	52,467	6.2%	49,563	3.6%	2.38%

Source: PBS.

Actual achievement	Budget year estimate	Forward estimates
--------------------	----------------------	-------------------

How is the defence budget looking over the longer term?

A table showing changes in the defence budget since 2000–01 is in Appendix 1. Over the 20 years since then, the nominal defence budget has grown from \$12,319 million to \$42,746 million, or by 249%. In real terms, it's more a modest but still very healthy growth of 121%.

This is the eighth straight year of growth. That growth is set to continue.

The 2020 DSU confirmed the DWP 2016 funding model and extended it for a further four years out to the end of the decade in 2029–30. This was a major win for Defence, considering the twin impact of the Covid-19 pandemic on GDP and the government's stimulus spending on its budget bottom line.

As noted, this year the budget has grown by 9.1%. Over the next three years, the strong growth continues at 6.7%, 8.3% and 6.2% according to the PBS's numbers.

I discussed the longer term defence funding model in Chapter 2 of Part 1 of *The cost of Defence*, but its key features can be summarised as follows:

- \$575 billion total funding over the decade
- \$270 billion in capability investment, which includes acquisition and 'future sustainment'
- 88% nominal growth over the decade.

Determining the rate of real growth over the coming decade is very assumption dependent but, using the Budget paper's inflation estimates for the forward estimates followed by 2.5% annual inflation, we would see real growth of 53.2%. Such predictions are inherently unreliable due to the difficulty of predicting inflation. In comparison, over the previous decade, nominal growth has been 75.6% and real growth 47.8%.

The gap between 2% of GDP and the 2020 DSU's funding

The defence budget is likely to grow more rapidly than GDP. Before the pandemic hit, it was already looking like the defence budget would continue to grow past 2% of GDP in coming years. Now, with the impact of the Covid-19 crisis, that relative growth is going to accelerate.

We can model different economic recovery scenarios, but let's use the government's own figures. The 2020–21 Budget papers optimistically forecast a rapid economic recovery. Contraction is limited to –1.5% in 2020–21 and is followed by robust growth of 4.75% in 2021–22.⁴ Despite this, the defence budget forecast in the PBS and DSU grows to almost 2.4% of GDP by the end of the forward estimates. Consequently, the difference between that and a hypothetical defence budget based on 2% of GDP grows rapidly, reaching \$9 billion per year (Table 1.3).

It's important to remember that the 2016 DWP and 2020 DSU stressed that defence funding wasn't linked to GDP, and the PBS forecasts confirm that the government is adhering to the DWP/DSU funding line, not a particular percentage of GDP. Nevertheless, should the economic recovery stall, future governments may see a level of defence funding that is approaching 2.4% of GDP as a tempting source of funds for other priorities, whether they be other areas of spending, tax cuts or efforts to return to surplus.

Table 1.3: Difference between the DSU funding line and 2% of a 'quick recovery' GDP (\$ billion)

	2020–21	2021–22	2022–23	2023–24	2024–25	2025–26	Total
DSU funding line	42.7	45.6	49.4	52.5	55.6	58.2	304
DSU as % of GDP	2.19%	2.27%	2.35%	2.38%	2.39%	2.38%	
Defence budget based on 2% of GDP ⁵	39	40.2	42	44.1	46.4	48.9	260.6
Shortfall	3.7	5.4	7.4	8.4	9.2	9.3	43.4

Sources: 2020 DSU, 2020–21 Budget paper no.1.

1.2 Budget measures and adjustments

Budget measures and adjustments (that is, the funding changes to previous years' plans in this year's Budget) are listed in PBS Table 2. The Defence PBS doesn't explain what they are; for that, you need to go to Budget paper no. 2, which briefly explains all budget measures across government.⁶ Defence's are on page 72 and ones that were previously included in the July Economic and Fiscal Update are repeated on page 222, although some measures affecting Defence are listed under other portfolios that have the lead. Because most of Defence's long-term commitments are set out in white papers, it generally has relatively few major Budget measures in the PBS, other than foreign exchange adjustments and operations funding.

Major adjustments to Defence's appropriation

The main budget measures this year that affect Defence's appropriation are the additional \$643.2 million for operations (including \$80.7 million for Operation Covid-19 Assist) and the loss of \$46.4 million as a foreign exchange adjustment (\$45.2 million from the department and \$1.2 million from ASD). Capital acquisition funding is also moved from the department to ASD (\$30 million this year and a total of \$135 million over the forward estimates).

But there are also measures that don't affect Defence's appropriation because Defence has to meet the funding requirement out of its existing resources. That is, Defence has to do additional things with no new money. In the near term that probably won't be a problem since it's unlikely to be able to spend its entire capital budget, leaving it with spare cash (more on that below). The more significant measures are listed below.

July Economic and Fiscal Update measures

- **Cyber Enhanced Situational Awareness and Response (CESAR) package:** 'The Government will provide \$1.4 billion over 10 years from 2020–21 to the Australian Signals Directorate, Australian Cyber Security Centre and the Department of Defence to identify cyber threats, disrupt foreign cyber criminals and increase partnerships with industry and other governments.' This will be funded by 'redirecting funding within the Defence portfolio' (page 59).
- **Per- and Poly-Fluoroalkyl Substances—settlement of class action claims:** 'The Government will settle three Federal Court of Australia class actions in relation to per- and poly-fluoroalkyl substances (PFAS) contamination in the communities of Williamtown, New South Wales; Oakey, Queensland; and Katherine, Northern Territory.' The amounts are not for publication due to 'legal sensitivities' (page 223).

Budget 2020–21 measures

- **JobMaker Plan:** The PBS states that ‘the Government will direct \$1.0 billion over two years from 2020–21 to deliver projects that will support an estimated 4,000 jobs across Australia and strengthen Australian defence industry.’ Put another way, with so many projects unable to deliver due to Covid-19, the government is going to move money to activities that can spend it.
- **Pacific Step-Up:** ‘The Government will provide \$124.3 million over 10 years from 2020–21 for further infrastructure projects in the Southwest Pacific, including to construct a border and patrol boat outpost in Solomon Islands’ western provinces.’ This continues the pattern of making Defence fund the various elements of the Pacific Step-Up out of its existing resources.
- **Simplifying Australian Defence Force Disaster and Emergency Response:** ‘The Government will strengthen its response to natural disasters and other civil emergencies by streamlining the process for calling out Reservists, supporting the capacity of Australian Defence Force members and Defence personnel to assist with disaster and emergency responses ...’ No cost is given for this measure.
- **Equity injection for Australian Naval Infrastructure:** This a further equity injection for ANI to build the submarine shipyard at Osborne in Adelaide. No figures are provided (page 84). The cost of the surface shipyard, also funded through an equity injection to ANI, has previously been given as \$535 million. It’s been suggested that the cost of the submarine shipyard will be at least as much.
- **Critical Technology—establishing an enhanced capability:** ‘This includes establishing a Critical Technologies Policy Coordination Office within the Department of the Prime Minister and Cabinet, enhanced international engagement and an expanded role for the Department of Defence in assessing trends in emerging technology.’ No figures are given for Defence’s contribution (page 146).
- **Better outcomes for veterans:** ‘The Department of Defence and the Department of Veterans’ Affairs will also commence scoping work on how data sharing, predictive modelling, data analytics technology and reporting capabilities can be improved between the two departments to provide better outcomes for serving and former Australian Defence Force personnel.’ No figures are given for Defence’s contribution (page 167).
- **Cyber Security Strategy 2020:** The Budget includes Australia’s Cyber Security Strategy 2020, which builds on July’s CESAR package. Despite the government providing an net additional \$201.5 million over the forward estimates to a range of agencies, ASD actually loses \$32.5 million under this program (page 59). That said, ASD is doing well overall, going from \$879.7 million in 2019–20 to \$1,030.9 million in 2020–21, a very healthy 17.2% increase.
- **Operation Orenda tax exemption:** As an interesting example of how following the money can reveal much more than Defence’s public announcements, Budget paper no. 2 (page 189) notes that ‘The Government will provide a full income tax exemption for the pay and allowances of Australian Defence Force personnel deployed on Operation Orenda, which is our contribution to the United Nations Multidimensional Integrated Stabilisation Mission in Mali, with effect from 1 April 2020.’ There’s been no public announcement regarding a contribution to the UN mission in Mali, and Defence’s operations website doesn’t include it.

1.3 The Big 3

At this point, we’ll focus just on the Department of Defence’s budget.

The PBS now provides a breakdown of the top-level line into key cost categories: workforce, operations, Capability Acquisition Program, Capability Sustainment Program, and operating. Previously, Defence didn't provide that breakdown, so ASPI 'reverse engineered' one. The way Defence determines these numbers is somewhat different from how ASPI did, but we'll use Defence's numbers from now on since they're easily found in the PBS in Table 4b. There will, however, be a 'glitch' in our historical data between 2018–19 and 2019–20, the first year for which Defence provides numbers.⁷ We'll combine Defence's operations, Capability Sustainment Program and operating costs into one gripped up operating number to create our 'Big 3' of workforce, operating and capital.

Workforce

Defence's workforce spending in 2020–21 is budgeted at \$13,410.5 million.

Table 1.4 shows Defence's workforce costs and numbers since the 2016 DWP. Overall, Defence's workforce spending is not growing as fast as its overall budget. That means workforce spending will fall from around 33% of the total in 2019–20 to 28% by the end of the forward estimates. This is consistent with the 2020 DSU funding model, which predicts that workforce spending will fall to 26% of the total by the end of the decade.

Table 1.4: Defence workforce costs since the 2016 White Paper—annual increases

	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
Personnel costs (\$m)	11,393	11,979	11,922	12,878	13,411	13,767	14,108	14,481
Nominal increase %	–2.3%	5.1%	–0.5%	8.0%	4.1%	2.7%	2.5%	2.6%
Real increase %	–3.9%	3.1%	–2.1%	6.6%	4.1%	1.0%	0.8%	0.1%
Personnel	75,949	75,882	74,305	75,238	77,139	77,864	78,493	79,182
Personnel increase %	–0.2%	–0.1%	–2.1%	1.3%	2.5%	0.9%	0.8%	0.9%

Actual achievement	Budget year estimate	Forward estimates
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Sources: PBS for budget year and forward estimates, Defence annual report for actual achievement.

If we put aside the relatively big jump in funding from 2018–19 to 2019–20 in Table 1.4, which is essentially an artefact of switching from ASPI's previous method for determining personnel costs to the new one Defence now includes in the PBS, real personnel spending increases have broadly matched the increase in Defence's personnel numbers.⁸ Over the forward estimates, in particular, there's a very close match as personnel numbers grow by 5.2% and real spending grows by 6.2%.

Capability Acquisition Program

Defence's capital budget is essentially its Capability Acquisition Program, presented in PBS Table 5.⁹ The predicted spend for 2020–21 is \$14,281.2 million. The four programs in it in descending order of size are military equipment (previously known as 'major capital investment'); enterprise estate and infrastructure; ICT acquisition; and minors. A recent improvement to Defence's reporting is that, since the 2019–20 PAES, Defence now provides actuals data for the previous year, giving an accurate view of what Defence achieved.

Last year's achievement

The 2019–20 PBS prediction for that year was \$11,768.4 million. In the 2019–20 PAES, Defence got \$488.7 million in compensation for the falling Australian dollar, most of which would have gone into the capital program. If we take the original target and add in a big chunk of the foreign exchange compensation, Defence should have spent over \$12 billion in 2019–20, but the PBS 2020–21's estimated actual for 2019–20 is only \$11,212.1 million. This would suggest that Defence underachieved against its capital spending target by over \$800 million.

Put another way, the 2019–20 PBS predicted a nominal increase in acquisition spending of 9.1% for that year. Defence achieved only 2.4%.

As always, it's difficult to assess how much of that's due to competing demand for funds elsewhere in the portfolio (such as growing sustainment costs) and how much is due to projects not being able to spend their budgeted funds. Certainly, Covid-19 has played some role, but big developmental programs always ramp up slower than planned.

Eating elephants

In Part 1 of this year's *The cost of Defence*, I noted that Defence's capital budget grows dramatically over the decade. Absorbing that spending is going to present industry, in particular Australian industry, with a major challenge. Local acquisition spending on military equipment will grow from around \$2.6 billion last year to over \$10 billion if the government achieves its goal of boosting local industry's share of acquisition spending.

That's not a challenge sitting off towards the back end of the decade. That challenge starts right now. Defence's acquisition spending has only grown by about 5% per year since the White Paper, and in real terms it's closer to 3%. As noted above, Defence achieved a 2.4% nominal increase in 2019–20. However, this year's increase is a massive 27.4% (highlighted entry in Table 1.5). That's over \$3 billion more than last year. Those increases then continue over the forward estimates at 17.7%, 11.7% and 9.8%. It's hard to see how Defence's acquisition projects will move those funds. Certainly, some projects will be moving from design into production, but it will take a lot to spend an additional \$3 billion this year.

Table 1.5: Defence capital program, annual increases since the 2016 DWP

	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
Capital program (nominal \$m)	10,365	10,790	10,945	11,212	14,285	16,808	18,766	20,598
Nominal increase (\$m)	1,084	425	155	267	3,072	2,523	1,958	1,833
Nominal increase %	11.7%	4.1%	1.4%	2.4%	27.4%	17.7%	11.6%	9.8%
Capital program (real \$m)	10,880	11,115	11,066	11,212	14,281	16,543	18,170	19,458
Real increase (\$m)	969	235	-49	146	3,069	2,262	1,627	1,288
Real increase %	9.8%	2.2%	-0.4%	1.3%	27.4%	15.8%	9.8%	7.1%

Actual achievement	Budget year estimate	Forward estimates
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Sources: PBS.

Achievement since the 2016 DWP

In previous editions of *The Cost of Defence* we have tracked how Defence's capital spending has performed against its 2016 DWP forecast. Now that we have actual spending information for 2019–20, we can close this out. The 2016–17 budget that immediately followed the 2016 DWP predicted \$46,416 million in capital spending over its forward estimates period out to 2019–20 (see Table 1.6¹⁰). Defence actually achieved a \$41,041 million capital spend, or a \$5,375 million shortfall against the DWP forecast. Some of that is likely due to exchange rate variations, but we've listed the department's total exchange variations below and at just over \$1 billion they don't come close to covering the shortfall.

Table 1.6: Defence acquisition spending—2016 DWP prediction versus actual achievement (\$ million)

	2016–17	2017–18	2018–19	2019–20	Total
2016 DWP forecast	9,909	10,702	12,293	13,512	46,416
Actual achievement	9,152	9,733	10,944	11,212	41,041
Shortfall against DWP target	–757.1	–968.9	–1,348.9	–2,300.0	–5,375
Total foreign exchange variations	–547.7	–724.3	–201.3	387.4	–1,086

Source: PBS, PAES.

As discussed earlier, it's difficult to say why Defence underachieved. But it is a further data point that suggests its prediction of achieving a 27.4% increase in acquisition spending this year is overambitious.

Operating costs and the Capability Sustainment Program

As discussed above, the PBS now includes a breakdown of expenditure by key cost categories, including operations, capability sustainment and operating. The combined estimate for all three in 2020–21 is \$14,921 million, which is a 1% decrease from 2019–20's \$15,068 million.

The biggest of the three elements by a long way is the Capability Sustainment Program, which is presented in PBS Table 6. Sustainment covers the cost of operating, maintaining and repairing Defence's capabilities. It doesn't include the cost of Defence personnel doing those activities. While the Capital Investment Program is not broken down by service or group, the Capability Sustainment Program is.

The 2019–20 PBS predicted a sustainment spend of \$12,091.3 million; Defence achieved \$12,095.9 million, which is spot on.¹¹ This year, the estimate is for \$12,580.0 million, an increase of 4% (Table 1.7) on last year's achievement. That's broadly consistent with recent years' growth (except for 2017–18, when the dramatic increase seems to have been a result of changes in the department's accounting procedures).

Table 1.7: Sustainment spending, 2016–17 to 2023–24

	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
Sustainment Program (\$m)	8,276	11,060	11,579	12,096	12,580	13,217	14,876	15,638
Annual nominal increase	3.1%	33.6%	4.7%	4.5%	4.1%	5.0%	12.5%	5.1%

Actual achievement	Budget year estimate	Forward estimates
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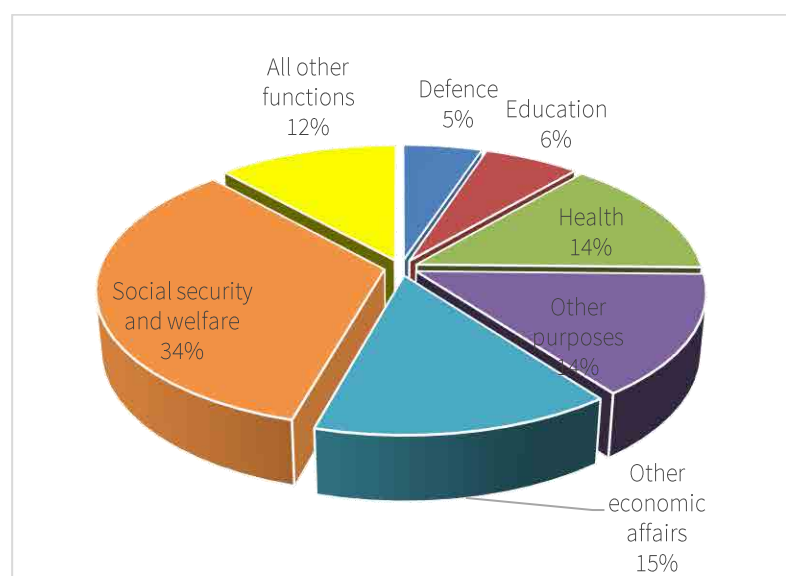
Sources: PBS.

Note: Defence didn't publish actual expenditure for the years before 2018–19, only an updated estimate in the PAES, so numbers up to 2017–18 are most likely only approximate.

1.4 Defence a percentage of commonwealth spending

While the defence budget is growing as a percentage of GDP, it's fallen as a percentage of Australian Government expenses (Figure 1.1). That's because government spending has risen sharply in response to the economic impact of Covid-19. In 2018–19, Defence spending was nearly 6.4% of government expenses and the 2019-20 budget estimate for the year was nearly 6.5%; it ended up at 5.1%.

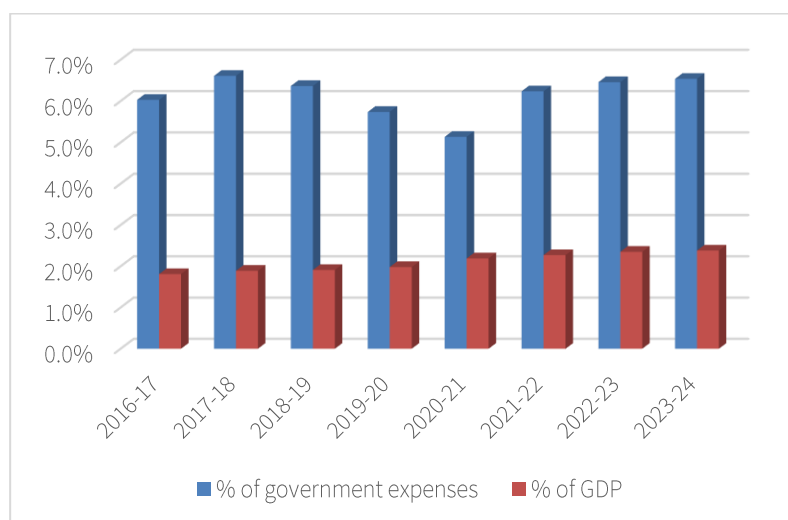
Figure 1.1: Australian Government expenses, by function, 2020–21



Source: Budget paper no. 1.

According to the Budget papers, as the government's stimulus and welfare spending levels off as the economy recovers, Defence will grow again as a percentage of expenses, reaching 6.5% by the end of the forward estimates, but that's still less than where it was in 2017–18 at 6.6% (Figure 1.2). So, while the defence budget is showing strong growth, it's not taking over the Australian Government budget.

Figure 1.2: Defence spending as a percentage of government expenses and GDP, 2016–17 to 2023–24



Sources: Budget papers, PBS.

Defence has only two ‘programs’ in the Australian Government’s top 20 programs: the Army at 19 and the Air Force at 20.¹² We’ll discuss funding by program in the next chapter.

1.5 The non-mandatory section for budget nerds

There have been several changes to the way the Defence PBS is presented this year. Overall, they’re positive and promote transparency and the ‘clear read’ principle.

Adoption of a ‘net cash’ presentation

The presentation of the Defence PBS has changed this year to a ‘net cash’ approach to bring it into line with other agencies. This is intended to provide a more transparent distinction between funding for ongoing activities and investment in future capabilities. In our view, this is a good thing and an improvement in transparency.

Overall, the resourcing Defence receives from the government remains unchanged, but its presentation is different. The old model was an accrual-based model. That may have been well suited to commercial entities but wasn’t as well suited to government agencies. In lay terms, the old model went like this: Defence received two appropriations. The first (and larger) one covered the delivery of departmental outcomes (the aggregated cost of Defence’s programs, such as its groups and services). This included funding to address the cost of depreciation of assets, but it didn’t directly cover the cost of acquiring new capital assets. Since the cost of acquiring new assets was more than the funding received to cover depreciation of existing assets (new stuff always costs more than the stuff it’s replacing), Defence received a second appropriation to cover the gap, called the ‘equity injection’.

There were two problems with this. The first is that you couldn’t tell from the appropriations what the total cost of Defence’s capital budget was. Defence partially remedied that by including a table showing the cost of its Capital Investment Program, but this was a very different number from the equity injection. The second was that you couldn’t see from each program’s cost summary what its acquisition budget was; there was only a notional depreciation cost, not the cost of new investment.

In the new presentation, Defence’s appropriation is split into three lines:

- appropriation for departmental outcomes (Table 1, serial 1), covering recurrent employee and supplier expenses
- departmental capital budget (Table 1, serial 2), covering minor capital purchases of inventory¹³
- equity injection, covering Defence's Integrated Investment Program of major capital, facilities and ICT projects.¹⁴

A comparison of the old and new approaches over the forward estimates is provided in PBS Table 1b. An excerpt for 2020–21 is reproduced in Table 1.8.

Table 1.8: Defence resourcing, 2020–21—comparison of old and new methods (\$ million)

Defence resourcing	Old accrual method	New 'net cash' method
Revenue from government	35,561.5	27,325.2
Departmental capital budget	–	2,718.9
Equity injection appropriation	6,153.7	11,671.0
Current year's appropriation	41,715.1	41,715.1

Source: PBS.

The capital component of the budget is clear, which addresses the first problem noted above. This method also addresses the second problem, as each program cost summary now has lines analogous with the capital budget and equity injection lines in the total Defence resourcing table. This allows us to compare the capital investment budgets managed by each capital manager, which we do in Chapter 2.

One side effect of the new approach is that, since Defence will no longer receive notional revenue to cover depreciation, it will incur a notional operating loss (around \$8,236.3 million in 2020–21, according to PBS Table 43). This is merely an accounting treatment.

Defence funding by key cost categories

Organisations generally divide their budgets into three key categories: people, operating expenses and acquisition/investment. Defence occasionally used that presentation in high-level documents such as the 2016 DWP, but it didn't do it in the PBS. There was no obvious single line that provided the total cost of Defence's people or its operating expenses. ASPI filled that gap by providing a breakdown in *The cost of Defence*.

In the 2020 DSU, Defence did provide a breakdown into workforce, acquisition and sustainment, with two smaller categories of operations and operating expenses. Consistent with the DSU, the PBS now includes a table showing those categories over the forward estimates (PBS Table 4b). This is another good thing.

The way Defence develops these categories is a little different from how ASPI has done it. Since Defence's presentation is clear and easy to find in the PBS, ASPI will use Defence's breakdown, but we'll combine sustainment, operations and operating expenses into one line. This will produce a slightly different result from our previous method, which we've used to generate our historical tables, but the difference in future will be minimal. And, while there will be some change to the absolute numbers, there's virtually no impact on relative percentages of the Big 3.

Consolidated portfolio view

The 2016 DWP and 2020 DSU funding model includes both the Department of Defence and ASD. The government's commitment to restore the defence budget to 2% of GDP by 2020–21 was also based on the department and ASD's combined funding. However, after ASD became a statutory agency, its funding was treated separately in the PBS and there was no consolidated view that could be compared to the DWP funding line or to the Minister for Defence's Budget night announcement of total defence funding.

This gap has been addressed in the PBS 2020–21 which includes a table showing the consolidated Department of Defence and ASD funding (PBS table 4a). This is also a good thing.

Chapter 2: Where does the money go?

Key points

In 2020–21, Defence plans to spend:¹⁵

- \$13,411 million to employ its allocation of 60,826 full-time uniformed and 16,313 public service personnel
- \$14,281 million on capital acquisitions, including \$10,742 million on military equipment
- \$14,928 to operate, including \$12,580 million on the sustainment of its equipment and facilities and \$741.4 million to conduct operations.

This chapter looks at what the average Australian taxpayer gets for their \$1,662.65 per year.¹⁶ That works out at \$4.56 per day. You can argue that this is very good value for an insurance policy that has largely bought Australians security and peace of mind, but it's important to ensure that those funds are spent well, and the first step to assess that is to understand what the money's spent on.

The discussion here is based on the Department of Defence's appropriation of \$41,715 million for 2020–21 and doesn't include ASD. Again, we assume readers have access to the PBS [online](#), so we avoid duplicating its tables as much as possible.

2.1 How is the money divided up among groups and services?

Spending, by program

There are a number of ways to look at how the money is divided up. The first is among Defence's programs. In public service jargon, Defence's groups and services are programs.

Section 2 of the PBS (page 28) presents the outcomes and programs that the government expects from Defence in return for the money. There are two outcomes. Outcome 1 is the conduct of operations, while Outcome 2 is ensuring that Defence has the ability to conduct them. Outcome 1 comprises three programs, which essentially cover operations in different parts of the world; Program 1.3, for example, covers national support tasks within Australia.

Outcome 2 comprises 17 programs, which are organisations. We won't look at programs 14–17, as they're 'administered' programs that deal with such things as military superannuation and housing assistance and therefore aren't directly related to military capability. They also aren't part of the \$41,715 million. Each program has a very high-level statement of objectives, a statement of how the objectives will be achieved, performance criteria and targets. Funding by outcome and program is shown in Table 2.1, which shows both the changes between 2019–20 and 2020–21 and each program as a percentage of the total.

Table 2.1: Funding, by departmental outcomes and programs, 2019–20 and 2020–21

Outcome/program	2019–20 estimated actual (\$'000)	2020–21 PBS estimate (\$'000)	% change since 2019–20	% of total 2020–21
Outcome 1				
Program 1.1: Operations Contributing to the Safety of the Immediate Neighbourhood	8,452	375	–95.6%	0.0%
Program 1.2: Operations Supporting Wider Interests	600,084	600,626	0.1%	1.4%
Program 1.3: Defence Contribution to National Support Tasks in Australia	213,170	140,392	–34.1%	0.3%
Outcome 1: Total department outputs	821,706	741,393	–9.8%	1.8%
Outcome 2				
Program 2.1: Strategic Policy and Intelligence	930,569	1,131,327	21.6%	2.7%
Program 2.2: Defence Executive Support	462,017	466,203	0.9%	1.1%
Program 2.3: Defence Finance	285,883	148,281	–48.1%	0.4%
Program 2.4: Joint Capabilities Group	1,487,940	2,015,263	35.4%	4.8%
Program 2.5: Navy Capabilities	7,535,573	9,055,608	20.2%	21.5%
Program 2.6: Army Capabilities	8,831,320	9,832,861	11.3%	23.3%
Program 2.7: Air Force Capabilities	9,245,862	9,575,091	3.6%	22.7%
Program 2.8: Australian Defence Force Headquarters	191,187	260,290	36.1%	0.6%
Program 2.9: Capability Acquisition and Sustainment	679,871	735,620	8.2%	1.7%
Program 2.10: Estate and Infrastructure	5,692,590	5,561,173	–2.3%	13.2%
Program 2.11: Chief Information Officer	1,866,191	1,589,736	–14.8%	3.8%
Program 2.12: Defence People	516,103	558,576	8.2%	1.3%
Program 2.13: Defence Science and Technology	538,119	520,797	–3.2%	1.2%
Outcome 2: Total department outputs	38,263,225	41,450,826	8.3%	98.2%
Total department outputs	39,084,931	42,192,219^a	8.0%	100.0%

a There are also a number of costs that are managed centrally in Defence and aren't ascribed to any individual program. This accounts for the discrepancy between the total cost of the programs (\$42,192.2 million) and the total Defence funding line in PBS Table 1a, serial 15 (\$42,612.4 million).

Source: PBS.

This shows that the cost of operations is only a small part of Defence's budget, as the three programs in Outcome 1 make up less than 2% of the total.

The three services are the biggest programs. All three are very close, despite the Army having around the same number of people as the Air Force and the Navy combined. The next biggest is Estate and Infrastructure Group at 13.2%. One might think that Capability Acquisition and Sustainment Group's budget would be one of the biggest, since it manages enormous acquisition and sustainment programs, but it's listed at only 1.7%. That's because the group's spending is treated differently from Estate and Infrastructure Group's. While both deliver projects and services on behalf of Defence's other groups, the cost of acquiring and sustaining military equipment is ascribed to the capability managers (such as the service chiefs and the Chief of Joint Capabilities), whereas the cost of building and maintaining facilities and providing garrison services is ascribed to Estate and Infrastructure Group.

The new net cost presentation allows us to distinguish programs' capital expenditure from operating expenses such as personnel and suppliers.¹⁷ We've listed the programs' capital budgets in Table 2.2.¹⁸

Table 2.2: Capital budgets, by program, 2020–21 (\$'000)

Outcome/program	Major capital	Inventory	Total capital	% of total
Outcome 1				
Program 1.1: Operations Contributing to the Safety of the Immediate Neighbourhood	0	0	0	0.0%
Program 1.2: Operations Supporting Wider Interests	41,558	95,513	137,070	1.0%
Program 1.3: Defence Contribution to National Support Tasks in Australia	380	8,787	9,167	0.1%
Outcome 1: Total department outputs	41,938	104,300	146,237	1.0%
Outcome 2				
Program 2.1: Strategic Policy and Intelligence	306,305	19,365	325,671	2.3%
Program 2.2: Defence Executive Support	114,464	0	114,464	0.8%
Program 2.3: Defence Finance	0	0	0	0.0%
Program 2.4: Joint Capabilities Group	364,959	50,615	415,574	2.9%
Program 2.5: Navy Capabilities	3,320,362	490,979	3,811,341	26.5%
Program 2.6: Army Capabilities	2,835,814	629,104	3,464,918	24.1%
Program 2.7: Air Force Capabilities	3,584,642	512,175	4,096,817	28.5%
Program 2.8: Australian Defence Force Headquarters	75,147	0	75,147	0.5%
Program 2.9: Capability Acquisition and Sustainment	0	0	0	0.0%
Program 2.10: Estate and Infrastructure	1,521,239	0	1,521,239	10.6%
Program 2.11: Chief Information Officer	402,360	0	402,360	2.8%
Program 2.12: Defence People	1,145	0	1,145	0.0%
Program 2.13: Defence Science and Technology	15,044	0	15,044	0.1%
Outcome 2: Total department outputs	12,541,481	1,702,238	14,243,720	99.0%
Total department outputs	12,583,419	1,806,538	14,389,957	100.0%

Source: PBS.

The services are again fairly close, with the Air Force at the top. As with total program funding, while Capability Acquisition and Sustainment Group manages huge acquisition programs, the cost of those programs is ascribed to the capability managers, so its own capital budget is zero.

Outcome 1

Outcome 1 is 'Defend Australia and its national interests through the conduct of operations and provision of support for the Australian community and civilian authorities in accordance with Government direction.' The three programs that make up Outcome 1 are:

- Program 1.1: Operations Contributing to the Safety of the Immediate Neighbourhood.
- Program 1.2: Operations Supporting Wider Interests
- Program 1.3: Defence Contribution to National Support Tasks in Australia.

Funding for Outcome 1 is \$741.4 million (PBS Table 11). Overall, conducting operations is only a very small part of Defence's budget—about 1.7%. The resources for Outcome 1 don't exactly match the cost of operations in PBS Table 3 (\$727.8 million) because not all operations are listed in PBS Table 3, only the ones that Defence receives no-win, no-loss supplementation funding for. Defence has to pay for the smaller ones out of its own pocket. Since they're only \$13.6 million, it can probably manage.

Operational supplementation

This is a good place to discuss funding for operations (Figure A.7 in 'Defence in 10 tables' shows spending on operations over the past two decades). Defence receives supplementation on a no-win, no-loss basis for operations. This means extra money to cover operating costs and the rapid acquisition of any equipment specific to an operation. If Defence was going to buy the equipment anyway (that is, the equipment is already included in its investment program), then it generally doesn't receive supplementation for the purchase.

The PBS lists 20 operations on page 30 with a high-level description but without costs or numbers of deployed personnel. Some information on personnel numbers can be found on Defence's [website](#). [The 2019–20 annual report](#) also provides a list of operations and numbers of personnel deployed under its reporting against Program 1.2 (pages 28–30 and Programs 1.1 and 1.3 (pages 31–32)).

Defence has reduced the number of people deployed on some of its larger operations due to Covid-19. Also, no ship is currently deployed to the Middle East, which accounts for the reduction in personnel on Operation Manitou from 240 to 20. Since the estimated funding for those operations for this year hasn't changed substantially, one assumes that the Navy is planning on going back soon.

Defence also received \$87.9 million in supplementation for Operation Bushfire Assist in 2019–20. It also receives \$80.7 million in 2020–21 as supplementation for Operation Covid-19 Assist. That latter number will likely change depending on how long Defence's assistance is needed.

Table 2.3: Current Defence operations, October 2020 (not all minor operations listed)

Operation	Location	Nature of contribution	Personnel in May 2019	Personnel in October 2020	2019–20 (\$m)	2020–21 (\$m)
Accordion	Middle East region	Sustainment of other ADF operations in the Middle East.	500	600	207.3	221.1
Aslan	Sudan	Headquarters roles in the UN Mission in South Sudan.	25	20	Not listed	Not listed
Bushfire Assist	Domestic	Disaster response in 2019–20 bushfire season (now concluded)	–	6,500 at peak in January 2020	87.9 ^a	–
Covid-19 Assist	Domestic	A range of tasks in response to the impacts of Covid-19	–	2,200 at peak in March/April 2020	–	80.7
Highroad	Afghanistan	Support to the NATO-led train, advise and assist mission called Resolute Support.	300	150	76.7	85.3
Manitou	Middle East region	Maritime security operations in the Middle East.	240	20	64.1	66.3
Mazurka	Egypt	Contribution to the Multinational Force and Observers overseeing peace agreements in the Sinai.	27	27	Not listed	Not listed
Okra	Middle East and Iraq	Contribution to the international effort to defeat Daesh/ISIS.	600	110	200.5	215.0
Paladin	Israel/Lebanon	Contribution to the UN Truce Supervision Organization in Egypt, Israel, Jordan, Lebanon and Syria.	12	14	Not listed	Not listed
Resolute	Australian maritime interests	ADF contribution to Maritime Border Command conducting civil maritime security operations. Can include maritime patrol aircraft, patrol boats and larger vessels with embarked security elements, and regional force surveillance units on land.	600	Up to 600	57.0	59.4

^a The funding for Operation Bushfire Assist was included in the 2019–20 PAES (Table 6); however, it isn't listed in the estimated actual column in the 2020–21 PBS's net additional cost of operations table (Table 3).

Sources: PBS and Defence website, [online](#).

Outcome 2

Outcome 2 is 'Protect and advance Australia's strategic interests through the provision of strategic policy, the development, delivery and sustainment of military, intelligence and enabling capabilities, and the promotion of regional and global security and stability as directed by Government.'

Outcome 2 contains the 13 programs that make up Defence's groups and services (not including the four administered programs). The total funding for the 13 programs is \$41,450.8 million. PBS Table 15 gives a high-level summary of the budget for each program. Pages 50–81 outline each program, giving its objectives, performance criteria and targets. Each also has a cost summary.

Each of the three service programs also provides estimated deliverables for its platforms for the previous and the budget year. The annual report details actual achievement. Those deliverables are presented in flying hours for aircraft fleets and unit availability days for ships (no deliverables are provided for vehicle fleets). While flying hours are broken down by aircraft type, naval assets are aggregated, so it isn't possible to distinguish between different classes of frigates and destroyers, or indeed between ships and submarines. ASPI provides historical data on flying hours and costs in its Cost of Defence online [database](#).

2.2 Workforce

Another way to describe how the money is divided up is among the Big 3: the workforce–investment–operating triumvirate. We outlined the top-level balance between the Big 3 in Chapter 1 but go into more detail here. We'll start with the workforce.

The personnel budget for 2020–21 is \$13,410.5 million (from PBS Table 4b). This allows Defence to employ the full-time workforce allocation shown in Table 2.4. That's what Defence is funded for; it's likely to be different from the numbers Defence will actually achieve.

Table 2.4: Defence planned full-time workforce allocation, 2020–21

Navy	Army	Air Force	ADF total	Australian Public Service	Defence total
15,063	30,996	14,767	60,826	16,313	77,139

Source: PBS, Table 8.

The workforce big picture: growth since the 2016 DWP

The figures for 2020–21 are just a snapshot in time and don't tell us much about where Defence is heading or whether it's on track to get there, so let's look at the trajectory of the ADF workforce as set out in the past two major strategic policy documents (the 2016 DWP and the 2020 DSU) and see how Defence is tracking against them.

In 2015–16, the full-time ADF strength was around 58,000. The 2016 DWP stated that 'under the plans in the Defence White Paper, the Permanent ADF workforce will grow to around 62,400 personnel over the next decade. This is an increase of around 2,500 over previous plans' (page 146). But it was an increase of 4,400 from where the ADF was actually at. That's an increase of about 7.6% over the decade, which on the face of it doesn't sound too challenging. The DWP didn't provide tables setting out the planned trajectory, but we can deduce it from the workforce numbers laid out in successive PBS (the horizontal rows in Table 2.5). By scanning down the columns in Table 3.5, we can see how the target for a year changed over time and what was actually achieved.

Table 2.5: Defence's uniformed workforce: targeted and achieved, 2015–16 to 2023–24

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
2016–17	58,061	59,209	59,681	59,794	60,090				
2017–18		58,680	59,194	59,794	60,090	60,585			
2018–19			58,475	59,794	60,090	60,585	61,027		
2019–20				58,380	60,090	60,585	61,207	61,402	
2020–21					59,109	60,826	61,459	62,054	62,726

Source: PBS, Defence annual reports.

The target for 2019–20 was to reach 60,090 (or about 2,000 of the planned 4,500 increase), but, according to the 2020–21 PBS, Defence reached only 59,109 by 2019–20. The optimistic way of looking at this is that Defence is fewer than 1,000 short of its target, which doesn't sound too bad. But another way to look at it is that, over four years, the ADF has managed to grow only by about 1,000, or about 1.8%.

We've given the analogous table for the individual services in Appendix 2. Results have been mixed, but there are some grounds for optimism. After going backwards for two years, the Navy has not only turned things around but made up ground. By the end of 2019–20, it had overtaken its DWP target of a 500-person increase from the 2016 starting point. That's growth of about 4.1% over the past four years. The Army seems to have gone backwards over the past two years, is around 900 short of the target and in fact is very close to where it started four years ago. The Air Force consistently tracks close to its targets, but those targets are a pretty modest 300 or so since the DWP. Overall, it's been two steps forward, one step back (or the other way around).

There's been some signs that the economic recession brought on by Covid-19 has provided a boost to ADF recruitment.¹⁹ That's good for Defence, but even if that upturn holds, it will take time for new recruits to be trained and develop the advanced skills needed to operate modern military systems. And of course, there is always the flip side; when the economy booms, Defence tends to lose people to industries competing for its workforce. To its credit Defence has been adopting more flexible workforce models that allow for individuals to leave and come back.

The workforce big picture: future growth plans

The 2020 DSU modified the big picture. It stated that 'the Government has committed to grow the ADF by around 800 and the APS by approximately 250 in the short term' (2020 FSP, page 105). That doesn't sound like a lot, but we need to add those 800 to the roughly 3,400 ADF positions still outstanding from the original DWP target. If we look at the combined workforce targets set out in the 2020–21 PBS to the end of the forward estimates, the Navy has to grow by 1,000 over the next four years, the Army by nearly 1,500 and the Air Force by around 1,100, so there's a total target of around 3,600 over the next four years. Since the ADF has achieved only 1,000 over the past four years, that could be challenging.

But the bigger challenge is what's only hinted at in the 2020 DSU. It stated that 'the Government has identified a need to grow the ADF and APS beyond the size approved under the 2016 Defence White Paper.' The 800 ADF and 250 APS positions were only an 'initial step'. The government would consider a 'detailed proposal for this longer term growth' in 2021.

What does that longer term growth look like? It's not stated in the DSU. Some Navy workforce modelling that was released under FOI suggests that the future fleet will need 20,000 personnel, which is over 30% more. If that's the target, it will definitely take some time to get there.

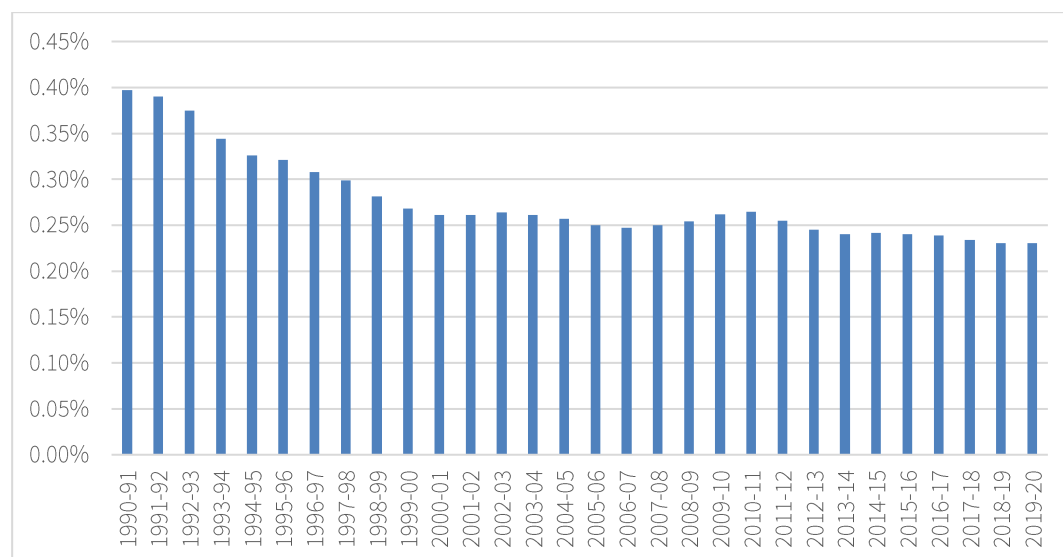
There's one potential hint at the kind of longer term growth the government and Defence are thinking of. Defence has told ASPI that the DSU's cost model already includes funding for the additional people the government will consider in 2021. In that model, Defence's workforce funding grows from a little under \$12.9 billion in 2019–20 to around \$19.2 billion in 2029–30. That's about a 50% increase in nominal terms, but, if we convert that to real terms to remove inflation, it's likely to be closer to 20%. In Chapter 1, we observed that increases in personnel numbers broadly align with real increases in workforce spending, so we can hypothesise that the longer term personnel increases planned over the decade could also be in the order of 20%. Broadly speaking, that would be about 12,000 people.

Considering that the ADF has achieved growth of only 1,000 over the past four years, 12,000 over the next 10 looks like another large elephant to devour. Is it possible?

When one looks at the size of the Australian population, one would think it can be done. At the end of the Cold War, the ADF made up 0.4% of Australia's population (Figure 2.1). As part of the post-Cold War peace dividend, the ADF underwent a decade-long contraction from 68,630 down to a nadir of 50,355 in 2000–01 (see Table A2.1 in Appendix 2 for workforce numbers since 1990–91). Meanwhile, the Australian population continued to grow, so the ADF fell to around a quarter of 1% of the population.

Since then, the ADF has grown in fits and starts, almost but not quite keeping up with broader population growth. It's now at its highest number since 1993–94, but that's still only 0.23% of the population.

Figure 2.1: ADF full-time personnel as a percentage of Australia's population, 1990–91 to 2019–20



Sources: Defence annual reports; Australian Bureau of Statistics, Australian demographic statistics, cat. no. 3101.0, June 2019.

Finding another 12,000 people out of a total population in excess of 25,000,000 on the face of it doesn't seem challenging. But, if one thing stands out in the trajectory of ADF workforce over the past 30 years, it's that it's easy to reduce numbers but very hard to grow them again. The ADF's workforce requirements can't be met through a 'just in time' supply-chain model.

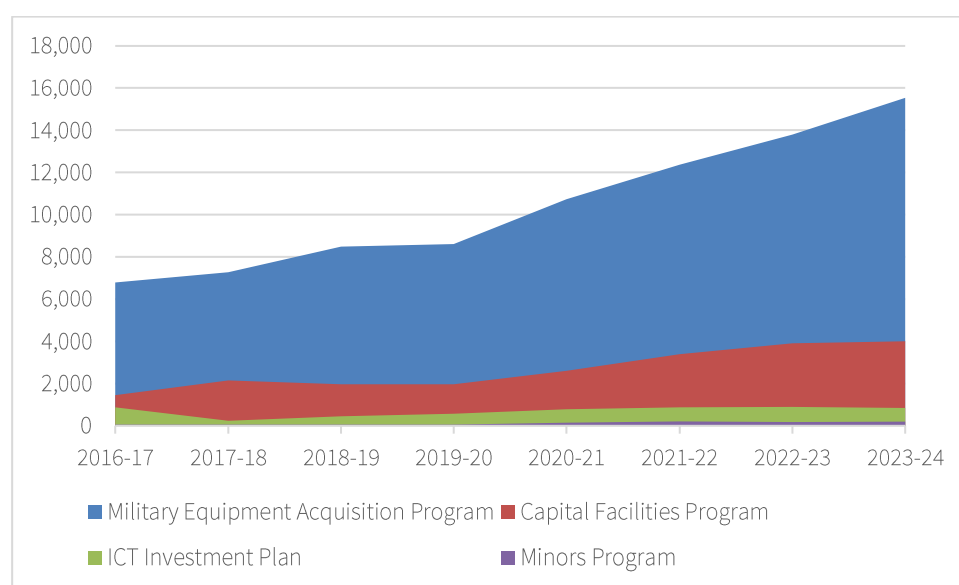
One thing is clear: to deliver and operate the future capabilities outlined in the DWP and DSU, Defence is going to need to rely even more on the ‘third leg’ of its total workforce—its external service providers, contractors and consultants. We look at the costs involved in that in Chapter 4.

2.3 Capital

Defence’s planned capital investment budget for 2019–20 was \$11,768 million. It underachieved against that by about 5%, spending \$11,212 million. Nevertheless, that was still an increase on 2018–19 of about 2.4%. But Defence and its industry partners are going to have to do a lot better than that and learn to eat elephants very quickly. We noted in Chapter 1 that the capital program is forecast to grow by 27.4% this year.

The capital budget is further divided into smaller (but still huge) programs (see PBS Table 5). The breakdown over the forward estimates is illustrated in Figure 2.2.

Figure 2.2: Breakdown of Defence’s capital programs, 2016–17 to 2023–24 (nominal \$ million)



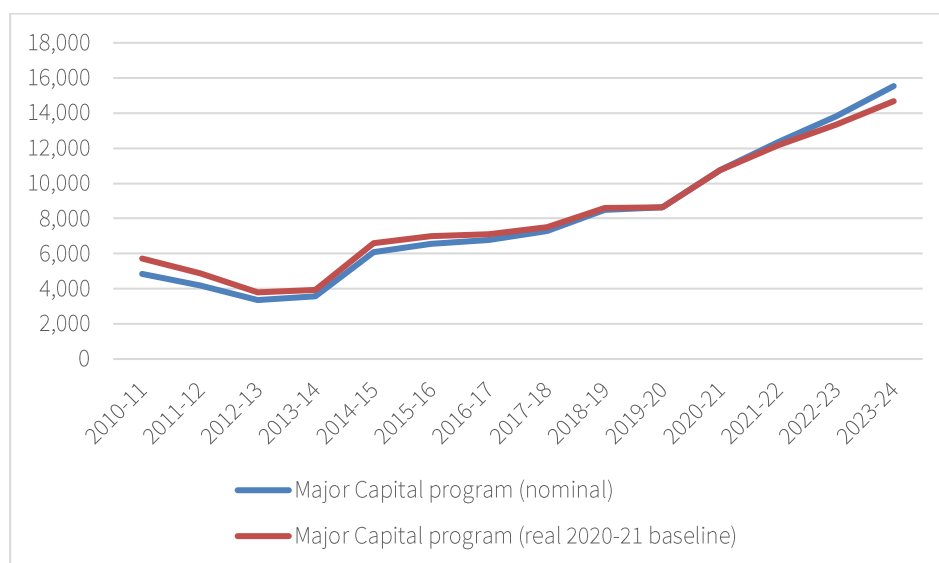
Source: PBS, PAES

Table A1.3 in Appendix 1 details Defence’s capital expenditure from 1990–2000 to 2022–23, broken down into major categories.

Military Equipment Acquisition Program

This year, the Major Capital Investment Program has been renamed the Military Equipment Acquisition Program in the PBS. That’s a better term and more clearly distinguishes it from the other capital programs. The Military Equipment Acquisition Program’s projects are delivered by Capability Acquisition and Sustainment Group on behalf of the capability managers. It’s always the largest of the capital investment programs and hovers between 73% and 75% over the forward estimates. This year, it’s budgeted at \$10,742 million. Like the capital program as a whole, the military equipment program is forecast to grow dramatically in 2020–21 by \$2,122 million, or 24.6%. Figure 2.3 shows the strong growth forecast in the program over the forward estimates.

Figure 2.3: Military equipment acquisition spending, 2010–11 to 2023–24 (\$ million)



Sources: PAES, PBS.

PBS Table 55 lists Defence’s top 30 military equipment acquisition projects by 2020–21 forecast expenditure. The table also gives a useful summary of the projects’ key goals for the year. Projects below the top 30 aren’t covered. This year, the cut-off is the Offshore Patrol Vessel project at \$85 million in-year spend. The top 30 table includes only capital equipment projects, not ICT or facilities projects. In sum, there are many Defence projects that the PBS contains no information on.

PBS Table 55 also has a summary table of the program’s cash flow. The total approved project ‘gross plan’ line states how much cash Defence would need if all projects were delivered on schedule as planned (\$10,427 million). However, because there will always be projects that aren’t delivered on schedule, that won’t happen. The ‘Management margin (slippage)’ line is what Defence estimates the ‘underachievement’ will be. This year, it’s \$1,204 million, or 11.5%. Defence deducts that amount from the gross plan to come up with the amount of cash it thinks it will really spend on equipment—\$9,224 million.²⁰

Applying the right level of slippage is a key financial and project management issue for Defence and is intensely studied and debated within the department. If Defence applies too much slippage, it runs the risk of not having the cash to pay for projects that do deliver. If it applies too little, it risks starving other areas of the department of cash while ending up with unspent money in the capital program. One of Defence’s little ‘secrets’ is that, if all projects were delivered on schedule, it wouldn’t have the cash to pay for them. That will never happen—most projects underspend, some by a lot. The [historical data](#) on project spending that we have compiled in ASPI’s Cost of Defence database makes that very clear.

Figure A.5 in ‘Defence in 10 tables’ shows the size of the 10 largest projects by planned 2019–20 spend, illustrating their impact on the overall program. This year, the F-35A Joint Strike Fighter is once again the top spender, with a forecast budget of \$2,431 million. We discuss individual projects in the top 30 in more detail in Chapter 3 on capability.

ASPI publishes historical data on acquisition costs in its Cost of Defence online [database](#).

Planned project approvals

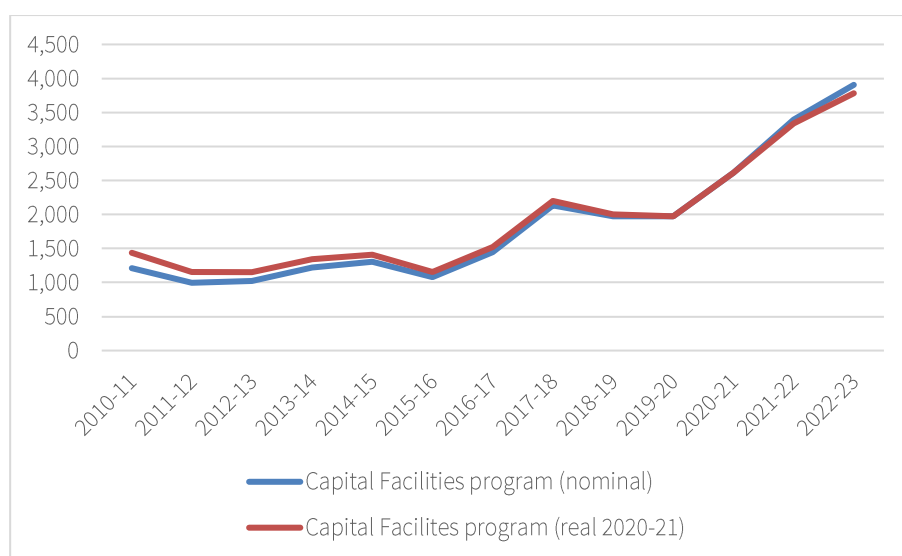
The PBS no longer provides a table listing capital equipment projects scheduled for government consideration in the coming year. Nor does the annual report provide a comprehensive list of project approvals considered by the government in the previous year. It's a very poor state of affairs that could be easily remedied if ministers and Defence wanted to do so.

Enterprise Estate and Infrastructure Program

The second biggest capital program delivers infrastructure. Previously called the Capital Facilities Program, it's been renamed the Enterprise Estate and Infrastructure Program this year. Its projects are delivered by Defence's Estate and Infrastructure Group. We've noted previously that we're in a golden age of defence infrastructure construction. While there have been a few ups and downs (it had only \$2 million growth last year and a decrease of \$163 million in 2018–19), its overall trajectory has been very healthy, and spending has averaged over \$2 billion over the past three years. It's around 20% of the total capital budget.

Like the military equipment program, the infrastructure program has its own elephant to eat this year, in the form of a \$633 million or whopping 32% increase to \$2,609.6 million (Figure 2.4). That's followed by a 30% increase in 2021–22, bringing the program to nearly \$3.4 billion. It's a dramatic turnaround from 2015–16, when the program spent only \$1,082 million. There's no doubt the government would really like to see that money get spent as a form of Covid-19 stimulus spending, particularly in regional areas, but it's a huge jump. On the whole, the Australian construction industry is good at pumping concrete, so it might be achievable.

Figure 2.4: Enterprise Estate and Infrastructure Program, 2010–11 to 2022–23 (\$ million)



Sources: PAES to 2018–19, PBS from 2019–20.

With that level of infrastructure investment occurring, it's not surprising that the *Australian Defence Magazine's* list of the top 40 defence industry companies by 2019 turnover has a construction company, Lendlease Building, at number 2 with turnover of \$1,053 million.²¹

PBS Appendix D covers the Estate and Infrastructure investment program, outlining at a high level what work each project is conducting and the project's total budget, spend to date and planned spend for 2020–21.

PBS Table 57 details this year's planned expenditure on approved major capital facilities projects. The biggest spenders are:

- P-8A facilities at \$139.2 million, primarily at RAAF bases Darwin, Edinburgh and Pearce (total budget \$767.8million).
- redevelopment of the Larrakeyah Defence Precinct in Darwin at \$121.8 million (total budget \$495.6 million).
- armoured vehicle facilities, primarily at Puckapunyal and Townsville, at \$94.4 million (total budget \$235.1 million).
- RAAF Tindal redevelopment and US Force Posture Initiative works at \$82.4 million (total budget \$1,173.9 million).
- redevelopment of the Navy's largest training establishment, HMAS Cerberus on the Mornington Peninsula in Victoria, at \$75.5 million (total budget \$465.6 million)
- the two stages of the Garden Island (East) Critical Infrastructure Recovery project, if they were to be taken together, would be this year's largest at \$141.3 million (total budget \$549.8 million).

Projects that are just starting to ramp up and will be future big spenders include:

- Hunter-class frigate facilities at several locations in NSW, South Australia and Western Australia (total budget \$918.8 million)
- offshore patrol vessel facilities mainly in Cairns, Darwin and HMAS Stirling (total budget \$918.5 million)
- HMAS Watson redevelopment in Sydney (total budget \$430.5 million)
- AIR 555 airborne intelligence, surveillance and reconnaissance and electronic warfare capability, focused on RAAF Edinburgh in Adelaide (total budget \$294.5 million).

Facilities work for the F-35A appears to be nearly complete, with \$1,405.6 million of the total budget of \$1,485.8 million spent and only \$24.7 million programmed for this year.

Facilities projects scheduled for government and Parliamentary Works Committee consideration in 2019–20 are listed in PBS Appendix E.

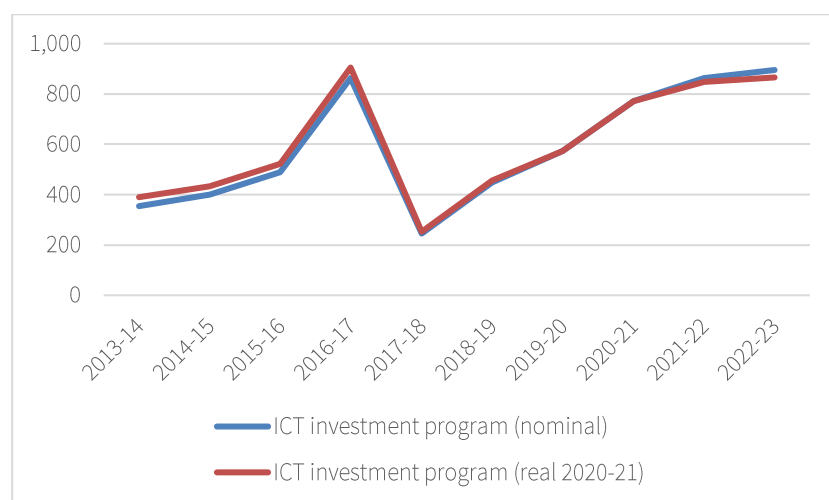
More detail on Defence's infrastructure projects can be found in the business cases that Defence submits to the [Parliamentary Standing Committee on Public Works](#)

ICT Acquisition Program

The third subprogram is the ICT Acquisition Program. It's much smaller than the first two, at around 5% of the total capital program. Nevertheless, it's still budgeted at \$772.5 million for 2020–21. As with the other programs, that's a big increase in 2020–21: 35%, in this case. The trajectory of the program is a little confusing (see Figure 2.5). There was a huge drop in acquisition spending in 2017–18. Since the PBS and Defence annual report

don't report on the program, it's not clear why that happened; it appears to have been due to a rebalancing towards the ICT sustainment program, which increased by nearly \$500 million that year.

Figure 2.5: ICT investment program, 2013–14 to 2023–24 (\$ million)



Sources: PAES to 2018–19, PBS from 2019–20.

There's no public reporting whatsoever on Defence's ICT programs, other than a paragraph in the Defence annual report. While ICT is meant to be the backbone that knits Defence's multi-billion-dollar investment in modern weapons and sensors together, it tends to be among the small number of programs whose results are consistently rated as only 'partially achieved' in the annual report. For example, the 2018–19 annual report states:

Defence is part-way through a major ICT infrastructure transformation program, encompassing the modernisation of desktop, network and data centre services. While individually these programs have delivered a significant upgrade to Defence's aging infrastructure and systems, the complexity and scale of this work with multiple programs being undertaken concurrently, has resulted in some recent unplanned service disruptions within the Defence Network. (page 39)

Those who work in Defence would be very familiar with such 'service disruptions'. Defence officials have attempted to justify the lack of reporting by arguing that ICT is only a small part of Defence's overall spend. But, if we add in this year's ICT sustainment spend of \$1,057.0 million, we get to a total spend in 2020–21 of \$1,829.5 million. That's more than the Australian Federal Police budget, at \$1,591 million. It's three times the Australian Security Intelligence Organisation's budget of \$572 million. It would be very strange to suggest that those agencies' performance should escape scrutiny because their budgets were so small in comparison to the overall national security budget, yet that appears to be the argument here.

It wouldn't be difficult for Defence to publish the approved budgets, total spend to date and predicted in-year cash flow for all of its ICT projects (and indeed for all of its equipment and infrastructure projects). If its corporate systems can't do that at a mouse click, then that's evidence that its ICT systems aren't up to scratch. There's no reason Defence couldn't or shouldn't do that, and if its ICT and corporate financial systems are functional it would add little overhead the organisation's reporting obligations.

Yet Defence publishes nothing. There's no useful or meaningful information about the ICT program on Defence's website. The Australian National Audit Office doesn't cover the ICT program either. There's no way to see what this money is being spent on. The end result is that the program escapes external scrutiny. And, while many

Defence ICT projects have experienced huge cost overruns, or been dumped after they didn't deliver, or just generally underachieved, the parliament and public remain unaware. It isn't clear how parliament can be informed about the performance of the ICT program. That's despite the fact that all of Defence's capabilities and platforms are absolutely reliant on ICT.

The Minors Program

The Minors Program covers small projects. Not only are the projects small, but the total program budget is small at \$157 million, or 1% of the overall acquisition program. It, too, is experiencing a big increase in 2020–21. Considering that it's averaged \$50 million a year over the past four years, an increase to \$157 million this year seems ambitious.

Innovation funds and R&D

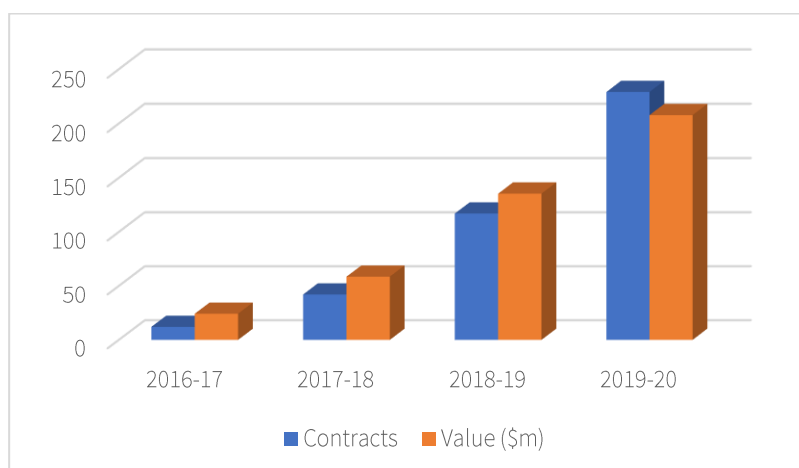
Defence doesn't provide a single figure that sums up its annual investment in R&D, either retrospectively in the annual report or forward looking in the PBS. There's no prediction of how much Defence's two main innovation funds—the Next Generation Technologies Fund (NGTF) and the Defence Innovation Hub (DIH)—are planning to spend (or at least commit in contracts, since they don't actually spend the money themselves), let alone other innovation activities spread across other projects and programs.

In the 2016 DWP, the NGTF was funded at \$640 million over the decade and the DIH at \$730 million. That was under 0.4% of Defence's annual budget. To June 2020, the NGTF spent \$172.5 million. That suggests that it has underachieved in moving funds out the door in the four and a half years since the DWP, as it needed to be moving around \$70 million per year, or closer to \$300 million. The DIH has done better, at \$249 million.²² The details are presented in the innovation programs' [annual report](#) (which is a good read, by the way, and a model for public-sector reporting).

In the DSU, the DIH received a small boost to 'over \$800 million' over the decade. That barely keeps up with inflation at a time of enormous and rapid technological change. The NGTF has received a more substantial increase to 'approximately \$1.2 billion' over the next decade. It's going to need to increase the amount of funding it can move annually to \$120 million if it's actually going to spend its money. A combined \$2 billion over the decade is still only 0.34% of Defence's total \$575 billion.

There are other R&D activities in Defence, but their spending is buried in bigger programs (such as the future submarine). It might be possible to uncover them by scrutinising AusTender. There are lots of contract descriptions on AusTender that include the term 'research'. Most of them fall into the category of 'military science and research', but that seems to be a category primarily for contracts funded by the DIH and the NGTF. For example, there are the \$5.5 million Innovation Hub contract with Ocius to continue development of its Bluebottle unmanned surface vessel and Daronmont's \$7.9 million for passive radar development. The increase in AusTender 'military science and research' contracts also seems to match the ramp-up of the two innovation funds since the 2016 DWP. So it's not clear whether analysis of the category tells us anything about the scale of R&D in Defence beyond the two innovation funds. Nevertheless, the numbers on 'military science and research' are presented in Figure 2.6.

Figure 2.6: Defence ‘military science and research’ contracts on AusTender, 2016–17 to 2019–20



Source: AusTender.

Based on those figures, plus the innovation funds’ 2020 DSU funding, it would be reasonable to assume that they’d be looking to sign at least \$200 million in R&D contracts this year. Still, one wishes Defence was doing more in this space. The pain currently being suffered by Australia’s university research sector is an opportunity that Defence could take advantage while keeping world-leading researchers employed and in Australia.

2.4 Operating and sustainment costs

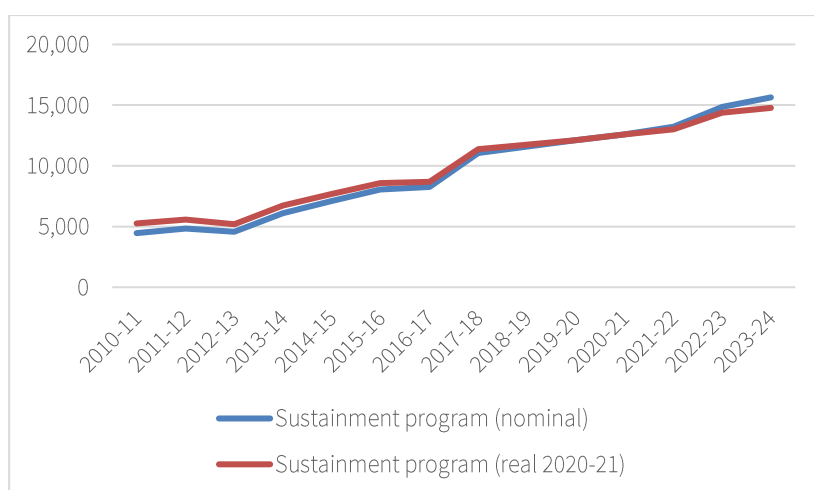
The PBS now provides a table of planned expenditure by key categories, which include operations, the Capability Sustainment Program and operating costs. Combined, they add up to \$14,921 million for 2020–21, or 35% of Defence’s budget.

There’s no breakdown of the subcategory of operating costs. It’s \$1,599.4 million in 2020–21. It pays to keep the lights on. We’ve discussed operations already in Chapter 1.

Sustainment

The biggest element of the operating budget is the Capability Sustainment Program. This year, Defence plans to spend \$12,580.0 million on sustainment, or 84.3% of its total operating budget (Figure 2.7).

Figure 2.7: Capability Sustainment Program, 2010–11 to 2023–24 (\$ million)



Source: PBS and PAES.

The sustainment program shows steady growth. The jump of 33.6% in 2017–18 appears to have been in part an artefact from reclassifying some operating costs as sustainment costs. The program doesn't yet have an elephant problem like the capital program, although that may eventuate as new capabilities come online. In Table 2.6, we reproduce a table from Part 1 of this year's *The cost of Defence* that shows the scale of the problem presented by the much larger sustainment costs of future platforms.

Table 2.6: Comparison of the annual sustainment cost of legacy and future systems (2019–20 real dollars)

Capability	Legacy system cost	Future system cost
Submarines	\$615 million	\$2 billion
Frigates	\$361 million	\$700–800 million
Air combat aircraft	\$335 million	\$800–900 million
Armoured vehicles	\$60 million	\$700 million

Sources: Defence annual reports; information provided by Defence; ASPI analysis.

While the frigates and submarines are still a long way off, the increased cost of combat aircraft and armoured vehicles is starting to be felt already.²³

The top 30 sustainment 'products' are presented in PBS Table 65 with planned 2020–21 spending and a short description of priorities for the year. The sustainment program isn't dominated by a small number of projects to quite the same extent as the top 30 acquisition projects, but nonetheless there are a few standouts. As has been the case for many years, the Collins-class submarine is the most expensive product. This year, the target is \$663 million, a hefty increase over last year's \$569 million. The Collins-class could have a rival for the crown in a few years' time if the F-35A's hourly costs don't come down as its flying hours ramp up.

We show the top 10 in Figure A.6 in 'Defence in 10 tables' and discuss individual sustainment products in Chapter 3 on capability.

ASPI publishes historical data on sustainment costs in its Cost of Defence online [database](#).

2.5 Where's the money spent?

Another way of looking at how the budget is divided is by looking at where the money is spent.

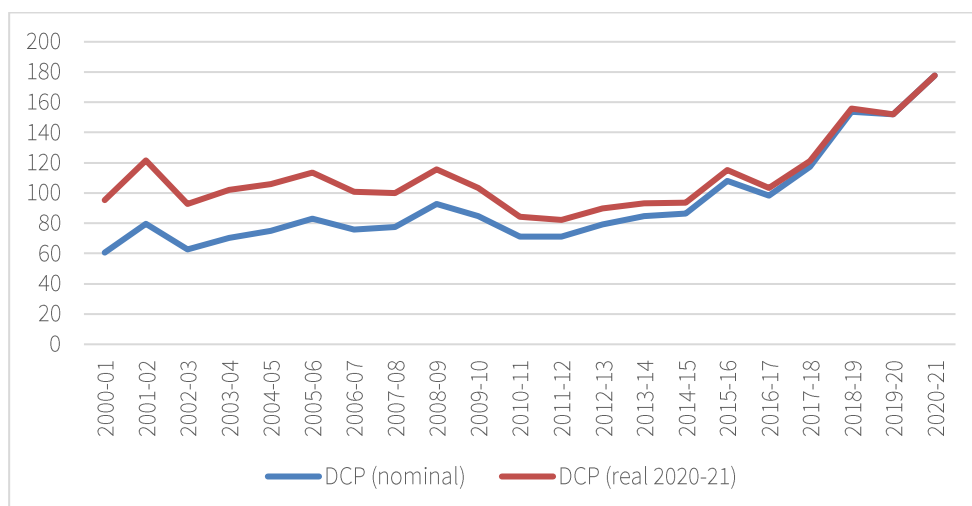
Defence Cooperation Program

PBS Appendix A (page 110) covers the Defence Cooperation Program, which is Defence's own regional aid program aimed at developing the capacity of and Defence's relationships with South Pacific and Southeast Asian security forces. It's not necessarily a lot of money by Defence's standards (less than 0.5% of the total budget), but it makes a big difference to regional forces, particularly in Papua New Guinea and the South Pacific.

After a long period of being essentially stagnant or declining in real terms, the Defence Cooperation Program's budget has been growing rapidly, doubling in nominal terms over the past six years (Figure 2.8). This has been

driven by, among other things, the Pacific Maritime Security Program, the centrepiece of which is the replacement patrol boat program. The 21 Guardian patrol boats for South Pacific nations and Timor-Leste are being constructed by Austal in Henderson in Western Australia (so a lot of the money is being spent here in Australia).

Figure 2.8: Defence Cooperation Program budget, 2001–02 to 2020–21 (\$ million)

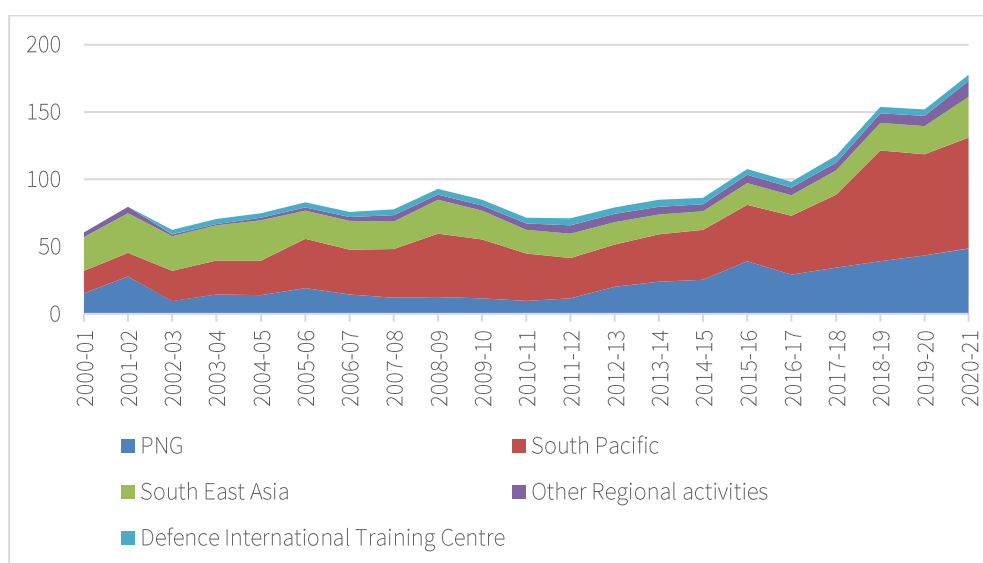


Source: PBS.

Last year, the program fell short of its PBS estimate (\$152.1 million against a target of \$159.5 million) and took a small step backwards. But, as in many other areas of the Defence budget, a big increase is planned for 2020–21 of \$25.6 million, or 16.8%. The PBS doesn't provide figures for the forward estimates.

Figure 2.9 shows the breakdown, by area. As a region, the South Pacific is the largest recipient overall, but Papua New Guinea is the largest single recipient country.

Figure 2.9: Defence Cooperation Program, by recipient, 2001–02 to 2020–21 (\$ million)



Source: PBS.

The increase in spending is consistent with the government's Pacific Step-up initiative. This year's Budget papers included a new measure as part of the Pacific Step-up of '\$124.3 million over 10 years from 2020–21 for further

infrastructure projects in the Southwest Pacific, including to construct a border and patrol boat outpost in Solomon Islands' western provinces'. Like the rest of the Pacific Step-up, Defence isn't receiving any additional funding for this new measure and has to fund the program out of its existing resources.

One of the main measures of the Pacific Step-up is a large-hulled vessel to deliver humanitarian assistance in the region. Not much has been heard about this vessel since the Step-up was first announced, but the 2020 FSP includes a funding line of \$180–280 million for a Pacific support vessel, with the funding to start about now. The FSP also confirmed that the vessel would be built in Australia.

By state and territory

It's reasonable to want to know where in Australia the money is spent. State and territory governments are particularly interested. While there's no holistic public data on where all of Defence's spending occurs by state or region, PBS table 57 breaks spending by each capital facilities project down by electorate and state or territory. Table 2.7 sums the spend by state or territory. This doesn't include work on redeveloping the shipyards in Adelaide.

Table 2.7: Defence capital facilities spend, by state or territory, 2020–21 (\$ million)

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Total
Facilities capital spend	300.7	274.4	201.4	157.4	101.3	0.1	324.8	87.3	1,447.4
% of total	20.8%	19.0%	13.9%	10.9%	7.0%	0.0%	22.4%	6.0%	100.0%

Source: PBS 2020–21, Table 57.

The 2020 DSU was accompanied by a raft of media releases from the government providing some information on spending by state and territory. We collated that data and published it on page 35 of Part 1 of this year's *The cost of Defence*.

Local versus overseas spending

Capability Acquisition and Sustainment Group provides ASPI with a breakdown between local and overseas spending for its acquisition and sustainment programs. We published the most current data on page 69 of Part 1 of this year's *The cost of Defence*.

Chapter 3: How is the delivery of capability going?

Key points

- Despite popular myth, few major Defence equipment projects go over budget after they commence acquisition; however, substantial cost growth can occur before then.
- The Naval Shipbuilding Plan continues to ramp up; a spend of nearly \$2 billion is forecast for this year, even though the plan's two biggest programs are some years away from starting construction.
- The huge jump in the acquisition cost estimate for the future infantry fighting vehicles, combined with their very high sustainment costs, means that this capability needs to be rethought, particularly in the light of proliferating threats such as cheap drones and precision-guided weapons.
- The air combat transition continues as the F-35A approaches initial operating capability, but there's little evidence so far that its operating cost will ever come close to the 'classic' Hornet that it's replacing.

What information is there on the delivery of defence capability?

In this chapter, we look at how Defence is going at spending its money to deliver capability. We can draw on a range of sources to develop an assessment:

- the *Major projects report* (MPR) published by the Australian National Audit Office (ANAO)—the most recent edition is the 2018–19 one published in December 2019; we should hope that the 2019–20 edition hasn't been delayed much by Covid-19
- the top 30 acquisition projects and sustainment products in the PBS and PAES (and actual spends reported in the Defence Department's annual report)
- ministerial and departmental media releases
- parliamentary committee hearings, particularly Senate estimates, and Defence's written responses to committee questions (which can hold some hidden gems)
- Defence documents released under freedom of information requests, such as CASG's quarterly performance reports
- media articles in both mainstream publications and specialist defence media
- ASPI's Cost of Defence database, which compiles publicly available data.

There's a lot there, and a lot of capabilities to cover, so this chapter can't be comprehensive but will focus on highlights and systematic issues.

The 2020 Force Structure Plan

The government released the 2020 DSU at the start of July. It was accompanied by the 2020 FSP, which was the first public update to Defence's capability investment plan since the Integrated Investment Program, which was published with the 2016 DWP. It outlines in very broad terms how the government intends to spend the \$270 billion it plans to invest in new capability in this decade. We analysed the FSP in some detail in chapters 3 and 4 of Part 1 of this year's *The cost of Defence*. In this chapter, we focus primarily on the present and near future rather than the decade to come.

Note that the budget numbers given in this chapter refer only to the equipment component of a capability, which is managed by CASG. They don't include the facilities component, which is managed by Estate and Infrastructure Group and treated separately in Defence's reporting.

3.1 Do Defence projects go over budget?

The ANAO is due to publish the next edition of its MPR, covering 2019–20. As in previous years, that's likely to trigger another round of media articles on budget blowouts in Defence's equipment projects. Those articles tend to reinforce a deeply held popular view that Defence projects always go over budget. Before we get into individual projects, let's take a look at whether that perception is accurate.

Answer 1: No, they don't

Popular wisdom states, or even shrieks, that Defence's projects are consistently over budget, but is that the case? The short answer is no.

Every year, the ANAO puts out its MPR with a table like the one below reproduced from the 2018–19 edition. (Table 3.1). Every year, the media immediately publish stories about cost blowouts. It's perhaps not surprising that the media do that when the ANAO writes that 'The approved budget for Major Projects included in the MPR has increased by \$24.4 billion (38.0 per cent) since initial Second Pass Approval' (page 11).²⁴

Table 3.1. ANAO table reporting 'budget variation over \$500m post initial Second Pass Approval by variation type'

Project	Variation Type	Explanation	Year	Amount \$b
Scope Increases				14.1
MRH90 Helicopters		34 additional aircraft at Phase 4/6 Second Pass Approval	2005–06	2.3
Joint Strike Fighter		58 additional aircraft at Stage 2 Second Pass Approval	2013–14	10.5
P-8A Poseidon		Four additional aircraft	2015–16	1.3
Real Cost and other Increases				1.8
AWD Ships		Real Cost Increase of \$1.2b offset by \$0.1b transfer for facilities in 2014	2013–14 and 2015–16	1.1
Overlander Medium/Heavy		Project supplementation ³ (\$684.2m) and additional vehicles, trailers and equipment (\$28.0m) at Revised Second Pass Approval	2013–14	0.7
Other budget movements				1.3
Other	Scope increase/budget transfers (net)	Other scope changes and transfers	Various	1.3
Price Indexation – materials and labour (net) (to July 2010) ⁴				2.8
Exchange Variation – foreign exchange (net) (to 30 June 2019)				4.4
Total				24.4

Source: ANAO, 2018–19 Major projects report, Table 3, page 13.

But does that \$24.4 billion represent a 'blowout'? Or any increase, in real terms? Since the total approved value of the projects covered by the 2018–19 MPR is \$64.1 billion, it seems like it's a significant increase. But let's unpack it.

The biggest category is 'scope increases' for three large projects, at \$14.1 billion. That's simply the cost associated with the government agreeing to buy more stuff. If you want another 54 Joint Strike Fighters (JSFs), you have to pay for them—\$10.5 billion. It's misleading to describe that as a cost increase, let alone a blowout. It's an increase since the initial government approval of 14 aircraft, but, since the plan was always to get 72 once the JSF program costs had stabilised and were better understood, it's not a change in the plan.

\$2.8 billion was for 'price indexation', which is essentially supplementation for inflation. That's simply addressing inflation that occurs over the life of a project. And that practice ended in 2010, nearly a decade ago. Now inflation is taken into account in the second-pass funding approval; that is, it's built into the cost estimate. So it's hard to describe that as mismanagement or a blowout.

\$4.4 billion addressed exchange-rate variations. As the Australian dollar goes down against other currencies, in particular the US dollar and euro, Defence loses buying power. The government compensates it on a 'no win, no loss' basis for that. You could perhaps describe this as a cost increase, but one that Defence has no control over. Also, if the Aussie dollar goes up, Defence's budget is adjusted down.

\$1.3 billion was for 'other budget movements', which are transfers of scope between projects. If a project is directed to buy stuff that another project was originally meant to get, it's only reasonable that it gets the funding needed to do so. Such adjustments are done with government approval, but really just shift money between projects.

So that leaves \$1.8 billion in ‘real cost and other increases’. In Defence terminology, a ‘real cost increase’ is a case in which a project has insufficient funds to acquire its full approved scope, so Defence needs to seek approval from the government to spend additional funding. The table lists two cases. The first is the increase to the air warfare destroyer’s budget of \$1.1 billion that was agreed to in July 2015 as part of the project’s get-well program. The other was ‘project supplementation’ of \$684 million for LAND 121, which is Defence’s constellation of truck projects. It’s not clear to me whether this was even a real cost increase *per se* (that is, more money needed to buy the same amount of stuff), or simply rebalancing funding between different phases of the project that were acquiring different kinds of trucks. The MPR’s discussion of the project is not completely illuminating. Defence provides a separate table of real cost increases on page 84, and LAND 121 is not listed there, so Defence doesn’t regard it as one.

To be comprehensive, we should note that the ANAO’s table doesn’t include all real cost increases, only those above \$500 million. Defence’s list on page 84 includes more projects and totals \$1,693.2 million.²⁵ If we go with that number, then actual cost increases are about \$1.7 billion out of a total portfolio of \$64.1 billion, or about 2.7%.

But if we want to get a complete picture, we should also take into account projects that were delivered *under* budget. Since its inception, 23 projects have exited the MPR because they have delivered their scope. Those projects had a total approved budget of \$23.9 billion (2018–19 MPR, Table A1, page 108). At the time they exited the MPR, they had \$2.2 billion remaining in unspent funds. It’s likely that they would have spent a little more as they wrapped things up and shut down, but essentially those projects were collectively 9.3% under budget. That \$2.2 billion exceeds the cost increases discussed above.

In short, based on the evidence in the MPR, the small number of projects that went over budget did so by an amount that was less than the amount by which a much larger number of other projects were under budget.²⁶

An important caveat to this is that the MPR looks only at a small selection of Defence’s capital equipment projects (albeit the largest ones) and doesn’t look at any of Defence’s ICT or infrastructure projects.

Answer 2: Yes, they do

ANAO’s MPR looks only at a subset of projects that have received second-pass approval from the government. At second pass, the government agrees to a scope, schedule and budget and directs Defence to go and acquire the capability. As we’ve just seen, Defence projects rarely exceed their second-pass budget, but they can experience major cost growth *before* second pass.

Defence enters projects in its acquisition plan—previously called the Defence Capability Plan, then from 2016 the Integrated Investment Program (‘integrated’ because it included capital equipment, ICT and infrastructure), and more recently the 2020 FSP—when the projects are still a long way from second pass. At that stage, they’re rather ‘conceptual’ (in fact, it can be premature to refer to them as projects *per se*), but they’re assigned a funding provision based on Defence’s understanding of its requirements and the cost of solutions at the time. That understanding can change; Defence might not fully understand its requirements, and, as technology, strategic circumstances and funding priorities change, the provision can change.

We’ve seen provisions change substantially between the 2016 Integrated Investment Program and the 2020 FSP. Table 3.2 reproduces a table from Part 1 of this year’s *The cost of Defence* with some key examples.

Table 3.2: Cost increases from 2016 to 2020 (\$ billion)

Capability	2016 Integrated Investment Program cost	2020 FSP cost
Future submarines	>50.0	89.7
Replenishment / logistics support ship(s)	\$1.0–2.0	4.0–6.0
Future frigates	>30.0	45.6
Infantry fighting vehicles	10.0–15.0	18.1–27.1
Medium-range ground-based air defence	1.0–2.0	4.9–7.3

Sources: 2016 Integrated Investment Program and 2020 FSP.

So, substantial cost growth has occurred. In some cases, the scope has changed. For example, the scope of the logistics support ship line has grown from one to two ships, and they're bigger and more capable. But, in other cases, it's still the same scope: nine frigates or 450 infantry fighting vehicles.

In the case of submarines, it appears that Defence's internal cost estimate was always much higher than the \$50 billion it used publicly. According to recent Department of Finance [evidence](#) to the Senate's inquiry into naval shipbuilding, Defence's internal estimate in 2015 was actually \$78.9 billion. Once exchange rate fluctuations are taken into account, that number is broadly consistent with the FSP figure of \$89.7 billion. In the case of the frigates, the FSP states that slowing down production to ensure steady work for industry required a substantial increase to the funding requirement.

Because we aren't always comparing apples with apples, it's difficult determine how much cost growth has occurred. Substantial work has been done in the US showing that cost growth also occurs there both before and after the decision to commence acquisition.²⁷ But there's no comparable work here; the ANAO isn't tracking it.

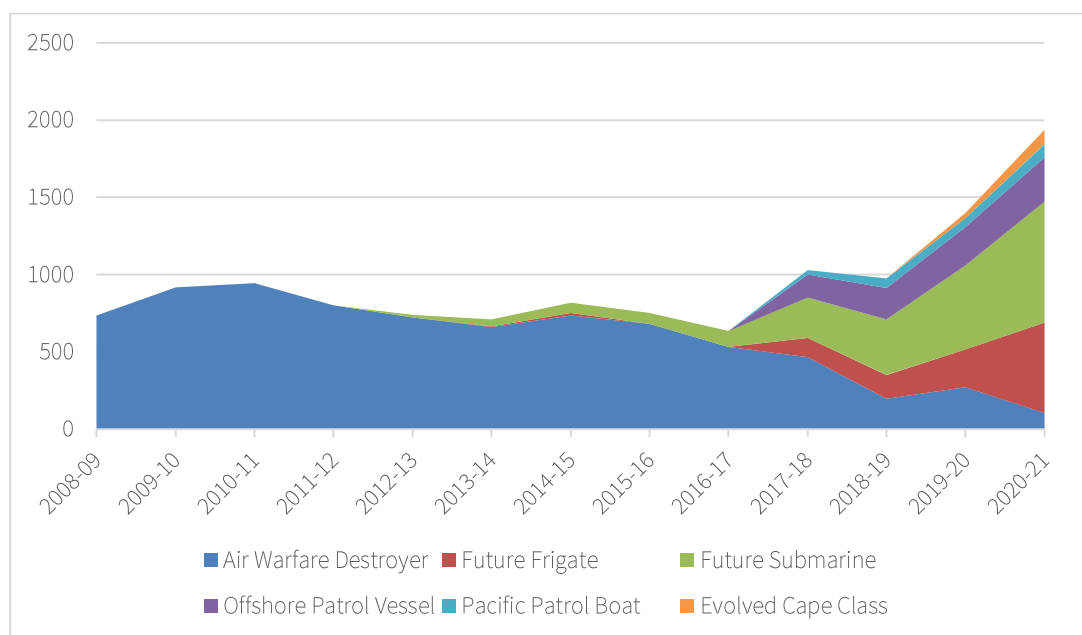
However, since this cost growth occurs before second-pass approval, it's possible for the government to change the plan before it gets into contracts with industry. Theoretically, it could decide not to proceed with the project, but examples of that are very rare, such as the case of self-propelled howitzers in 2012 (and in 2019 during the election the government announced it would get them after all). Generally, Defence tweaks the scope of the project to get it inside its funding provision (225 combat reconnaissance vehicles became 211) or it asks the government to approve a bigger budget. As long as it comes out of Defence's existing budget in the form of reductions or delays to other projects, the government usually says yes.

3.2 Maritime capability

The Naval Shipbuilding Plan

The shipbuilding program continues to ramp up, although perhaps not as quickly as the government and Defence might like (Figure 3.1). In 2019–20, the program was forecast to hit \$1,856 million; it looks like it only spent around \$1,400 million. That was still a big increase on 2018–19's \$976 million. This year, the forecast is for \$1,938 million, so the program is ramping up, even as the air warfare destroyer component winds down. With the future frigate still two years away from the start of construction and the future submarine three years, that cash flow is going to climb a lot higher, probably to around \$3.5–4 billion per year.

Figure 3.1: Naval Shipbuilding Plan cash flow, 2008–09 to 2020–21 (\$ million)



Source: Defence annual reports, PBS

SEA 3036: Pacific patrol boat (approved budget \$505 million)

Austal's Pacific Patrol Boat project is in full swing, delivering new boats to our Pacific neighbours. Seven of the 21 vessels have been delivered, and five more are planned for 2020–21. Last year, it spent \$59 million, and \$85 million is planned for this year.

SEA 1445: Evolved Cape-class patrol boat (approved budget \$346 million)

The government's announcement in May this year that it would acquire six new Cape-class patrol boats from Austal came as somewhat of a surprise.²⁸ Whether it was a capability measure to bridge the transition from the Armadale-class patrol boats to the offshore patrol vessels, a Covid-19 stimulus measure or a sweetener to keep Austal building ships in Australia wasn't clear (it was probably a combination of them all), but the plan might have been in the works for some time, as construction started quickly in July 2020. The project has rapidly entered Defence's top 30 and is planning to spend \$94 million of its total \$346 million budget this year.

The last vessel is scheduled for delivery in March 2023, so the project isn't a long-term solution to Austal's local workflow, but the rapid ramp-up and delivery show that building simple platforms to a proven design is a quick way to deliver capability.

SEA 1180: Arafura-class offshore patrol vessel (approved budget \$3,712 million)

That last conclusion is reinforced by the offshore patrol vessel (Figure 3.2). It's on schedule, and the first two vessels being built in Adelaide are well into construction. Work on the third vessel, the first of 10 to be built at Henderson in Western Australia, has also started; a keel-laying ceremony was held in September 2020.

The project planned to spend \$360 million 2019–20 but it only achieved \$249 million. That doesn't appear to have affected the schedule. It's aiming for \$285 million in 2020–21, which should be achievable based on last year's performance.

With the shipbuilding schedule not getting an additional warship to sea for 10 years, and consequently no additional missile cells, towed sonar arrays or air defence radars, ASPI has argued that Defence should be more ambitious with these highly capable ships. Rather than limiting them to a constabulary role, it should exploit their inherent potential and equip them with off-the-shelf weapons and autonomous systems to deliver capability quickly.²⁹

Figure 3.2: The two halves of the first offshore patrol vessel being joined together in May 2020



Source: Defence image library.

SEA 5000: Hunter-class frigate (approved budget \$6,234 million; total provision \$45.6 billion)

The government has announced that construction of the shipyard at Osborne in South Australia that will build the future frigate is now complete.³⁰ Prototyping is due to start by the end of 2020. Whether this is work that's useful to the development of the future frigate or merely work to validate the shipyard's systems is not clear. If it's the latter, it could more usefully be put to work building more offshore patrol vessels quickly, provided they are fitted out with weapons to rapidly enhance the Navy's combat power.

The project's provision has risen from >\$30 billion in the 2016 Integrated Investment Program to >\$35 billion in the 2017 Naval Shipbuilding Plan to \$45.6 billion in the 2020 FSP. One reason for that, according to the FSP, was the government's decision to allocate 'additional funding to enable construction of ships at a deliberate drumbeat over a longer period of time than originally planned to achieve a continuous shipbuilding program' (page 43). That is, we're spending more to get capability slower.

The project appears to have significantly underspent last year's target of \$468 million, achieving \$243 million.³¹ If it's not spending, it might not be able to stay on schedule, although Defence has firmly denied media reporting of delays caused by the need for more design changes than originally planned.

SEA 4000: Hobart-class air warfare destroyer (approved budget \$9,110 million)

All three air warfare destroyers are commissioned, so spending on this project is winding down. With \$8,085 million already spent and only \$105 million forecast for this year, there could be some change from the real cost increase of \$1.2 billion that pushed the project's total budget over \$9 billion. The ships' Aegis air defence system seems to be doing what it's meant to do, but the Navy needs to find much cheaper ways to get missiles, radars and antisubmarine systems to sea than the \$2.5–3 billion that each destroyer and future frigate costs.

With another year of sustainment cost data at hand (last year, \$188 million for two ships; this year, \$262 million for three), it's looking like they'll cost about \$90 million each per year to run. That's parametrically consistent with the Anzac-class ships, which are half the size and cost around \$45 million each per year (\$360 million for eight, noting that only five are in the water³²). The bad news about that is that the nine Hunter-class future frigates are even bigger than the Hobart-class destroyers, so it's reasonable to predict an annual sustainment cost of over \$800 million for them in 2020 dollars. This is more evidence that the Navy needs to find new ways to get capability to sea more affordably.

SEA 1000: Attack-class submarine (approved budget \$5,945 million; total provision \$89.7 billion)

The future submarine is still several years away from the start of construction. Nevertheless, the project spent \$543 million last year and \$782 million is planned for this year. That was half a billion dollars for design work. Its investment plan provision rose from >\$50 billion in 2016 to \$89.7 billion, although the Department of Finance let the cat of the bag recently when it informed the Senate that Defence's estimate had always been close to \$80 billion, even when it was publicly saying \$50 billion.

The schedule for the first one to be operational still seems to be 2034, with the same pedestrian drumbeat as the frigates of a subsequent vessel every two years.

Collins-class submarines

The Collins-class submarines once again have the largest sustainment budget in Defence. The forecast for 2020–21 is an increase on 2019–20's \$569 million and the average over the past five years of \$588 million. That doesn't include the \$134 million planned this year for the Collins sonar upgrade. The first-of-class installation of the first tranche of the upgrade was completed in mid-2020 as part of HMAS *Waller*'s full-cycle docking.

There haven't been any significant announcements relating to the Collins capability in the past year, and for nearly a year the government has put off an announcement about whether it will move full-cycle dockings to Western Australia. However, more details are emerging about the scope of the life-of-type extension (LOTE). It's looking like the whole fleet will need to go through a LOTE, both to prevent a capability gap in the transition to the Attack class and to provide enough boats to grow the workforce. However, Defence has indicated that the LOTE will involve replacing the diesel generators, main motor, electrical conversion and distribution system and periscopes, so it's starting to look like a heart–lung transplant. Defence has told Senate estimates hearings that it considers the risks to be manageable.

SEA 1654: Maritime operational support capability (approved budget \$1,091 million)

The PBS notes that the Covid-19 pandemic caused the shutdown of Navantia's shipyard in Spain, delaying delivery of the two replenishment ships by six months. That's borne out by the impact on cash flow, which achieved only \$118 million of a predicted \$192 million. Nevertheless, the first vessel, to be called HMAS *Supply*, arrived in Australia with little fanfare in October 2020 for fit-out of Australian-unique modifications, such as the combat system (Figure 3.3). We'll see if the 2019–20 MPR indicates whether the delay has affected initial operating capability, which is scheduled for March next year. The ships appear to be good value for money and will provide the Navy with a substantial capability enhancement.

Incidentally, the FSP includes two new logistics ships that will perform both sealift and replenishment roles. Not surprisingly, in the light of the direction of the government's industry policy, they're to be built in Australia. It's possible that *Supply* and its sistership *Sirius* could be the last Navy vessels built overseas for some time, based on the FSP's outline of future shipbuilding plans.

Figure 3.3: NUSHIP *Supply*, the first of the Navy's two new replenishment ships, arrived in Australia on 5 October 2020



Source: Navantia.

Other maritime capabilities

- The Canberra-class landing helicopter docks (LHDs) achieved final operational capability in November 2019, five years after the first was commissioned. First-of-class flight trials on the LHD for the MH-60R Romeo maritime combat helicopter have begun. Does this mean Defence can use the LHDs as antisubmarine helicopter carriers?
- Defence is now officially out of the FFG business. The last two were transferred to the Chilean navy on 15 April 2020.
- The Anzac-class frigate HMAS *Perth* went into drydock for upgrades in December 2016. Due to the lack of crew, it won't be back in the water and in service again until the second quarter of 2022. That means it will be out of service for five years—a poor return on investment.³³ On the flip side, the Navy is making progress in turning its workforce numbers around, as we discussed in Chapter 2.
- In Chapter 4, we discuss outsourcing. One example of that is SEA 2400 Phase 1, the HydroScheme Industry Partnership Program, which has developed a panel of seven hydrographic survey companies to deliver hydrographic data to Defence to allow it to meet its responsibility to provide hydrographic services to the nation.³⁴ The partnership was signed on 26 February 2020.³⁵ Using civilian hydrographic services should result in significant savings, or significantly more charts, or both.
- Work continues on developing small unmanned and autonomous systems for mine clearance and hydrographic roles, but the Navy is yet to embrace larger unmanned vessels to the extent that the US Navy has. Based on recent statements by Secretary of Defense Mark Esper, unmanned ships will be a key element of the navy. The US Navy is also conducting fleet trials with autonomous vessels, such as its Sea Hunter.³⁶

3.3 Land capabilities

Land vehicles are officially big business: there are three vehicle projects in this year's top 30 (two of them in the top 10). Between the Boxer combat reconnaissance vehicle, the Hawkei protected mobility vehicle—light, and medium and heavy trucks, there's \$1,222 million in planned spending.

LAND 121 Phase 3B—Overlander medium and heavy capability (approved budget \$3,400 million)

LAND 121 Phase 3B is now in the top 10 by 2020–21 spend, and it's also made the top 10 by total budget, bumping out the Seahawk Romeo. It achieved a spend of \$241 million last year, and \$226 million is forecast for this year.

Initial operating capability for the Army's new truck fleet was declared on 7 February 2020. The vehicles had certainly been put through their paces in the preceding months, contributing to Operation Bushfire Assist (Figure 3.4). A total of 3,751 vehicles, 4,730 modules and 2,565 trailers are to be delivered.³⁷

Figure 3.4: A MAN HX77 water resupply module vehicle working in support of Operation Bushfire Assist



Source: Defence Image Library.

The future of Defence's fleets of unprotected vehicles is not clear. The FSP states that:

Defence will substantially reduce the planned modernisation and consequent replacement of the G-Wagon vehicle fleet. Due to a lack of protection, these vehicles will not be deployable to future battlefields and their role will be accommodated by other vehicles such as the Bushmaster, Hawkei and heavy truck protected mobility fleets. (pages 76–77)

While unprotected vehicles might not be deployable to future battlefields, protected vehicles are considerably more expensive than unprotected ones, so doing all business, such as disaster relief, with protected vehicles will be an expensive proposition.

LAND 400 Phase 2: Combat reconnaissance vehicle (approved budget \$5,777 million)

The first tranche of 25 Boxer combat reconnaissance vehicles is being built in Europe; Australian-specific modifications are being made in Australia. On 24 September 2019, the first Boxer was delivered to Defence for testing and evaluation. Training has started on the initial tranche of vehicles, and the Military Vehicle Centre of Excellence in Queensland, where the vehicles will be built, was recently opened.³⁸

The Boxer is going to be a very expensive capability to operate compared to the ASLAV, which it's replacing. Defence doesn't routinely publish its estimates for the mature annual sustainment cost of future capabilities, but we have information for Boxer in an economic impact study commissioned by Defence, which was recently released in response to a freedom of information request. The study was completed in March 2018, the same month that the government announced it had selected the Boxer, so we can assume that it was based on tendered cost data. The study presents a \$9.6 billion out-turned whole-of-life sustainment cost for the Boxer. If we convert that to a constant, or real, number, it's over \$200 million per year (or around \$1 million per vehicle). According to data provided by Defence to ASPI, the average sustainment cost of the ASLAV fleet over the past seven years is \$43 million, so that's around a five-fold increase.

Based on its spend to date of \$1,066 million, it looks like the project spent \$809 million in 2019–20. That seems like a lot, considering only \$200 million was forecast in the 2019–20 PBS. The planned 2020–21 spend is \$566 million, which again is lot, but, since the project is still ramping up, it makes the 2019–20 spend look even more unusual. However, it's possible that the construction of the Military Vehicle Centre of Excellence required a lot of cash in 2019–20.³⁹

LAND 400 Phase 3: Infantry fighting vehicle (unapproved budget \$18.1–27.1 billion)

There have been two pieces of big news about the Infantry Fighting Vehicle (IFV) project in the past year. On 16 September 2019, the government announced that it had cut the original four tender responses down to a short list of two: Hanwha Group's AS21 Redback IFV and Rheinmetall's Lynx IFV. To support the final decision, three units of each of the vehicles will be put through a 52-week testing and evaluation process.⁴⁰ A government decision on the winner is scheduled to be made in 2022.⁴¹

While it may appear that Rheinmetall may have a head start, having already been selected for the Phase 2 combat reconnaissance vehicle, Defence has been at pains to say that's not the case and that the competition is wide open. However, if another contender is selected, that raises the awkward prospect of two workforce 'valleys of death' in the armoured vehicle business once the two phases have delivered.

An even bigger piece of news is the huge increase to the project's cost estimate in the 2020 FSP, up from a huge \$10–15 billion in the 2016 Integrated Investment Program to a mind-boggling \$18.1–27.1 billion. That's an 80% increase. If we take the mid-point and the government's statement that it will acquire 450 vehicles, then the project's acquisition cost per vehicle is \$50 million.

Moreover, based on the annual sustainment cost of the Boxer being over \$200 million, the cost of 450 IFVs is likely to be over \$500 million. Between them, sustainment of the two fleets could cost \$700 million in current dollars. The two fleets that they're replacing (ASLAV and M-113) average around \$70 million. Incidentally, \$700 million is more than the sustainment cost of Defence's current most expensive capability, the Collins-class submarine.

Surely we've reached the point at which we have to consider whether the capability is worth it. With the news and internet saturated with video footage of regional conflicts in which armoured vehicles are being routinely destroyed from above by precision-guided weapons launched from drones, manned aircraft, artillery or infantry,

there's an air of unreality to the entire \$18.1–27.1 billion enterprise. Such capabilities are no longer the preserve of advanced Western militaries: China, Russia, Israel and Turkey all manufacture and export them to numerous militaries. While the ADF doesn't yet have an armed unmanned aerial vehicle, many other countries in our region do. There's also the possibility of 'leakage' to non-state actors.

Then there's the question of how we would transport a fleet of 40-tonne IFVs to the battlefield where they would face those threats. They would have to cross a 2,000-kilometre zone of death, as Albert Palazzo has termed it, in the face of anti-ship threats described accurately in the DSU.⁴² Is that possible against a major power employing a range of advanced area-denial capabilities, particularly when the 2020 DSU admits that we can't match a major power?

That seems to be saying we could only use them in a war of choice against an irregular adversary. But is a capability costing \$18.1–27.1 billion that's only useful and survivable in wars of choice our highest priority in the light of the DSU's assessment of our strategic circumstances?

So, what's the alternative? There's a range of potential ways forward. One is to cancel the IFV program and invest the savings in other capabilities. That could include an additional tranche of Boxers, but substantially fewer than the 450 IFVs currently planned (by the way, the United Kingdom is acquiring the Boxer as its future IFV, so we already have an IFV). It could be complementary land capabilities, including tactical armed unmanned aerial vehicles for land units, or launchers for swarms of suicide drones. Some may be fundamentally different ones, such as more maritime strike weapons, offensive cyberweapons, hypersonic missiles or air combat capabilities (that is, the kinds of capabilities the DSU says are what we need to deter a major-power adversary). They aren't Army capabilities, but this isn't a children's birthday party where every child gets an equal prize.

The first step is to stop and reconsider.

LAND 121 Phase 4: Hawkei protected mobility vehicle—light (approved budget \$1,991 million)

The Hawkei project is scoped to deliver 1,100 Hawkei protected mobility vehicles and 1,058 trailers. The Hawkei provides the same level of protection as the highly successful but much larger Bushmaster.

It hasn't been smooth sailing for the project. There have been persistent reliability issues, and the project also suffered when its Austrian engine supplier went into receivership—that had a major impact on the project's spending, particularly in 2018–19. Thales has now addressed both issues, and the government has announced that full-rate production will start. Planned spending ramps up quickly, from \$193 million last year to \$440 million in 2020–21.

The government has said that deliveries of full-rate production vehicles will start in mid-2021 and continue to mid-2022 at a rate of 50 per month. That seems like a lot of vehicles to produce in a year. Nevertheless, the project's schedule doesn't appear to have changed; final operating capability is still scheduled for June 2023.⁴³

It also leaves open the future of the Bendigo production facility (Figure 3.5). It appears that the government is thinking that upgrades to the Bushmaster and Hawkei fleets will keep the plant going. Either that, or it will continue to build additional Bushmasters and Hawkeis into the future for unspecified future customers. There was no entry in the recent 2020 FSP to that effect.

Figure 3.5: The Thales Hawkei production line in Bendigo, Victoria



Source: Defence Image Library.

Digitisation of the Army

Digitisation has been one of the Army's highest priorities for several years. Two systems that enable the digital Army are now in the top 30 sustainment list. Two projects that continue to deliver this capability are in the top 30: battlefield command systems at \$216 million and battlespace communications systems (land) at \$96 million.

As for many modern digital systems, sustainment of the capability comes with a hefty price tag. Earlier tranches of those systems are now in service, and two figure in the sustainment top 30: sustainment of battle management systems is now \$100 million per year, and battlespace communications systems (including radios as well as the network that supports them) is \$99 million. To put that in perspective, none of the Army's vehicle fleets makes the top 30.

Army aviation

So much has been written about the sorry state of the Army's two underperforming helicopter fleets that there's little to add. The project to acquire the MRH-90 has now been running for over 15 years. Final operating capability is now forecast for December 2021.

Over the past eight years, its sustainment cost has averaged \$31,662 per hour. That's twice as much as the classic Hornet fighter and even more than a highly capable, multi-engine aircraft such as the P-8A. It's just ridiculously expensive for something that's essentially an unarmed flying truck with no intelligence, surveillance and reconnaissance role. It provides too few hours in return for the money.

This is more evidence that it's reputational sunk cost that stops the government and Defence escaping the financial sunk cost of bad projects. Killing the project and replacing it with Black Hawks years ago would have been cheaper in the longer term—and still could be. It's something that Defence has considered, but the prospect of a second Super Seasprite debacle was too unpalatable. Plus there's the conspiracy of optimism that the can-do people who populate Defence fall into.

Next year, the MRH-90 is meant to fly 7,950 hours, which is an improbable 54% increase on this year. Even if it gets there, each of those hours will cost nearly \$36,000. That's substantially more than the average Australian pays in tax. Again, can we just stop and think about whether we want to keep going down this path? Even if we

don't replace the whole fleet, getting a cheaper off-the-shelf civilian helicopter for roles such as disaster response offers greater value for money and actual capability.

The Tiger armed reconnaissance helicopter story is just as bad. The Tiger took 17 years to reach final operating capability, and then only with caveats. Like the MRH-90, it also costs over \$30,000 an hour to operate and grossly underachieves against its flying targets.

Between the two, we've spent \$5.23 billion to buy them, and acquisition spending on the MRH-90 is continuing. At least the Seasprite was only \$1 billion. We're paying \$460 million this year to sustain them. It's further evidence of the mistakes that can be made by succumbing to the siren song of local assembly and letting percentages of Australian industry content trump a realistic assessment of capability and value for money.

The Army desperately wants to acquire a new capability to replace the Tiger and has issued a request for information to industry. Unfortunately, it specified that the solution must be a manned armed reconnaissance helicopter. Aside from preventing industry from developing innovative solutions, this seems very risky in the light of the threats to manned helicopters, particularly from peer and near-peer adversaries.⁴⁴

The CH-47F Chinook is a solid performer, but, since it falls below the cut-off for the top 30 sustainment products, there's no public data on its flying cost. However, we can deduce from that fact that its hourly flying cost has to be lower than the MRH-90's, plus it consistently meets its flying targets. Can we trade some MRH-90s in for more Chinooks?

The Black Hawk fleet continues to ramp down and is due to be fully withdrawn from service by 2021–22, once the MRH-90 can take over the special forces role. Defence is engaging with industry to also acquire a light helicopter dedicated to special forces operations.

3.4 Air capabilities

AIR 6000: F-35A Joint Strike Fighter (approved budget \$16,684 million)

Globally, the F-35A JSF is achieving initial operating capability in other militaries and is being deployed on operations. Here, the project remains on track to achieve initial operating capability by the end of this year, and the first combat squadron is to become operational—18 years after the government first identified the JSF its preferred future air combat options. All 72 aircraft are to be delivered by 2023.

This program truly is a megaproject and is by far Defence's biggest spender. It's certainly moving a lot of cash; it's done close to \$2 billion in each of the past two years, bringing it to a total spend to date of nearly \$6.5 billion. AIR 6000 alone spent 23% and 21% of Defence's total capital equipment budget in those years.⁴⁵ That got it to 26 aircraft in Australia, but also means that there are still 46 aircraft and \$10 billion to go, so it's not surprising that over \$2.4 billion is forecast for 2020–21. In fact, there are probably a few more \$2 billion years to come.

Flying hours are increasing, although, as with all new aircraft, not as fast as planned. 2019–20's 3,096 achieved flying hours is a solid 50% increase on the previous year, but still only 68% of the year's planned number (Table 3.3). This year's 165% planned increase to 8,204 hours looks ambitious. Figure A.8 in 'Defence in 10 tables' shows total flying hours of Defence's air combat platforms in the long transition from the F-111 and classic Hornet to the Super Hornet and Growler and ultimately the JSF. The next few years are crucial in achieving a successful transition, so it's vital that the Air Force can fly the JSF enough to convert its pilots and grow new ones.

Table 3.3: JSF flying hours, planned and achieved, 2014–15 to 2023–24

	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
PBS 2015–16	201	500	500	752	2,000					
PBS 2016–17		468 (94%)	500	752	2,538	4,564				
PBS 2017–18			408 (82%)	752	2,538	4,564	8,204			
PBS 2018–19				702 (93%)	2,538	4,564	8,204	11,831		
PBS 2019–20					2,036 (80%)	4,564	8,204	11,831	14,519	
PBS 2020–21						3,096 (68%)	8,204	11,831	14,519	14,900

Actual achievement	Budget year estimate	Forward estimates
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Sources: Defence annual reports, PBS.

The operating cost of the JSF has always figured as a major cost risk. The program’s target was to achieve a cost similar to the aircraft that it’s replacing. The 2019–20 PBS was the first time that Defence published sustainment cost data for the F-35A. Based on the predicted flying hours, the hourly cost was \$41,849. Like many new aircraft, it didn’t achieve either the cost or the flying target. The cost per hour worked out at \$55,233. The prediction for this year is \$32,545, which is quite a drop. Incidentally, the cost of the legacy aircraft that the Air Force’s F-35A is replacing (the F/A-18 Hornet) has hovered around \$15,000 per hour for some time (although that’s rising as the fleet transitions out of service), so the F-35A still has a long way to go and it’s highly unlikely that it will get there. However, operating costs generally come down over time, so improvements are likely.

Using the data currently available, we’ve mapped the cost of the air combat capability over the long transition from the F-111 and classic Hornet fleet to the F-35A and Super Hornet fleet (Figure A9 in ‘Defence in 10 tables’).

Super Hornet / Growler (sustainment budget \$473 million)

The combined Super Hornet and Growler fleet is still very expensive to operate (last year’s cost looks like it hit a staggering \$100,000 per hour), but the sustainment concept being used includes spiral capability upgrades, which have traditionally been performed in upgrade projects that are counted as acquisition costs, not sustainment, so that’s probably not an apples-to-apples comparison with other aircraft. If the F-35A adopts a sustainment model like the Super Hornet’s, it’s sustainment cost may not come down much from where it is now.

This year, the sustainment cost is forecast to be \$473 million. That’s still the second largest in the ADF, but it translates into a somewhat more moderate \$69,000 per hour.

Air Force UAVs (Sky Guardian, \$1–2 billion; Triton, \$1.8–2.7 billion; teaming air vehicles, \$7.4–11 billion)

Despite the proliferation of unmanned aerial vehicles (UAVs) regionally and globally, the Air Force still doesn't have any UAV in service, let alone an armed one. It did operate the unarmed Heron in Afghanistan, but that aircraft is no longer in service. However, two projects for large UAVs are progressing.

One of the two (AIR 7003) is to acquire a medium-altitude, long-endurance armed UAV. In November 2019, the government announced that it had down-selected to the MQ-9B Sky Guardian (a variant of the US Reaper, but with a friendlier name). Despite the down-select, the government doesn't appear to have made a second-pass decision to start acquiring aircraft, so we could still be some way from having an operational capability. Ironically, the US Air Force has decided that it isn't going to acquire further Reapers. The inability of such systems to survive in contested environments was no doubt one key factor in that decision.

The second project is acquiring the Triton high-altitude, long-endurance surveillance UAV. The government has followed a very incremental approval approach. After two earlier approvals, it announced approval for a third aircraft in June this year.⁴⁶ That approach hardly exudes confidence but is probably justified, since the US Navy itself put a two-year production pause on the program in its FY 2021 budget. Even with Australia continuing to acquire aircraft, there's still some way to go to deliver capability; the first Triton won't be in service until mid-2023, followed by initial operating capability in 2024–25 and final operating capability in 2025–26. Again, while we talk about cutting-edge capability, we're hardly leading the world in the adoption of unmanned systems.

The Triton makes it into the acquisition top 30 this year for the first time, with a bullet; its planned spend of \$239 million puts it in fifth position. Its approved funding to date is \$1,943 million. While that includes ground facilities, it's a lot for three aircraft. If the US Navy program doesn't start up again, operating a small orphan fleet is going to be very awkward.

Boeing's Airpower Teaming System has announced that its unmanned 'Loyal Wingman' program has achieved some milestones this year, and Boeing has also said that any aircraft will be built in Australia. Innovation in Australia has often foundered due to the lack of a path to commercialisation. In a very promising contrast, the government has included a \$7.4–11 billion funding line in the 2020 FSP for 'teaming air vehicles'. Of course, Boeing still has to develop and demonstrate the capability, but there is a clear path forward.

AIR 7000 Phase 2B: P-8A maritime patrol aircraft (approved budget \$5,365 million)

The P-8A project has quietly achieved. The 12th and final P-8A arrived in Australia on 13 December 2019. Unusually for a new ADF aircraft, it's pretty much hit its flying hour targets as it's entered service: 12,704 of 12,866 hours from 2016–17 to 2019–20. Planned expenditure is down to \$195 million for this year, but, like most projects buying through the US foreign military sales system, it should have some money left over once it's delivered its scope.

AIR 6500: Integrated air and missile defence (unapproved budget \$6.7–10.1 billion)

The two phases of this program were announced in the 2016 Integrated Investment Program, but not much has occurred since then, at least in public view. Phase 1 is meant to acquire the next-generation air battle management system, but there's been nothing on AusTender since a 2017 industry briefing, so it hasn't gone out to tender yet. There have been suggestions that its schedule has been delayed due to competing budgetary priorities. There also seems to be a lot of conceptual wrangling about what it actually is, what's in scope, and which platforms, weapons and sensors it's meant to be managing.

Phase 2 is meant to be acquiring a medium-range air defence missile. Not much has been heard about this project either. However, it did get a big provision increase in the 2020 FSP, jumping from \$1.0–2.0 billion to \$4.9–7.3 billion.

AIR 8000 Phase 2: C-27J battlefield airlifter (sustainment cost \$84 million)

In AIR 8000 Phase 2, all C-27J aircraft have been delivered but flying hours are falling well short of what was planned (Figure 3.6). It's meant to be doing about 7,500 hours but managed only 3,000 last year. With those levels of availability, its hourly cost is more than that of the C-17A, which is an aircraft with many times the payload and overall capability. That's unsustainable in the longer term. With the US Air Force no longer in the C-27J business, things could take some time to improve. We should hope that the capability doesn't become another MRH-90. One way to do limit costs would be to dedicate it to a regional assistance and disaster response role in which it didn't need expensive self-defence systems.

Figure 3.6: The C-27J Spartan—a useful niche capability, but an expensive one



Source: Defence image library.

Projects of Concern

The following two projects remain on the Projects of Concern list:

- AIR 9000 phases 2, 4 and 6 (MRH-90 multi-role helicopters)
- AIR 5431 Phase 1 (deployable defence air traffic management and control system).⁴⁷

JP 2008 Phase 3F (Australian defence satellite communication capability terrestrial enhancement) was removed from the list after being remediated.

Chapter 4: The cost of outsourcing

Key points

- As the number of Defence public servants has fallen while the size of its acquisition and sustainment programs has risen, the provision of professional services to Defence has become very big business.
- Including consultants, contractors and external service providers, Defence's external workforce in March 2020 was 28,632. The largest categories are people maintaining equipment and providing base services.
- But Defence also signed professional services contracts worth \$2,170.6 million in 2019–20.
- The four teams selected to be the major service providers for CASG's Defence Support Services panel have done good business since it began in early 2018.

4.1 The sorts of things Defence spends money on

With a budget of over \$42 billion, it's probably not surprising that Defence spends a lot of money on a lot of different things. A very important source of information on Defence spending is AusTender, which publishes notifications of government contracts valued at over \$100,000. According to AusTender, Defence entered into 7,975 contracts with a total value of over \$17 billion in 2019–20. Many of the contracts are multi-year, so only part of the spending occurred in 2019–20. Seventeen of them were valued at over \$100 million. They're presented below in Table 4.1 just as they're listed on AusTender. Its descriptions of the scope of the contracts tend to be somewhat terse.

Table 4.1: Defence contracts valued at over \$100 million signed in 2019–20

Supplier name	Description	Category	Published	Start	End	Value (A\$)
Laing O'Rourke Australia Construction Pty Ltd	ASMTI SWBTA ^a Facilities Project—Managing Contractor Contract (MCC-1 2003) Delivery Phase	Building construction and support and maintenance and repair services	9-Sep-19	13-Aug-19	31-Dec-27	678,481,340
Naval Sea Systems Command	Armaments Cooperative Project	Explosive materials	26-Sep-19	1-Oct-19	31-Oct-34	622,154,953
University of NSW ADFA unsw@adf	Research and Other Academic Services	Education and training services	21-Nov-19	1-Nov-19	31-Dec-27	591,688,434
FMS account Reserve Bank of Australia	Guided Weapons and Support	Explosive materials	29-May-20	30-May-20	30-Jul-25	589,202,327
JPO Project Pammandi CBASS Embassy Of Australia	Heavy Weight Torpedoes	Explosive materials	13-Sep-19	1-Oct-19	31-Oct-34	573,487,788
Department of Defense of the United States of America	Advanced Electronic High Frequency Acquisition and Sustainment	Satellites	19-Mar-20	9-Jul-19	14-Dec-34	386,047,154
Raytheon Australia Pty Ltd	Joint Adversarial Training and Testing Services	Military fixed wing aircraft	13-Dec-19	12-Dec-19	31-Dec-27	366,141,463

Supplier name	Description	Category	Published	Start	End	Value (A\$)
Austal Ships Pty Ltd	Additional Cape Class Patrol Boat	Military watercraft	12-May-20	30-Apr-20	31-Mar-24	362,046,987
Boeing Defence Australia Ltd	Spiral Sustainment of Air Battlespace Management System	Surveillance and detection equipment	6-Dec-19	27-Nov-19	30-Jun-25	196,680,581
Garden Island Bayinguwa Delivery Team Pacific Services Group	Managing Contractor for Stage One Garden Island (East) Critical Infrastructure Recovery Program	Building construction and support and maintenance and repair services	26-Aug-19	19-Feb-18	28-Feb-23	183,880,603
CPB Contractors Pty Limited	Point Wilson Waterside Infrastructure Remediation Project	Structural materials and basic shapes	23-Dec-19	1-Nov-19	29-Dec-23	183,354,964
Downer Defence Services Pty Ltd	Major Service Provider to CASG—Enterprise Support Services Agreement	Professional engineering services	17-Oct-19	1-Sep-19	30-Sep-23	169,956,934
CEA Technologies Pty Ltd	Tactical and Operational Radars	Surveillance and detection equipment	6-Dec-19	6-Dec-19	30-Jun-24	154,305,969
ASC Pty Ltd	Collins Class Sustainment	Marine craft systems and subassemblies	29-Apr-20	22-Apr-20	31-Dec-24	144,459,076
ActewAGL Retail Ltd	Electrical Services	Electric utilities	20-Feb-20	1-Jul-16	30-Jun-21	105,475,719
BAE Systems Australia Ltd Accounts Receivable	Technical Assistance	Marine craft systems and subassemblies	23-Jul-19	1-Jul-15	31-Dec-19	103,993,985
Laing O'Rourke Australia Construction Pty Ltd	ASMTI SWBTA Facilities Project—Managing Contractor Contract (MCC-1 2003)—Delivery Phase	Building construction and support and maintenance and repair services	9-Sep-19	13-Aug-19	31-Dec-27	100,769,16

a Australia–Singapore Military Training Initiative, Shoalwater Bay Training Area.

Source: AusTender, [online](#).

With the largest at 'only' \$678.5 million, none of the year's contracts is particularly large by Defence's standards: there are 39 Defence contracts over \$1 billion recorded on AusTender, the largest being over \$14 billion for the Joint Strike Fighter.

But there's quite a mix in 2019–20's contracts. As one would expect, some are for military equipment. Some big contracts were signed directly with the US for guided weapons, such as \$622.2 million to the US Naval Sea Systems Command. There are contracts with the global defence primes' Australian subsidiaries, but there are also some big contracts to Australian companies for military equipment:

- \$362 million to Austal for six new Cape-class patrol boats (a surprise announcement made in May this year)
- \$154 million to CEA Technologies for radars
- \$144 million to ASC for Collins-class submarine sustainment (note that this is only a small part of the cost of sustaining the boats).

Consistent with the steadily increasing spend on Defence's facilities discussed in Chapter 2, four are for large infrastructure projects, including the largest one of the year: a contract with Laing O'Rourke for the Australia–Singapore Military Training Initiative at Shoalwater Bay Training Area. Another is with the indigenous joint venture Bayinguwa, which is redeveloping wharves at Garden Island in Sydney Harbour.⁴⁸

But there are a lot of contracts and money for services. There's the renewal of the agreement with the University of New South Wales to run the Australian Defence Force Academy for a further eight years at \$591.7 million; with the pain Australian universities are currently suffering due to the downturn in overseas student numbers, that guaranteed revenue puts UNSW Canberra in a fortunate position. There are some surprising numbers in the list; it looks like it costs around \$20 million per year to keep the lights on in Defence's Canberra facilities.

While the descriptions in AusTender are terse and bland, most of us would understand what they're referring to, but there's one that only those who follow Defence procurement closely might understand. That's the \$170 million contract with Downer Defence Services for 'Major Service Provider to CASG—Enterprise Support Services Agreement'. That's a useful segue into the main topic of this chapter—the cost of outsourcing.

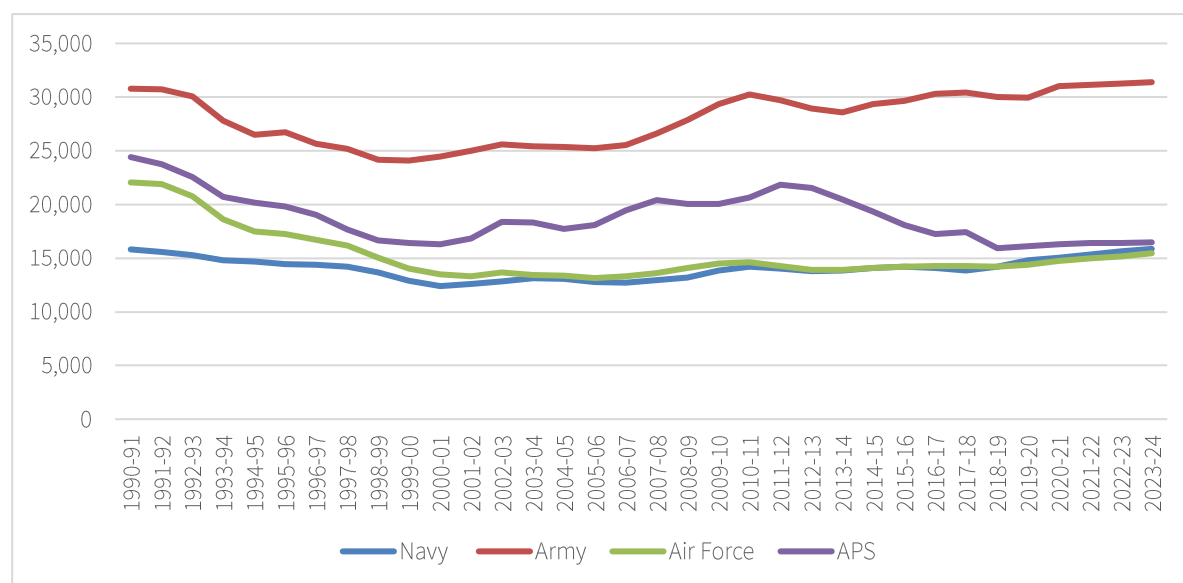
4.2 The story of outsourcing

A three-decade-long process

For several decades now, Defence has been undergoing a long process of moving work from being done 'in house', whether by uniformed or civilian personnel, to being outsourced to industry.

We won't retell the story in detail, but will map out its broad narrative. Part of the story can be seen in the trajectory of Defence's workforce numbers, shown in Figure 4.1.

Figure 4.1: Defence services' full-time strength, 1990–91 to 2023–24



Source: Defence annual reports; PBS.

It began with the Australian Government divesting itself of munitions factories and shipyards, which accounted for the big fall in APS numbers through the 1990s. Civilian numbers grew again during the first decade of this century, until governments of both sides consciously reduced them in the second decade. APS numbers fell by 20%, from 21,818 in 2011–12 to 17,407 in 2017–18 (the separation of ASD created an apparent further drop of around 2,000 the following year). At that point, the government decided things had gone far enough, and APS numbers have since stabilised.

Personnel numbers were also falling in the services. This bottomed out around the time of the Timor crisis, and since then there's been a slow rebuilding. But the top-level numbers don't tell the whole story; beneath the numbers, through successive waves of reform, there were conscious efforts to rebalance personnel towards the 'pointy end'.

The results of this decade-long process can be seen across Defence. Defence industry is now privately held (Thales now runs the explosives and munitions facilities at Mulwala and Benalla, for example). Messes are run by external service providers, not ADF cooks. Gates at ADF bases are guarded by private security guards, not service personnel.

It's not just blue-collar jobs that have been outsourced, but white-collar ones as well. The second wave of APS reductions in the 2010s hit CASG (the successor to the Defence Materiel Organisation) particularly hard. It fell from a peak of 5,989 personnel in 2011–12 to 3,660 now (a 39% drop).⁴⁹ That coincided with the ramp up in capability spending we've discussed in previous chapters. Defence's investment program had more projects for more complex systems, requiring a lot more integration with other systems, all costing a lot more money. CASG had a lot more work but far fewer people to do it.

Defence has long used contractors. Everyone who has worked in Defence has had a co-worker who retired, resigned or took a redundancy and showed up a few days later as a contractor doing a similar job, or indeed the same one. Defence had established panels that consisted of large numbers of 'pre-approved' service providers that areas of Defence could use to hire external contractors when they need to. From 2005, The Defence Materiel Organisation and then CASG had the Capability Acquisition and Sustainment—Support Services panel, which had more than 340 active companies covering more than 100 skill sets. Expenditure on the panel averaged \$300 million a year.⁵⁰

But the scale of the gap between the internal workforce and the amount of work required to deliver the investment plan meant that CASG had to change its business model. Partly through necessity and partly through the reforms recommended by the 2015 First Principles Review of Defence, CASG began to outsource the management of projects.

This was a model that Estate and Infrastructure Group had used successfully. A small number of public servants managed a large portfolio of projects, but project management itself was done by industry. In fact, the whole life cycle was essentially performed by industry, from the identification of requirements, to the design of the solution, to the conduct and evaluation of the tender, to delivery of the solution. Industry teams managed (termed 'above the line') other industry entities' delivery of infrastructure, equipment and sustainment ('below the line').

As CASG has followed this path, it's changed its panel arrangements. On 5 February 2018, the government announced that CASG had replaced the Capability Acquisition and Sustainment—Support Services panel and established a new Defence Support Services (DSS) panel.⁵¹

The DSS is intended to provide:

- program management services
- engineering and technical services
- materiel logistics services
- commercial services
- corporate performance services
- authoring and writing services.

But, consistent with the intent of the First Principles Review, rather than managing hundreds of small service providers itself, it selected four major service providers (MSPs) that would provide services themselves while

committing to also use small and medium-sized enterprises (SMEs). The MSPs would assist the government with workforce planning and management, industry and supply-chain development and management, workforce development, and work package planning and development.⁵² The four successful MSPs were:

- **Jacobs Beca Team** (Jacobs Australia and Beca Consultants)
- **Team Nova** (Nova systems Australia, QinetiQ and PricewaterhouseCoopers Consulting)
- **KEY Team** (Kellogg Brown & Root and EY)
- **Team Downer** (Downer EDI Engineering Power, AGIS Group, DXC Technology Australia, Systra Scott Lister Australia, Envista, and Providence Consulting Group).

Downer Defence Services

The contract with Downer Defence Services is an example of this shift. Downer is an established Australian company with a broad portfolio of activities. It's active in all the areas we've just discussed. Originally an engineering company, it designs, builds and operates infrastructure in the transport and energy sector. It also builds trains. Its predecessors built ships for the Navy in World War II.

In 2017, Downer bought Spotless, an established base services and facilities management provider for Defence, [managing](#) the Headquarters Joint Operations Command facility, for example. AusTender records 111 contracts with Spotless dating back to 2015 and totalling around \$2.75 billion. Downer (including Spotless) was eighth on the *Australian Defence Magazine* 2018 top 40 list and seventh on the 2019 list, with \$628 million in defence business.

Downer also provides management services, including strategic planning and project management. But, as a company with such a broad offering, it faced conflict-of-interest concerns. Its [website](#) states:

The breadth of our service offerings allow us to provide advisory and project delivery services to the same customer organisation. This provides value to Defence through the retention of project knowledge and early contractor involvement, and we are conscious of the need to identify and manage probity and conflict of interest concerns.

With this in mind, Downer has established a separate and wholly-owned subsidiary, Defence Systems, dedicated to the delivery of 'above the line' professional services. Separated by reporting lines, location and people and systems, the interaction between Defence Systems and the rest of the Downer Group is governed by the Downer Defence Steering Committee.

So that's where Downer Defence Systems, the recipient of the \$170 million major CASG MSP contract on AusTender, came from.

Is it value for money?

This isn't a criticism of Defence or Downer. With stagnant APS numbers, the only way Defence is going to spend the huge increase in acquisition funding laid out in the DSU and PBS is by using service providers such as Downer Defence Systems. Even if a government were to turn back the clock and try to bring some of those white-collar jobs back in house, it would take time to do it.

But there are some fundamental questions that it's reasonable to ask about this long process of outsourcing both white- and blue-collar service jobs. What are the costs and benefits? At what point does Defence lose the

ability to assess the quality of the advice, services and products that it's paying for? Which skills does Defence need to keep in house in order to be an informed customer? And, most fundamentally, does outsourcing those services represent value for money? Even if it costs more, there could be benefits that compensate.

Analysis of those questions can potentially shed some light on other questions about the cost of defence. For example, *The cost of Defence* has previously noted the growing sustainment cost of Defence's systems, based on reviews of Defence's top 30 sustainment products presented in the PBS and annual report. Certainly, part of this is due to the increasing size and complexity of those platforms, but part of the rising cost could be an artefact of the move to outsourced support. The top 30 sustainment product lines in the PBS don't include the cost of the uniformed ADF personnel who maintain those capabilities or of CASG's APS project managers—Defence personnel are essentially a 'free good' in cost attribution. But the top 30 budgets do include the cost of external service providers. As more project management and maintenance work is moved from Defence personnel to industry, that shows up as a cost. Conversely, it also potentially allows Defence to move its own people to other tasks that only Defence personnel can do.

These are all very difficult questions to answer, and we won't aim to do that here, but for anybody to develop answers we need data, so the remainder of this chapter compiles some of the data that's out there.

4.3 The data

As with most of the public data relating to Defence's spending, the data in this area is patchy and inconsistent. We'll pull together what's in the public domain.

Defence's external workforce—its second biggest 'service'

The annual report provides Defence's expenditure on consultants, reproduced in Table 4.2.

Table 4.2: Total Defence expenditure on consulting contracts, 2013–14 to 2019–20 (\$ million)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20
Defence	43.9	81.6	90.7	244.7	108.0	109.6	114.2

Source: Defence annual reports.

Those numbers are a bit all over the place, rising by 450% over three years and then falling by over 50%, but they suggest that Defence's use of consultants has stabilised over the past three years (or they might just suggest an inconsistent methodology). It's possible that the blowout in 2016–17 was a factor in pushing CASG to introduce its new panel arrangements in 2017–18. However, consultants are only a very small part of Defence's external workforce (about 1%, in fact), so \$100 million or so per year on consultants is only a very small part of the total cost of Defence's external workforce.

Defence has started doing a biannual census of its external workforce. It recently released the top-level count under FOI (Table 4.3).

Table 4.3: Defence external workforce

Workforce	July 2019 FTE	March 2020 FTE
Contractors	4,669	6,567
Consultants	250	255
Outsourced service providers (OSPs)	18,405	21,811
Total	23,323	28,632

FTE = full-time equivalent.

Source: Defence freedom of information log, [online](#).

We probably shouldn't make too much of the fact that the total number has grown by 22.8% in less than a year, since the census process is new. But both the July 2019 and the March 2020 counts make the external workforce Defence's second biggest 'service', behind the Army at roughly 30,000 and ahead of the APS at 16,000. That's a lot of people.

What's the difference between the three categories?

Defence has also [published](#) definitions (quoted verbatim here) of the three categories of external workforce used in the census:

- **Consultant:** Consultants are individuals, partnerships or corporations engaged to provide professional, independent and expert advice or services. It involves the engagement of expert professional skills to investigate or diagnose a defined issue or problem, to carry out defined research, reviews or evaluations or provide independent advice, information or creative solutions to assist in management decision making. Performance of the services is at the discretion and professional expertise of the consultant, with Defence providing oversight. The consultant's output reflects the independent views or findings of the individual or organisation and generally belongs to Defence.
- **Contractor:** A person engaged by Defence under a contract for skills that would normally be maintained in the Australian Public Service (APS) or Australian Defence Force (ADF) workforce. The person is engaged to perform day-to-day duties of Defence. The person works largely under the supervision of an APS employee or ADF member. Defence specifies how the work is to be undertaken. The resulting output is produced on behalf of Defence and is generally regarded as a Defence product. The person's remuneration is based on the time worked, usually calculated on an hourly or daily rate. Defence generally provides the necessary equipment and supplies.
- **Outsourced service provider:** Defence has made a decision that the function is to be performed by an external service provider on a long term or permanent basis. It involves skills or expertise that are not required to be maintained by APS or ADF in Defence. Performance of the services is left largely up to the discretion and professional expertise of the provider. Typically, service standards or performance indicators are agreed as part of the contracting process and monitored periodically. The resulting output is produced for Defence as a customer. Remuneration is paid when milestones are reached or a task is completed, or periodically for the provision of ongoing services such as maintenance, cleaning or travel bookings. The provider generally supplies their own equipment and supplies.

In short, a consultant is meant to provide Defence with creative advice and solutions that it can't develop itself (such as on how to fix its workforce problems); a contractor fills in for a Defence person; and an outsourced

service provider (OSP) does the jobs that Defence has decided it won't do itself. Spotless's staff looking after Defence's facilities would fall into the third category, as would Boeing staff maintaining aircraft. It's not clear from this which category external workers managing one of Defence's acquisition projects would fit into. Presumably, if they're working in one of CASG's systems program offices replacing a public servant, it would be the second category, but if the entire project management team were outsourced it would be the third.

The definition of 'contractor' raises some questions. If a contractor is providing skills normally maintained in the ADF or APS, why isn't an ADF or APS person providing them? What's wrong with Defence's workforce model if it needs 6,567 of them? Is Defence actually short by 6,567 internal FTE personnel?

What do they do?

The external workforce census also provided the breakdown into 'primary activities' shown in Table 4.4.

Table 4.4: Defence contractors, consultants and outsourced service providers, by 'primary activities', March 2020

Primary activities	Contractors	Consultants	OSPs	Total
Platform or Fleet Sustainment and Maintenance	1,150	10	6,907	8,067
Property	29	9	5,752	5,790
Information Technology	1,186	19	2,660	3,865
Other	900	65	2,700	3,665
Project Management	2,311	73	729	3,113
Education & Training	343	4	991	1,338
Health Services	1	0	1,189	1,190
Administration	407	40	526	972
Legal	30	2	140	173
Procurement	87	1	64	152
Finance	64	–	65	129
Communications and Media	28	25	70	122
HR Research and Services	31	7	19	56
Total	6,567	255	21,811	28,632

Source: Excerpt from March 2020 Defence External Workforce Census, Defence freedom of information disclosure log, 20 August 2020, [online](#).

The two biggest categories are, perhaps not surprisingly, OSPs maintaining military equipment and providing base services. If we put aside the rather large 'Other' number, the third largest is OSPs providing 'Information Technology'. They're part of the \$1.8 billion ICT acquisition and sustainment spend we discussed earlier.

If we look at project management, there are 2,311 contractors and 729 OSPs. That suggests that, while the management of some projects has been completely outsourced, most of it is still done in house, but with the assistance of a lot of contractors doing jobs traditionally done by Defence personnel. Again, it's not clear what the benefit to doing that is. As CASG reforms progress, it will be interesting to track that ratio to see whether the number of OSPs rises.

What does it cost?

While the external workforce census produces a single figure for the number of workers, there doesn't appear to be any single number gripping up their annual cost. That cost is going to be spread across a wide range of activities and contracts.

In 2019–20, according to AusTender (note that it records only contracts over \$100,000), Defence signed 1,891 contracts with a total value of \$2,170 million for what we can broadly call professional services (Table 4.5). Not all of the funds were spent in 2019–20, as many of the contracts run for several years.

Table 4.5. Defence 'professional services' contracts signed in 2019–20

Category	Number of contracts	Value (A\$)
Building support services	10	7,847,660
Business administration services	31	65,279,236
Business intelligence consulting services	32	48,602,014
Corporate objectives or policy development	4	982,135
Education and training services	66	151,129,526 ^a
Environmental management	46	40,266,934
Feasibility studies or screening of project ideas	11	3,165,948
Human resources services	10	5,403,922
Information technology consultation services	78	168,297,265
Legal services	180	53,049,001
Management advisory services	849	682,311,855
Management support services	33	40,338,561
Organisational structure consultation	5	14,978,817
Personnel recruitment	21	8,262,974
Professional engineering services	322	661,662,124
Professional procurement services	14	23,551,681
Project administration or planning	27	20,264,118
Project management	63	90,279,489
Property management services	23	27,471,115
Real estate management services	1	18,346,517

Strategic planning consultation services	52	36,371,066
Temporary personnel services	13	2,744,774
Total	1,891	2,170,606,732

a This figure doesn't include the \$592 million contract with the University of New South Wales for the Australian Defence Force Academy.

Source: AusTender, [online](#).

Since AusTender provides only minimal details, it's not possible to determine exactly what the contracts covered (some may have included physical things and not just services) and what's above the line and what's below, but most appear to be for advice and management services. There's \$682 million alone in the category of 'Management advisory services', over \$661 million in professional engineering services and \$90 million in project management. Again, it's not possible to determine from AusTender which fall into the categories of consultant, contractor and OSP.

Table 4.5 doesn't include the category of 'Military science and research', which seems to be bit of a grab bag mainly covering research and development. It's a further 229 contracts worth \$206,723,567.

The four major service providers

There are a lot of companies in that list, but the members of the four teams that CASG selected as its major service providers in the new DSS panel feature prominently. They appear to have done very well in terms of revenue since the new arrangement was announced in February 2018. Table 4.6 tallies up the contracts awarded to them since then.

Table 4.6: Contracts awarded to CASG MSP team members since February 2018

Company	Contracts since March 2018	Value of contracts since March 2018 (\$)	Largest contract description	Largest contract category	Largest contract value (\$)
Jacobs Beca Team					
Jacobs Australia	63	363,738,918 ^a	Enterprise Support Services	Professional engineering services	157,038,895
Beca	24	54,644,273	Support Services	Management advisory services	6,830,125
Team Nova					
Nova Systems Australia	44	383,961,896	Enterprise Support Services	Professional engineering services	90,093,132
Nova Defence	69	76,811,483	Professional Engineering Services	Professional engineering services	13,583,217
QinetiQ	81	145,911,034	Specialist Engineering Services.	Professional engineering services	56,891,557
PricewaterhouseCoopers (Australia)	59	98,156,164	JP2096 Ph1—Acquisition and Capability	Components for information technology or	14,150,668

Company	Contracts since March 2018	Value of contracts since March 2018 (\$)	Largest contract description	Largest contract category	Largest contract value (\$)
			Development Project Management Office	broadcasting or telecommunications	
KEY Team					
Kellogg Brown & Root	92	376,913,502	Landing Helicopter Dock Capability Support and Coordination	Military services and national defence	70,071,116
Ernst & Young	17	40,682,464	Information Communication Technology	Components for information technology or broadcasting or telecommunications	12,165,772
Team Downer^b					
Downer Defence Services ^c	37	333,223,334	Major Service Provider to CASG—Enterprise Support Services Agreement	Professional engineering services	169,956,934
Downer EDI Engineering Power	5	35,013,412	Enterprise Support Services	Professional engineering services	25,173,060
AGIS / AGIS Group	68	170,014,780	Information Communication Technology	Components for information technology or broadcasting or telecommunications	47,679,379
DXC Technology Australia	9	7,699,369	System support	Management advisory services	3,410,000.00
Envista	19	45,122,661	Defence Support Services panel	Management advisory services	10,336,534.70
Providence Consulting Group	18	19,940,572	Information Communication Technology	Components for information technology or broadcasting or telecommunications	6,304,515.76
Total	605	2,151,833,862			

a Jacobs Group (Australia), as opposed to Jacobs Australia, also had 30 contracts (\$58,980,904) relating to the delivery of infrastructure.

b Systra Scott Lister Australia has only one contracted listed on AusTender.

c This doesn't include Defence contracts with Spotless, which was acquired by Downer.

Source: AusTender, [online](#).

We should declare a couple of caveats. There's nothing in AusTender that shows whether a contract was awarded through the DSS panel arrangement, or whether it was above the line or below the line. We've tried to exclude contracts for 'things' such as equipment or buildings and limit the list to services, but that's difficult to

do from the minimal information on AusTender. Does a contract for an external managing contractor for an acquisition project cover just project management or does it also include the purchase of equipment? And the boundary between the management of a project and the scope of a project can be fuzzy—which side is design and integration of the elements of the solution on?

Problematizing aside, it's clear that Downer isn't the only company that's doing very well providing management services to Defence. Several of the companies listed in Table 4.6 figure in the *Australian Defence Magazine* list of the top 40 defence suppliers for 2019 (note that not all of their turnover counted by the magazine falls under the categories we've been looking at): Downer/Spotless (7); Nova Systems (17); Kellogg Brown & Root (18); QinetiQ Australia (26); and Beca (just outside at 44).⁵³

One of the requirements for the new DSS panel was that the MSPs selected for it would use local SMEs, that is, they would not do all the work themselves but pass some of the work and revenue on to smaller companies. It would be useful to see some data from Defence to confirm that has in fact happened, both to reassure SMEs that they weren't losing out, as well as confirm to the government that its defence industry policy was benefiting SMEs.

The so what

So it's not just weapons and infrastructure that are big business. The services necessary to acquire and sustain them are also very big business—billions of dollars per year, based on the data here. It's not possible to say based on the numbers whether in a perfect world which of these services should be conducted in house by the Defence workforce. Even if it were the case that some should be kept in house, it seems that moving back in that direction would be going against the tide of history.

It's clear that outsourcing services is big business, and it's likely to keep getting bigger, potentially much bigger, if Defence is to have any hope of achieving the 27% increase in its capital budget this year, let alone the \$29.2 billion annual acquisition spend and \$23.8 billion annual sustainment forecast in the DSU for 2029–30. Let's hope Defence is doing everything possible to ensure that those outsourced services are delivering in the most cost-effective way possible.

Appendix 1: Long-term tables

Table A1.1: Defence funding—nominal and real increases, 2000–01 to 2029–30 (\$ million)

	Nominal funding	Nominal increase	Real funding (2020–21 baseline)	Real increase	% of GDP
2000–01	12,319	2.4%	19,357	-3.4%	1.75%
2001–02	13,191	7.1%	20,152	4.1%	1.75%
2002–03	14,216	7.8%	21,085	4.6%	1.78%
2003–04	15,439	8.6%	22,361	6.0%	1.79%
2004–05	16,224	5.1%	22,945	2.6%	1.76%
2005–06	17,547	8.2%	24,044	4.8%	1.76%
2006–07	19,140	9.1%	25,473	5.9%	1.76%
2007–08	19,993	4.5%	25,742	1.1%	1.70%
2008–09	22,689	13.5%	28,330	10.1%	1.80%
2009–10	25,480	12.3%	31,092	9.8%	1.96%
2010–11	24,432	-4.1%	28,914	-7.0%	1.73%
2011–12	26,381	8.0%	30,517	5.5%	1.76%
2012–13	24,437	-7.4%	27,640	-9.4%	1.59%
2013–14	26,132	6.9%	28,776	4.1%	1.64%
2014–15	30,023	14.9%	32,504	13.0%	1.85%
2015–16	31,151	3.8%	33,265	2.3%	1.88%
2016–17	31,999	2.7%	33,596	1.0%	1.81%
2017–18	34,926	9.1%	35,976	7.1%	1.89%
2018–19	37,239	6.6%	37,737	4.9%	1.91%
2019–20	39,185	5.2%	39,185	3.8%	1.98%
2020–21	42,746	9.1%	42,746	9.1%	2.19%
2021–22	45,610	6.7%	44,895	5.0%	2.27%
2022–23	49,406	8.3%	47,839	6.6%	2.35%
2023–24	52,467	6.2%	49,564	3.6%	2.38%
2024–25	55,567	5.9%	51,212	3.3%	2.39%
2025–26	58,175	4.7%	52,308	2.1%	2.38%
2026–27	61,239	5.3%	53,720	2.7%	2.38%
2027–28	64,639	5.6%	55,319	3.0%	2.39%
2028–29	69,639	7.7%	58,145	5.1%	2.44%
2029–30	73,687	5.8%	60,024	3.2%	2.45%

Current budget year	PBS 2020–21 forward estimates	2020 DSU funding line
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Notes:

Nominal funding is derived from: PBS for historical years and forward estimates; 2020 DSU from 2024–25.

Real funding is calculated using a 2020–21 baseline with CPI derived from: Australian Bureau of Statistics data for past years; the 2020–21 Budget paper no.1 for the forward estimates; and an assumption of 2.5% inflation from 2024–25.

GDP is based on Australian Bureau of Statistics data for past years; the 2020–21 Budget Paper no.1 for the forward estimates, and an assumption of 5.3% nominal growth from 2024–25.

Table A1.2: Defence Capital Investment Program, 1999–00 to 2022–23 (\$ million)

Year	Major Capital Equipment	Capital Facilities	ICT Investment	Minors	Other Investment	Total	Total (2020-21 real \$)
1999–00	2850	216			23	3,089	5,201
2000–01	2702	341			370	3,413	5,420
2001–02	2,483	275			235	2,993	4,620
2002–03	2,571	352			546	3,470	5,201
2003–04	2,746	386			620	3,751	5,491
2004–05	3,323	393			602	4,318	6,172
2005–06	3,888	430			722	5,041	6,981
2006–07	4,019	653.4			925	5,597	7,529
2007–08	4,030	570			829	5,429	7,064
2008–09	3,234	861			741	4,836	6,102
2009–10	5,159	1,504			626	7,289	8,989
2010–11	4,838	1,211			883	6,932	8,291
2011–12	4,208	997			739	5,944	6,949
2012–13	3,357	1,019			276	4,652	5,317
2013–14	3,558	1,222	355	118	1,009	6,262	6,969
2014–15	6,081	1,303	400	101	754	8,638	9,452
2015–16	6,565	1,082	490	88	1,056	9,281	10,017
2016–17	6,786	1,451	862	53	1,212	10,364	10,996
2017–18	7,289	2,137	245	62	1,058	10,790	11,233
2018–19	8,063	1,911	559	57	0	10,590	10,822
2019–20	8,620	1,976	572	44	0	11,212	11,212
2020–21	10,742	2,610	773	157	0	14,281	14,281
2021–22	12,360	3,390	862	195	0	16,807	16,543
2022–23	13,794.6	3,906	895	170	0	18,766	18,170
2023/24	15,539	4,004	858	197	0	20,598	19,458

Source: Defence annual reports to 2011–12, PAES from 2012–13 to 2018–19, PBS from 2019–20.

Table A1.3: Defence Cooperation Program, 1999–2000 to 2020–21 (\$ million)

Year	PNG	South Pacific	Southeast Asia	Other regional activities	Defence International Training Centre	Total	Total (2020–21 real \$)
1999–00	7.7	21.1	23.7	2.3	0.0	54.8	91.3
2000–01	15.4	16.8	24.7	3.7	0.0	60.6	95.3
2001–02	27.7	17.5	29.7	4.7	0.0	79.6	121.6
2002–03	9.4	22.5	25.8	1.5	3.4	62.6	92.9
2003–04	14.5	25.0	26.4	0.7	3.9	70.6	102.2
2004–05	13.9	25.7	30.1	1.5	3.7	74.9	106.0
2005–06	19.2	36.6	21.0	2.3	3.8	82.9	113.6
2006–07	14.2	33.4	21.3	2.9	3.9	75.8	100.9
2007–08	12.2	35.9	20.6	4.4	4.4	77.6	99.9
2008–09	12.3	47.3	25.2	3.6	4.2	92.7	115.7
2009–10	11.6	43.6	21.6	3.8	4.1	84.6	103.2
2010–11	9.5	35.5	17.4	4.8	4.2	71.4	84.5
2011–12	11.5	29.9	18.1	6.3	5.3	71.1	82.2
2012–13	20.0	31.3	17.0	5.9	5.1	79.2	89.6
2013–14	23.7	35.4	14.7	5.8	4.9	84.6	93.1
2014–15	25.1	37.6	13.6	5.2	4.9	86.4	93.6
2015–16	38.9	42.2	16.0	6.5	4.2	107.8	115.1
2016–17	29.1	43.6	15.2	5.8	4.5	98.3	103.2
2017–18	34.1	54.7	17.6	6.1	4.9	117.5	121.0
2018–19	39.2	82.3	20.2	7.2	4.7	153.6	155.7
2019–20	43.2	75.2	21.2	7.6	4.8	152.1	152.1
2020–21	48.5	82.5	30.6	11.5	4.7	177.7	177.7

Note: There are no forward estimates figures in the PBS beyond the current budget year.

Source: Defence annual reports to 2010–19, PBS from 2019–20.

Appendix 2: Workforce tables

The raw numbers

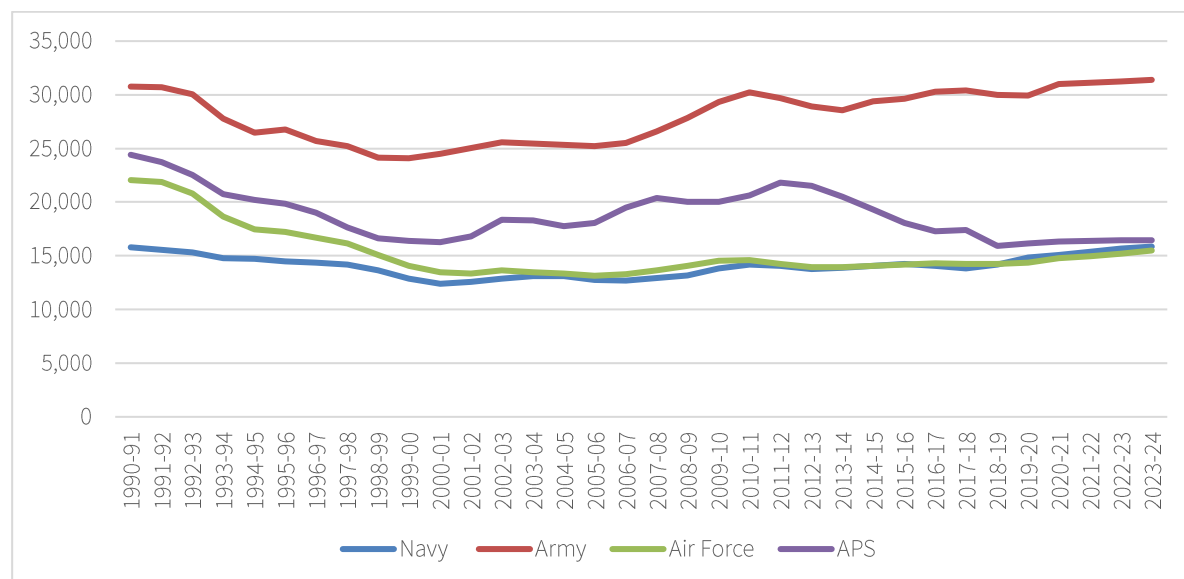
Table A2.1: Defence full-time personnel numbers, 1990–91 to 2023–24

Year	Navy	Army	Air Force	ADF Total	APS	Defence total
1990–91	15,786	30,789	22,055	68,630	24,412	93,042
1991–92	15,549	30,733	21,893	68,175	23,750	91,925
1992–93	15,294	30,064	20,780	66,138	22,558	88,696
1993–94	14,776	27,802	18,642	61,220	20,724	81,944
1994–95	14,702	26,483	17,456	58,641	20,188	78,829
1995–96	14,473	26,746	17,240	58,459	19,830	78,289
1996–97	14,377	25,682	16,705	56,764	19,042	75,806
1997–98	14,206	25,196	16,172	55,574	17,664	73,238
1998–99	13,661	24,169	15,065	52,895	16,641	69,536
1999–00	12,887	24,089	14,051	51,027	16,417	67,444
2000–01	12,396	24,488	13,471	50,355	16,292	66,647
2001–02	12,598	25,012	13,322	50,932	16,819	67,751
2002–03	12,847	25,587	13,646	52,080	18,385	70,465
2003–04	13,133	25,446	13,455	52,034	18,303	70,337
2004–05	13,089	25,356	13,368	51,813	17,753	69,566
2005–06	12,767	25,241	13,143	51,151	18,079	69,230
2006–07	12,690	25,525	13,289	51,504	19,467	70,971
2007–08	12,935	26,611	13,621	53,167	20,391	73,558
2008–09	13,182	27,833	14,066	55,081	20,041	75,122
2009–10	13,828	29,339	14,530	57,697	20,058	77,755
2010–11	14,207	30,253	14,624	59,084	20,648	79,732
2011–12	14,054	29,697	14,243	57,994	21,818	79,812
2012–13	13,760	28,928	13,919	56,607	21,534	78,141
2013–14	13,862	28,568	13,934	56,364	20,496	76,860
2014–15	14,070	29,366	14,076	57,512	19,342	76,854
2015–16	14,232	29,635	14,194	58,061	18,071	76,132
2016–17	14,077	30,314	14,289	58,680	17,269	75,949
2017–18	13,818	30,410	14,247	58,475	17,407	75,882
2018–19	14,176	29,982	14,222	58,380	15,925	74,305
2019–20	14,821	29,923	14,365	59,109	16,129	75,238
2020–21	15,063	30,996	14,767	60,826	16,313	77,139
2021–22	15,350	31,122	14,987	61,459	16,405	77,864
2022–23	15,648	31,237	15,169	62,054	16,439	78,493
2023–24	15,863	31,391	15,472	62,726	16,456	79,182

Source: Defence annual reports to 2018–19, PBS from 2019–20

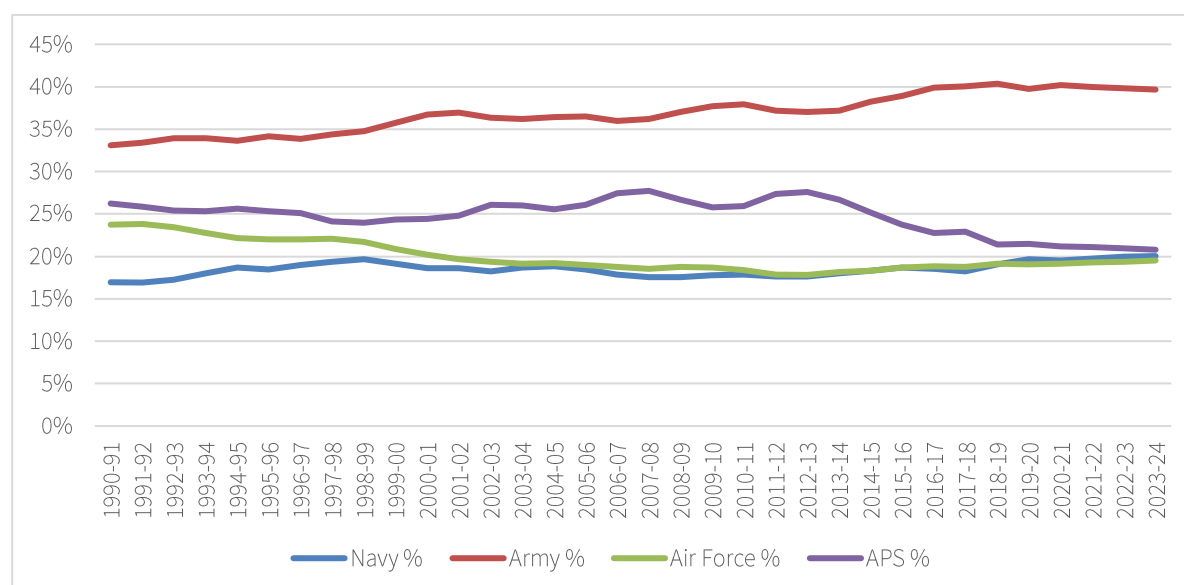
The relative numbers of the services

Figure A2.1: Defence's services' full-time strength, 1990–91 to 2023–24



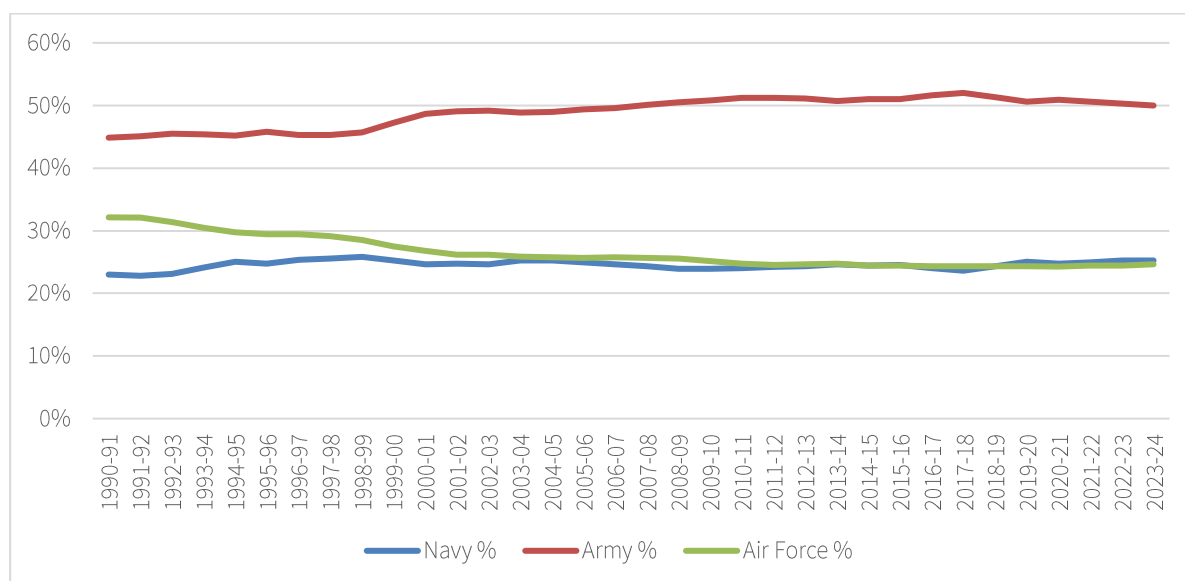
Source: Defence annual reports to 2018–19, PBS from 2019–20.

Figure A2.2: Services as a percentage of total Defence full-time personnel, 1990–91 to 2023–24



Source: Defence annual reports to 2018–19, PBS from 2019–20

Figure A2.3: Services as a percentage of total ADF full-time personnel, 1990–91 to 2023–24



Source: Defence annual reports to 2018–19, PBS from 2019–20.

Targeted and achieved workforce since the 2016 Defence White Paper

Actual achievement	Budget year prediction	Forward estimates prediction
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Table A2.4: The Navy's uniformed workforce: targeted and achieved

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
PBS 2016–17	14,232	14,394	14,456	14,684	14,718				
PBS 2017–18		14,077	14,123	14,683	14,718	14,763			
PBS 2018–19			13,818	14,689	14,726	14,772	14,893		
PBS 2019–20				14,176	14,776	14,825	14,946	15,078	
PBS 2020–21					14,821	15,063	15,350	15,648	15,863

Sources: PBS, Defence annual reports.

Table A2.5: The Army's uniformed workforce: targeted and achieved

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
PBS 2016–17	29,635	30,430	30,891	30,907	30,966				
PBS 2017–18		30,314	30,672	30,874	30,936	31,115			
PBS 2018–19			30,410	30,810	30,871	31,050	31,178		
PBS 2019–20				29,982	30,821	30,997	31,125	31,216	
PBS 2020–21					29,923	30,996	31,122	31,237	31,391

Source: PBS, Defence annual reports.

Table A2.6: The Air Force's uniformed workforce: targeted and achieved

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
PBS 2016–17	14,194	14,385	14,334	14,203	14,406				
PBS 2017–18		14,289	14,399	14,237	14,436	14,707			
PBS 2018–19			14,247	14,295	14,193	14,763	14,956		
PBS 2019–20				14,222	14,493	14,763	14,956	15,108	
PBS 2020–21					14,365	14,767	14,987	15,169	15,472

Source: PBS, Defence annual reports.

Table A2.7: Defence public service workforce: targeted and achieved

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
PBS 2016–17	18,071	17,950	18,200	18,200	18,200				
PBS 2017–18		17,269	17,970	18,200	18,200	18,200			
PBS 2018–19			17,407	16,373	16,254	16,175	16,147		
PBS 2019–20				15,925	16,272	16,195	16,167	16,163	
PBS 2020–21					16,129	16,313	16,405	16,439	16,456

Note: The drop in numbers from 2017–18 to 2018–19 was caused by the Australian Signals Directorate becoming a statutory agency and taking its public service workforce with it.

Source: PBS, Defence annual reports.

Acronyms and abbreviations

ADF	Australian Defence Force
ANAO	Australian National Audit Office
APS	Australian Public Service
ASD	Australian Signals Directorate
ASLAV	Australian light armoured vehicle
CASG	Capability Acquisition and Sustainment Group
CESAR	cyber enhanced situational awareness and response
DSS	Defence Support Services
DSU	Defence Strategic Update
DWP	Defence White Paper
FOI	freedom of information
FSP	Force Structure Plan
FTE	full-time equivalent
GDP	gross domestic product
ICT	information and communications technology
IFV	infantry fighting vehicle
JSF	Joint Strike Fighter
LHD	landing helicopter dock
LOTE	life-of-type extension
MPR	<i>Major projects report</i>
MSP	major service provider
OSP	outsourced service provider
PAES	Portfolio Additional Estimates Statements
PBS	Portfolio Budget Statements
UAV	unmanned aerial vehicle
UK	United Kingdom
UN	United Nations

Notes

¹ The key cost categories sum to \$42,612.4 million, which doesn't match the Department of Defence's funding appropriation of \$41,715.1 million because the presentation of the key cost categories in the PBS (Table 4b) also includes funding from other sources of \$897.3 million.

² Our analysis focuses on the government's funding for Defence, known as the 'appropriation'. Defence also has 'own source revenue', which is mainly funding it receives in return for the provision of services to its members (such as food at messes) or partners (such as fuel). In 2020–21, it's around \$600 million. Generally, our analysis is based on appropriated funds, but sometimes, due to the presentation of the PBS, the numbers include own source revenue.

³ Department of Defence (DoD), *Portfolio Budget Statements (PBS) 2020–21*, Australian Government, 2020, [online](#).

⁴ Australian Government, *Budget paper no. 1: Budget strategy and outlook 2020–21*, 2020, [online](#).

⁵ An earlier version of this brief incorrectly repeated the 'DSU funding line' figures in the 'Defence budget based on 2% of GDP' and has been corrected.

⁶ Australian Government, *Budget paper no. 2: Budget measures 2020–21*, 2020, [online](#).

⁷ ASPI's personnel spending figure was taken from the 'employee benefits' figure in the department's comprehensive income statement. For 2020–21, it's \$12,433.5 million. Defence's 'key cost categories' figure for workforce adds additional costs, such as training. It also includes own source revenue. Therefore, it results in a larger figure than the old ASPI method, at \$13,410.5 million.

⁸ Using ASPI's methodology, workforce spending will grow in real terms by around 5.3% between 2016–17 and 2023–24, while personnel numbers grow by around 4.3%.

⁹ Technically, but not quite in an accounting sense. That's because the Capability Acquisition Program includes things that in an accounting sense are operating costs and, conversely, its Capability Sustainment Program includes items that in an accounting sense are 'capitalised'. Nevertheless, it's quick and easy to use the Capability Acquisition Program as Defence's capital budget. In fact, that's how Defence does it; until last year, the Capability Acquisition Program was termed the Capital Investment Program.

¹⁰ Noting once again that, for years before 2018–19, Defence provided only an updated estimate in the PAES, not final actuals.

¹¹ An earlier version of this brief incorrectly stated the 2019–20 PBS sustainment target was \$12,901.3 million.

¹² The administered program of Defence Force Superannuation Benefits is 14th.

¹³ This comprises mainly items that are used in sustainment but are 'capitalised' under accounting practices, as they aren't consumed. This could include things such as replacement engines for aircraft.

¹⁴ There will still be two appropriation Bills: department outcomes and capital budget will be covered by Appropriation Bill 1, and the equity injection will be covered by Appropriation Bill 2.

¹⁵ These numbers refer only to the Department of Defence and don't include ASD. They also include own source revenue, so they sum to line 15 of PBS Table 1a, not line 5, which is the department's appropriation.

¹⁶ The 2020–21 Defence portfolio (the department and ASD) appropriation divided by 25,709,556, which was the Australian Bureau of Statistics' population clock prediction for Australia's population on 9 October 2020.

¹⁷ It should be noted that service personnel costs are attributed to a member's parent service rather than the group where they're posted, so this means the Defence personnel costs of groups that have a large number of embedded service personnel (such as Strategic Policy and Intelligence, Australian Defence Force Headquarters, and Capability Acquisition and Sustainment Group) are understated.

¹⁸ We've taken the data from each program's cost summary, using the lines 'Purchases of non-financial assets' and 'Purchases of inventory'.

¹⁹ Siobhan Heanue, 'Defence recruiting soars as Australians look for work amid downturn,' ABC News, 4 July 2020, [online](#).

²⁰ Technically, this number includes only projects that have reached second pass at this point in time, so it isn't that same as the 2020–21 'Military equipment acquisition program' budget in PBS Table 5 (\$10,742 million), as that number also includes the 2020–21 spend on projects that aren't yet approved but will be approved over the course of the year.

²¹ Lendlease was number 1 the previous year, with a turnover of \$1,205 million. One suspects that it will have opportunities to reclaim the top spot from BAE Systems.

²² Information provided by Defence. The numbers are slightly larger than those in the 2020 DSU/FSP.

²³ See also Marcus Hellyer, 'Australia's defence budget in the age of Covid-19: unsustainable sustainment?' *The Strategist*, 23 June 2020, [online](#).

²⁴ 'Approved' means that it's the official project budget that the government has agreed Defence can spend on an agreed project scope. Approval is usually granted after the National Security Committee of Cabinet considers a business case supported by cost information provided by industry in response to a tender. That consideration is called 'second pass' approval, although Defence also uses the term 'Gate 2'. 'Unapproved' funds are those in Defence's future investment program. That program is also considered and agreed to by the government, but Defence can't spend the money until it's approved at second pass.

²⁵ They are SEA 4000 Phase 3 (air warfare destroyer), \$1,199.5 million; AIR 9000 Phase 2/4/6 (MRH-90 helicopters), \$31.4 million; AIR 5431 Phase 3 (civil–military air traffic system), \$247.5 million; SEA 1448 Phase 2B (Anzac anti-ship missile defence), \$214.7 million.

²⁶ And, as we see below, it's looking like the air warfare destroyer project won't need all of its increased funding.

²⁷ RAND Corporation has published several studies on the cause of cost growth in US defence projects, including Joseph G Bolten, Robert S Leonard, Mark V Arena, Obaid Younossi, Jerry M Sollinger, *Sources of weapon system cost growth: analysis of 35 major defense acquisition programs*, RAND Corporation, Santa Monica, 2008.

²⁸ Linda Reynolds, 'New patrol boats to boost Navy capability', media release, 1 May 2020, [online](#).

²⁹ Marcus Hellyer, *From concentrated vulnerability to distributed lethality— or how to get more maritime bang for the buck with our offshore patrol vessels*, ASPI, Canberra, 2020, [online](#). Or, for the short version: Marcus Hellyer, 'Enhanced offshore patrol vessel fleet would be a force multiplier for Australia's navy', *The Strategist*, 3 June 2020, [online](#).

³⁰ Linda Reynolds, 'SA job booms as Osborne Shipyard complete', media release, 26 September, 2020, [online](#).

³¹ It's possible that part of this underspend could be related to the shift from accrual to net cash accounting, but nothing in the PBS states this.

³² Royal Australian Navy, 'Frigate, Helicopter (FFH)', no date, [online](#).

³³ Department of Defence answer to question on notice 206, dated 6 February 2020, Senate Standing Committee on Foreign Affairs, Defence and Trade, Supplementary Budget Estimates, 29 November 2019.

³⁴ Department of Defence, 'HydroScheme Industry Partnership Program', Australian Government, no date, [online](#).

³⁵ 'Hydroscheme industry partnership program commences', *Defence News*, 26 February 2020, [online](#).

³⁶ Megan Eckstein, 'SECDEF Esper calls for 500-ship fleet by 2045, with 3 SSNs a year and light carriers supplementing CVNs', *USNI News*, 6 October 2020, [online](#); Mallory Shelbourne, 'Navy to use Sea Hunter in fleet exercises as unmanned systems experimentation continues', *USNI News*, 30 September 2020, [online](#).

³⁷ Numbers are from CASG, *Quarterly performance report*, March 2020, released under FOI, [online](#).

³⁸ Linda Reynolds, 'Prime Minister opens new Military Vehicle Centre of Excellence', media release, 11 October 2020, [online](#).

³⁹ Defence advised ASPI that one reason for the large increase in annual spending for LAND 400 Phase 2 was the transition from accrual to net cash accounting that we discussed in Chapter 1.

⁴⁰ Department of Defence, *LAND 400 Phase 3: indicative timeline*, Australian Government, no date, [online](#).

⁴¹ Linda Reynolds, 'Multi-billion dollar land capability project progresses to next stage', media release, 16 September 2019, [online](#).

⁴² Albert Palazzo, 'Crossing 2000 kilometres of death', *Land Power Forum*, Australian Army Research Centre, 17 September 2019, [online](#).

⁴³ It's possible that the 2019–20 MPR could reveal a revised final operating capability.

⁴⁴ I've discussed alternative approaches to replacing the Tiger in Marcus Hellyer, *Accelerating autonomy: autonomous systems and the Tiger helicopter replacement*, ASPI, Canberra, 2019, [online](#).

⁴⁵ Because the capital program is so much bigger than it was 30–40 years ago, those percentages pale in comparison to the F-35A's predecessor, the F/A-18 A/B 'classic' Hornet. It spent four years at over 34% of the total capital budget and peaked at 45%.

⁴⁶ Linda Reynolds, 'Australia commits to next generation Triton remotely piloted aircraft', media release, 18 June 2020, [online](#).

⁴⁷ Defence doesn't release details on precisely why projects are on the list and how they're progressing in getting off it. The reasons for MRH-90 being there are presented in ANAO's MPR. The details on the deployable air traffic control system have been redacted out of CASG's *Quarterly performance report*.

⁴⁸ Marise Payne, '\$213 million wharf infrastructure project at Garden Island', media release, 17 July 2018, [online](#).

⁴⁹ Current figure provided by email from Defence media, 8 October 2020.

⁵⁰ See CASG's briefing on the DSS panel, [online](#).

⁵¹ Christopher Pyne, 'Defence streamlines service provider arrangements', media release, 5 February 2018, [online](#).

⁵² See also the CASG description of the DSS panel, [online](#), and the MSP arrangement, [online](#).

⁵³ It's not clear why Jacobs Australia isn't on the list, since the cut-off for 2019 was \$52 million.