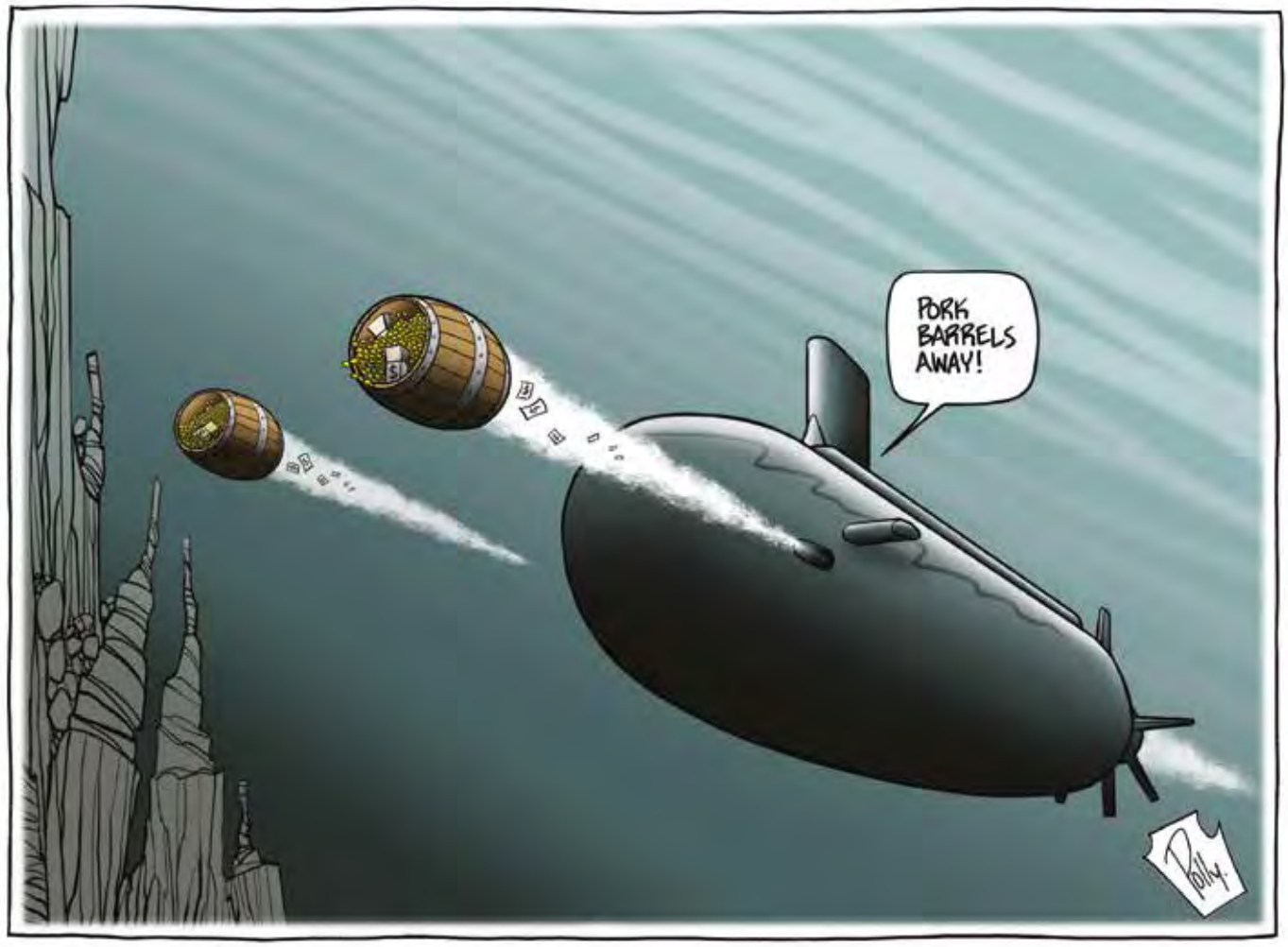
ASPI
AUSTRALIAN STRATEGIC POLICY INSTITUTE

The Cost of Defence

ASPI Defence Budget Brief 2017–2018



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Ninety-five million, thirty-two thousand, five hundred & ninety-one dollars & seventy-eight cents per day

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Reproduced courtesy of the artist.

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Note on title:
The figure of $95,032,591.78 represents one three-hundred-and-sixty-fifth of net defence funding for 2017–18. This does not include funds appropriated to the Defence Housing Authority, nor those administered by Defence for military superannuation schemes and housing support services.

Contents

Executive Director's introduction

This is ASPI's sixteenth annual Defence Budget Brief. Our aim remains to inform discussion and scrutiny of the Defence budget and the policy choices it entails.

As has been the custom in the past, we explore new areas in this year's Brief. We've added a new chapter on New Zealand's defence spending. There's also an expanded discussion of US and NATO defence spending in Chapter 5.

Acknowledgements are due. The not inconsiderable task of preparing the document for publication has been ably taken care of by Janice Johnson. Many others have helped by providing comments, offering advice, and checking facts. Andrew Davies proofread most of the document. Two ASPI interns, Patrick Kennedy and Zoe Glasson, helped with Chapter 5.

Also, Defence was kind enough to look over a preliminary draft of this Brief and provide valuable comments. That helped clarify some important points, which resulted in improved accuracy in many areas. Of course this does not in any way imply that Defence endorses this document or even supports its conclusions.

My colleague Mark Thomson, who is ASPI's Senior Analyst for Defence Economics, has once again pulled together the brief in the short time available. For this I extend my sincere thanks. As always, responsibility for the judgements contained herein lie with Mark and me alone.

Lastly we should acknowledge that we at ASPI are not disinterested observers of the Defence budget. Our funding from government is provided through Defence at the rate of nine thousand, eight hundred and forty-five dollars and ninety cents ($9,845.90) per day. Details can be found in our 2015-16 Annual Report.

Peter Jennings
Executive Director

Executive summary

In the 14 months since the release of the 2016 Defence White Paper, the government has fulfilled its funding promise, and Defence and industry have gotten on with building a stronger ADF. Challenges lie ahead, but, for the moment at least, things are largely on track.

Defence Budget 2017

Defence funding 2017-18:	$34.7 billion	
Share of GDP:		1.9%
Share of Commonwealth spend:		7.3%
Real growth on prior year:		6.5%

Expenditure shares

Investment:	$11.6 billion	(33.4%)
Personnel:	$11.7 billion	(33.7%)
Operating:	$11.4 billion	(32.9%)

Cost of deployments

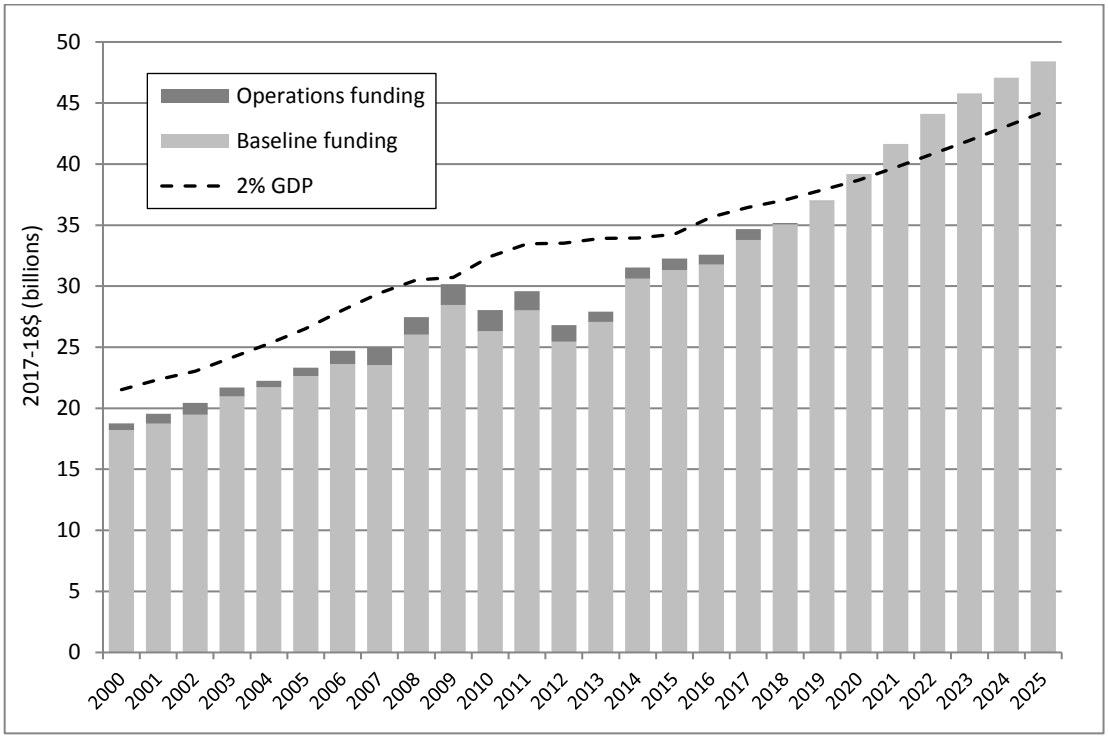
Afghanistan & Middle East:	$735 million
Border protection:	$23 million

Key budget measures

+$38 million adjustment for foreign exchange

-$318 million in efficiency dividends

Defence spending in 2017-18 will be $34.7 billion, representing 1.9% of GDP—a 6.5% real increase on last year. The hallowed benchmark of 2% of GDP is projected to be met in 2020-21, three years earlier than promised in 2013 (but only because GDP forecasts declined markedly in the interim). The next few years will see spending increase by an average of 4.7% per annum in real terms, with investment in new equipment the main beneficiary. In, 2015-16, the year preceding the White Paper, defence capital investment amounted to $9.2 billion. By 2020-21 it will reach $16 billion, and by 2025-26 it will exceed $23 billion.



Note: 2015 = 2015-26 etc.

There are two risks to defence funding. On the supply side, current and future governments are likely to find it hard to placate a fractious electorate that evinces little interest in national security. With an election in 2019 and a planned return to surplus the year after, the test will come soon enough.

On the demand side, the risk is that the planned growth in capital investment will outstrip the capacity of Defence and industry to deliver. As the current raft of large off-the-shelf

foreign purchases gives way to even larger domestic naval construction programs, the risk of underspending will grow. Back in the 2000s, anything more than a 5% per annum increase in equipment purchases proved unsustainable. Unfortunately, nothing encourages governments to withdraw funding more than handing back money.

But those are challenges for the future. Where are we today?

Let's start with personnel. After struggling to maintain its numbers a few years back, the ADF workforce looks to be in better shape today. For the most recent year reported, 90% of the recruiting target was met, compared with a historical average of 86%, and the separation rate was 8.3%, compared with a historical average of 10.8%. Even so, the ADF currently has 333 people fewer than budgeted for, from a workforce of around 59,000. But that's a much better result than the shortfalls of 1,000–2,000 experienced from 2012 to 2015.

If only things were looking that good for Defence's civilian workforce. This year, civilian numbers fell 600 positions below the budgeted figure (from a workforce less than a third of the size of the ADF). And recent internal surveys have revealed disappointingly low civilian morale. In a survey from March 2016, 41% of civilians rated their workplace morale as 'low' or 'very low', while only 17% of ADF personnel were similarly disaffected. Having not had a pay rise since 2013, and being offered an increase below that awarded to ADF members (breaking a quarter-century practice), low morale is understandable. With the government predicting economy-wide wage growth of 2.5% to 3.0% in the budget, now is the time to stop treating civilians as second-class members of the Defence workforce and to restore parity with military wage increases.

It's been an exciting 12 months for Australian defence industry. While many previous defence industry policies have gathered dust, the 2016 policy statement led to a flurry of action. We now have a dedicated Minister for Defence Industry, and the three key components of the government's decade-long $1.6 billion defence industry program are up and running, including the Centre for Defence Industry Capability, the Defence Innovation Hub and the Next Generations Technologies Fund. More importantly, and in a departure from its 2016 defence industry statement, the government has adopted an avowed 'buy Australian' policy. To quote the Prime Minister 'I am determined that every dollar we spend on defence procurement as far as possible should be spent in Australia…'.

Whether it's the lucrative $195 billion of projects up for grabs, or the 'buy Australian' policy, international defence firms have spent the past 12 months redoubling their investments in Australia. New offices and research centres have been popping up in South Australia and elsewhere, new global supply chain agreements have been signed and existing agreements renewed. The government could not have asked for a better response from industry.

Progress continues on the centrepiece of the government's vision for Australian defence industry; continuous naval construction split between SA and WA. Although construction won't start until 2018 for the Offshore Patrol Vessels, 2020 for the frigates, and 2022 or 2023 for the submarines, initial work is well underway. Requests for tender have been released for both the Future Frigates and the Offshore Patrol Vessels, and a design and mobilisation contract has been signed with our submarine design partner DCNS. By mid-

2018, more than $446 million will have been spent on submarines and $297 million on frigates.

The government's long-awaited Naval Shipbuilding Plan was released in mid-May. And while there are still many unknowns that will only be resolved by future decisions, the Plan provides useful information. For one, we now know that the government will own the naval shipbuilding infrastructure in SA and WA, and plans to invest substantially in both locations over the next several years. There was also further information about schedules, though some of the numbers did not make sense, and there seemed to be a hint that the Future Frigate project will be delayed. On the critical question of contractual arrangements, we remain in the dark. Finding a way to drive value-for-money in the monopoly shipyards that are being created is a key challenge that government is yet to address.

Within the vast Defence enterprise, reform is going well. Two years on from the First Principles Review (FPR), 63 of 69 recommendations have been completed, and the vast bulk of recommendations are expected to be signed off by mid-year. A health check by the FPR oversight board is presently underway, but signs are that reforms have been successful; structural rearrangements are complete, new committees are well-established, and new processes are being refined. Indications are that the implementation of the FPR has been a case study in careful and systematic change management.

Nowhere have the changes been more transformative than in the capability life cycle, particularly the capability development process. A key metric for the new arrangements is the approval of new projects in line with the demands of the 2016 Integrated Investment Plan. However, after years of uninterrupted transparency, the government has ceased disclosing what projects it approves.

While that could be taken as a sign that things are not going well, that's probably not the case. As best as can be estimated, although approvals look to be running somewhat behind schedule, it's not by much. If anything, the recent pace of project approvals has matched or exceeded historical rates. I had anticipated that the disruption wrought by the new arrangements would result in severe delays. I was wrong.

What I failed to appreciate, but now understand, is that the reforms to capability development were really just a dismantling of the Kinnaird reforms of 2004. Acquisition and sustainment are now back within Defence, internal contestability has been re-established, Finance gets a seat at Defence's capability committee, and the detailed paperwork introduced under the Kinnaird reforms has been pared back substantially. Everything old is new again. We've even gone back to the 1990s 'buy Australian' policy.

For all the talk of 'smart procurement', what's really happened is that we've reverted to the old balance between expediency and risk, with the emphasis now on the former. The Kinnaird process sacrificed time to retire risk; the new approach shifts the balance back. While some unnecessary work has probably been eliminated by recent changes, so too have many of the checks and balances introduced by Kinnaird. When was the last time you heard about a mandated military-off-the-shelf option? There is no magic formula that allows essentially the same group of people to somehow make better decisions in less time.

Those observations are not made as criticisms; our current strategic situation justifies an elevated tolerance of procurement risk. But if that's what we are going to do, we need recognise it and adjust accordingly. Most importantly, we need to marshal sufficient resources to manage the risks we are shouldering. Given the massive scale and manifest risk of the planned program, we could devote substantial additional resources to its management and be confident of a positive return on investment. The danger is that the recent reforms to Defence have stripped away program management capacity just at the point when the opposite should be happening.

Even if everything goes to plan—that is, the government continues to meet its promises and defence and industry deliver capability on time and within budget—a crucial question remains. Are we doing enough?

The scale and timing of today's plans for the ADF are the consequence of an ad hoc decision to spend 2% of GDP on defence by an arbitrary date. To pretend otherwise is to mistake numerology for strategy. What's more, the capabilities sought in the 2016 White Paper are little more than a re-hash of the Rudd government's abandoned 2009 plan. Not only did today's plans have their genesis in far less challenging times, but we are starting seven years late.

In case you've missed it, the world is going to hell. In January this year, a report from the normally staid US National Intelligence Council pointed to 'deep shifts in the global landscape that portend a dark and difficult near future'. It went on to say:

> The next five years will see rising tensions within and between countries. Global growth will slow, just as increasingly complex global challenges impend. An ever-widening range of states, organizations, and empowered individuals will shape geopolitics. For better and worse, the emerging global landscape is drawing to a close an era of American dominance following the Cold War. So, too, perhaps is the rules-based international order that emerged after WWII.

Yet we continue as if it's business as usual, squabbling about whether defence industry jobs will be created in one electorate or another.

Current plans will only strengthen Australia's defences slowly. For example, the first of our aptly named 'future submarines' won't enter service until the early 2030s, and we won't have twelve boats until the early 2050s. We need to do more, and we need to do it now.

The quickest and most cost-effective way to strengthen our defence would be to enhance the readiness and sustainability of existing capabilities. Stockpiles of munitions and spare parts should be made consistent with requirements for prolonged independent operations, and additional personnel signed-up to increase the availability of existing platforms for deployment.

We should also explore keeping selected existing assets in-service past their planned retirement, and even examine the feasibility of rapidly acquiring new high value capabilities, such as combat aircraft. Think of it as an insurance policy—a contingency plan—with any final decision contingent on a further deterioration in the strategic outlook. In the

meantime, we should bolster our diplomatic capacity, reinforce our national resilience, and hone our crisis decision-making.

The proposal set out here might seem overwrought. But we currently plan to spend close to $450 million on defence over the next decade. If that is the scale of spending needed to keep us safe in the 21st century, surely we can afford to spend a little more in response to the ‘dark and difficult near future’ we confront today.

Chapter 1 – Background

1.1 Strategic Context

Sometimes events move quickly. In December 1998, John Howard wrote to his Indonesian counterpart B.J. Habibie, suggesting that East Timor should vote on self-determination. Fewer than ten months later, Australia was leading a UN sanctioned mission to East Timor involving 23 troop contributing nations, with around 6,500 ADF personnel deployed on land, sea and air.

The INTERFET operation couldn't have come at a worse time; the Australian Defence Force (ADF) had fewer active duty personnel than at any point since 1964, and long-stagnant funding had rendered the force hollow and poorly equipped. To add insult to injury, Defence was in the grip of a highly disruptive efficiency drive that was attempting to get blood from a stone.

Events were set in motion in late January, when Habibie wrote to the United Nations requesting an autonomy vote for the province. Less than ten days later, the Chief of the Defence Force issued a Warning Order for possible unilateral and multilateral ADF operations in East Timor. There followed a whirlwind of activity within Defence. In March, the government announced that the Army's Darwin-based 1st Brigade was being brought up to 28 days' operational readiness. Across the ADF, inventories were checked, warehouses scoured, war stocks replenished, and training began in earnest.

By June, a high-speed civil catamaran had been commissioned into the RAN to fill a critical gap in the ADF's amphibious lift capacity. And soldiers finally got the body armour and modern helmets they'd been asking for. In a parallel track, our diplomats worked overtime to secure a UN resolution and muster international support before any ADF personnel set foot in East Timor.

The operation was a success, largely because no time was lost in preparing (though Indonesian cooperation was also critical).

Four White Papers and $435 billion later, you'd expect the ADF to be ready for anything that might be thrown its way. In many scenarios, you'd be correct; the ADF is now larger, better equipped, and more integrated than in 1999, and it has almost two decades of hard-won operational experience. Anything that the ADF has done over the past 18 years—from East Timor to Syria—it could repeat tomorrow with confidence.

But the future won't be like the past—it never is. The world is changing rapidly and for the worse. I fear that the gap between today's preparedness and tomorrow's challenges may be even greater than that faced by our 'fitted for but not with' defence force back in 1999.

Throughout this century, the ADF has been busy in keeping the peace close to home, and assisting the United States further afield. But, as costly as these operations have been in human and financial terms, they are not comparable with conventional interstate conflict—which I believe is a more pressing risk today than at any time since at least the end of the Cold War. The ground is shifting beneath our feet.

Don't believe me? Here's what some prominent thinkers are saying:

- Richard Haass, President of the Council on Foreign Relations, has just penned a book entitled *A World in Disarray: American Foreign Policy and the Crisis of the Old Order*, in which he argues that 'the fundamental elements of world order that have served the world well since World War II have largely run their course'.

- Henry Kissinger said in an interview in *Atlantic* magazine in late 2016 that 'the world is in chaos. Fundamental upheavals are occurring in many parts of the world simultaneously', adding that 'a crisis in the South China Sea over 280 islands, many of which are rocks protruding into the ocean, could escalate into a global conflict'.

- Francis Fukuyama, the political philosopher who once foretold the 'end of history', now says that 'the risk of sliding into a world of competitive and equally angry nationalisms is huge, and if this happens it would mark as momentous a juncture as the fall of the Berlin Wall in 1989'.

- Historian Max Hastings and strategist François Heisbourg have each compared newly elected US president Donald Trump with Kaiser Wilhelm II in the context of the latter's culpability for starting World War I.

Of course, public intellectuals are sometimes prone to hyperbole—it come with the territory. Perhaps our government is getting a more optimistic outlook from its intelligence analysts? I doubt it. Consider the following two passages from executive summary of *Global Trends: Paradox of Progress*, a 226-page report from the US National Intelligence Council released in January 2017:

> The progress of the past decades is historic—connecting people, empowering individuals, groups, and states, and lifting a billion people out of poverty in the process. But this same progress also spawned shocks like the Arab Spring, the 2008 Global Financial Crisis, and the global rise of populist, anti-establishment politics. These shocks reveal how fragile the achievements have been, underscoring deep shifts in the global landscape that portend a dark and difficult near future.
>
> The next five years will see rising tensions within and between countries. Global growth will slow, just as increasingly complex global challenges impend. An ever-widening range of states, organizations, and empowered individuals will shape geopolitics. For better and worse, the emerging global landscape is drawing to a close an era of American dominance following the Cold War. So, too, perhaps is the rules-based international order that emerged after WWII.

If that's what the US intelligence community is saying in public, what must they be thinking in private?

Yet we continue as if its business as usual, squabbling about whether jobs will be created in one electorate or another. The worst part of surrendering defence policy to the political imperative of 'jobs and growth' is that we've taken our eye off the ball at what might be a critical time.

Current plans will only strengthen Australia's defences slowly. For example, the first of our 'future submarines' won't enter service until the early 2030s, and we won't have twelve boats until the early 2050s. The glacial pace of strengthening the ADF is consistent with the White Paper's assessment that 'the United States will remain the pre-eminent global military power over the next two decades'—a critical judgment that the latest US National Intelligence Council assessment calls into serious question.

That's giving the 2016 White Paper more credit that it deserves. We know that neither the scale nor pace of plans for the ADF has anything to do with balancing strategic risks and costs, let alone soothsaying about where the US will be in 20 years. Instead, today's plans are the consequence of an ad hoc decision to spend 2% of GDP on defence by an arbitrary date. To pretend otherwise is to mistake numerology for strategy.

What's more, the capabilities sought in the 2016 White Paper are little more than a re-hash of the Rudd government's abandoned 2009 plan. Not only did today's plans have their genesis in far less challenging times, but we are starting seven years late.

There are limits to what can realistically be done to adapt existing plans to looming challenges. Woe betide anyone who upsets the cosy political economy of naval shipbuilding. And Defence would strongly defend the current inter-service division of spoils. Absent a major crisis, existing misallocations and inefficiencies are baked in; our only option is to add to existing plans.

The quickest and most cost-effective way to strengthen our defence would be to enhance the readiness and sustainability of existing capabilities. Stockpiles of munitions and spare parts should be made consistent with prolonged independent operations, and additional personnel signed-up to increase the availability of existing platforms for deployment. We should analyse where and how to get the most worthwhile boosts to capability per extra dollar spent. Plans to upgrade the ADF's airfields and port facilities should be brought forward.

Next, we should examine the feasibility of keeping selected existing platforms in service beyond their planned retirement date—even if only as reserve capabilities. Our 71 classic Hornet fighters would be a perfect candidate, but we have probably passed the point of no return. If only we'd had the foresight to complete the centre-barrel replacement program.

What about new capability? Naval platforms might seem the obvious solution, but they take too long. At the beginning of WWII, Australia planned to build eight 2,500 ton Tribal-class destroyers—only three vessels were delivered prior to war's end. And although the Army can expand quickly, I think we have adequate land forces for the moment. So, it is to Air Force we must turn.

Aircraft are supremely useful in our part of the world, and mature designs are available from existing production lines. We should investigate expanded purchases of current and planned ADF combat aircraft. Think of it as an insurance policy—a contingency plan—with any final decision contingent on a further deterioration in the strategic outlook.

Even with the cautious approach outlined above, strengthening the ADF would cost money, and that would put pressure on the government's finances. But a triple-A credit rating would be of little solace if we enter a major conflict unprepared.

Australia's security depends on more than its military defence. Here are three further areas for priority action:

First, we need to revitalise our diplomatic capacity. After years of cuts and growing demands for consular services, the Department of Foreign Affairs (DFAT) is stretched to the limit. A Lowy Institute report in 2011 found that DFAT's overseas network was 37% smaller than it was two decades earlier, and the smallest diplomatic footprint of any G20 nation. But Australia's diplomats are the government's eyes, ears and voice in foreign capitals. Now more than ever, the government needs the unique insights and influence that only well-staffed and properly resourced embassies can deliver.

Second, Australia's resilience to geopolitical disruption should be bolstered. Globalisation has rendered Australia more dependent on critical imports than at any time since at least the mid-twentieth century—most critically oil and refined petroleum products. Sophistry around Australia's non-compliance with the International Energy Agency requirement to hold 90 days of fuel has gone on too long. If it is good enough for China, Japan, South Korea, European Union and the United States to maintain strategic fuel reserves, what makes Australia think that it can rely on foreign markets in a crisis? A strategic reserve of oil and other critical commodities should be created without delay.

Third, the government needs to practice its decision-making and crisis management skills. The National Security Committee should commence a program of structured simulations (war games) to hone the government's response to a strategic crisis. By doing so, ministers and their advisors could both refine their understanding of, and explore workable solutions to, the strategic challenges that Australia might face. No ADF unit would ever deploy without having competed an extensive exercise program to confirm its readiness, no lesser expectation should prevail for the government's higher decision-making processes. The simulations should extend beyond purely military matters to include the interplay with Australia's economy and financial markets. With that in mind, representatives of the Reserve Bank and prudential regulation authorities should be players in the simulations.

Alongside a strengthened defence force, those three measures would better position Australia to deal with the challenges of an increasingly unstable and uncertain world. But there's one more thing to be done; we need to think long and hard about how Australia positions itself within the evolving strategic landscape. We need a strategy.

For what it's worth, I'd double down on the US alliance. Nothing would please me more than a squadron of US Virginia-class nuclear submarines operating from an Australian port, except perhaps the boats being dual-crewed by RAN sailors. But I know that a great many people would disagree with me; barely a day goes by without a call for Australia to take a 'more independent' position—which is code for moving away from the United States. That sort of view is especially prevalent among young Australians whose memories of the United States begin with George W. Bush's invasion of Iraq and end with Donald J. Trump's election to the

White House. We should be talking now about the choices we might have to make. It's possible, and even likely, that in the 'dark and difficult near future' an Australian government will have to make rapid decisions with profound consequences for generations to come.

The forthcoming Foreign Policy White Paper is an opportunity for the government to put forward its narrative for Australia in the 21st century. I wish them luck. Even a half-truthful rendering of our current situation would include grave uncertainties and unpalatable truths. But anything less than that will be a missed opportunity to spur on the nation-defining debate we need to have.

1.2 Political Context

Key Points

Defence policy remains bipartisan in almost every respect, including Defence White Paper funding.

Economic issues continue to take precedence over defence in the public eye.

This year's Budget was the least favourably received of the past three.

The electorate remains volatile and quick to express its displeasure with government.

The Abbott government came to power promising to rectify the systemic underfunding of current defence plans, including through its election promise to boost defence spending to 2% of GDP by 2023-24. The Turnbull government maintained that promise by plotting a course to reach 2% of GDP by 2020-21 in its 2016 Defence White Paper. Not long after, the proposed funding received bipartisan support when the opposition confirmed its intentions to maintain the plan.

There's been less continuity when it comes to the vexed question of 'budget repair'. Tony Abbott promised to deliver a surplus of 1% of GDP in 2023-24, but the adverse public reaction to the 2014 Budget saw that policy aim downplayed in the 2015 and 2016 Budgets. Neither the Turnbull government nor the opposition has displayed any enthusiasm for making tough decisions about reining in the deficit, let alone paying down debt. In 2016, we were treated to a long and confusing debate about tax reform—where it was never clear if the goal was increased revenue or greater efficiency—but all that did was take several options 'off the table'.

The 2017 Budget made more progress. By raising additional taxes from the large banks and PAYE taxpayers (through the Medicare levy), it managed to (1) retire so-called 'zombie measures' that were blocked in the Senate, (2) restore sustainable funding to the National Disability Insurance Scheme, Medicare and education, (3) retain the defence funding promised in the 2016 White Paper, and (4) preserve a surplus in 2020-21.

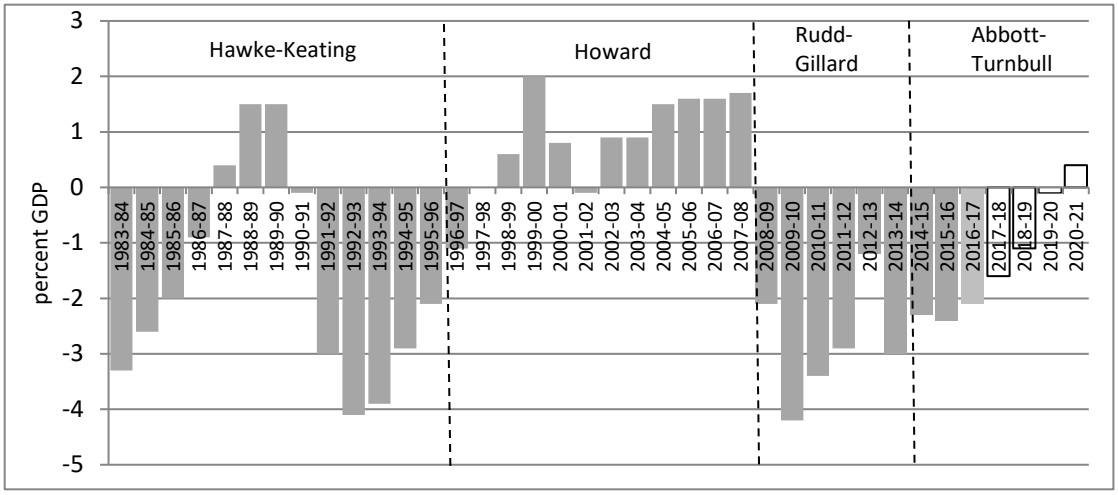
Going forward, it will be impossible to separate the issues of defence funding from broader fiscal policy; every dollar spent on defence cannot be spent on alternative services or tax reductions.

Whatever happens, it's unlikely that we'll see much of a debate on the non-financial aspects of defence policy. As has been the case for a long time, we have continuing bipartisan agreement on its core elements. The underlying concepts laid out in the Fraser government's 1976 Defence White Paper have been echoed in every subsequent document. Where changes have occurred, they've been evolutionary adaptations to our changing circumstances. And while some changes have given rise to political debate at the time—such as the priority for 'expeditionary' operations—bipartisan support has eventually been found. Even the 2016 White Paper's abandonment of 'defence of Australia' as the central determinant of the structure of the ADF passed without comment outside of academic circles. The not too flattering reality is that, most of the time, governments are happy to take the advice tendered to them from the ADF leadership, tempered only by the fiscal constraints of the day. For a while, a difference emerged between the government and opposition on naval shipbuilding, but the electoral politics of South Australia quickly forged bipartisan agreement to build naval platforms in-country.

Politics and money

From 2009 until 2012, the Rudd and Gillard governments' commitment to defence funding was all but totally eclipsed by the political imperative to deliver a fiscal surplus—a goal embraced equally by the then opposition. Why the rush to get out of the red? 2012-13 was the last opportunity for the Gillard government to demonstrate (not just promise) a surplus before the 2013 federal election. And how important was that? As Figure 1.2.1 shows with alarming clarity, it was very important; the last federal Labor treasurer to deliver a surplus was Paul Keating in 1989-90. Given the context, a surplus in 2012-13 was the political equivalent of the Holy Grail, and it may be again a couple of years from now.

Figure 1.2.1: Underlying cash balance 1983 to 2020



Source: Treasury Papers

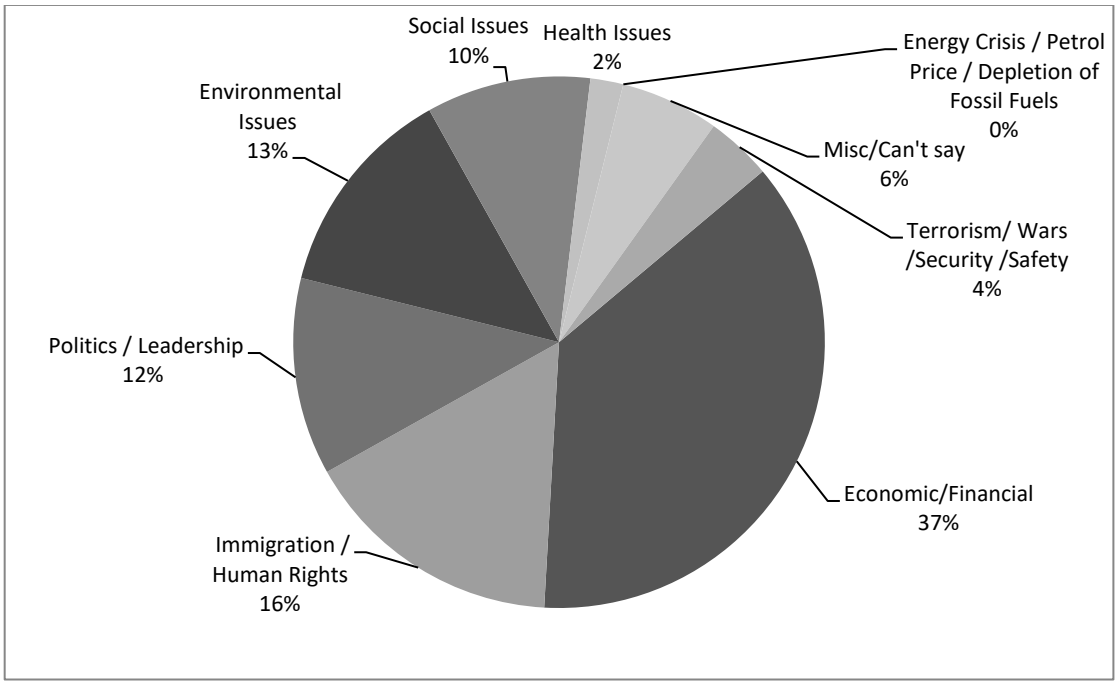
In this year's Budget, the Turnbull government again highlighted its plan to return the Commonwealth to surplus in 2020-21—albeit without making a promise. But while there's still political capital from returning to surplus, the backlash following the 2014 Budget has tempered the approach of both the government and opposition. Deterioration in economic conditions would probably reinstate deficits and debt as a higher political priority, irrespective of who is in power.

Public opinion—defence and security

Australians currently place a relatively low priority on security. Figure 1.2.2 shows the percentage of respondents who identified specific issues as the most important problem facing Australia in October 2016.

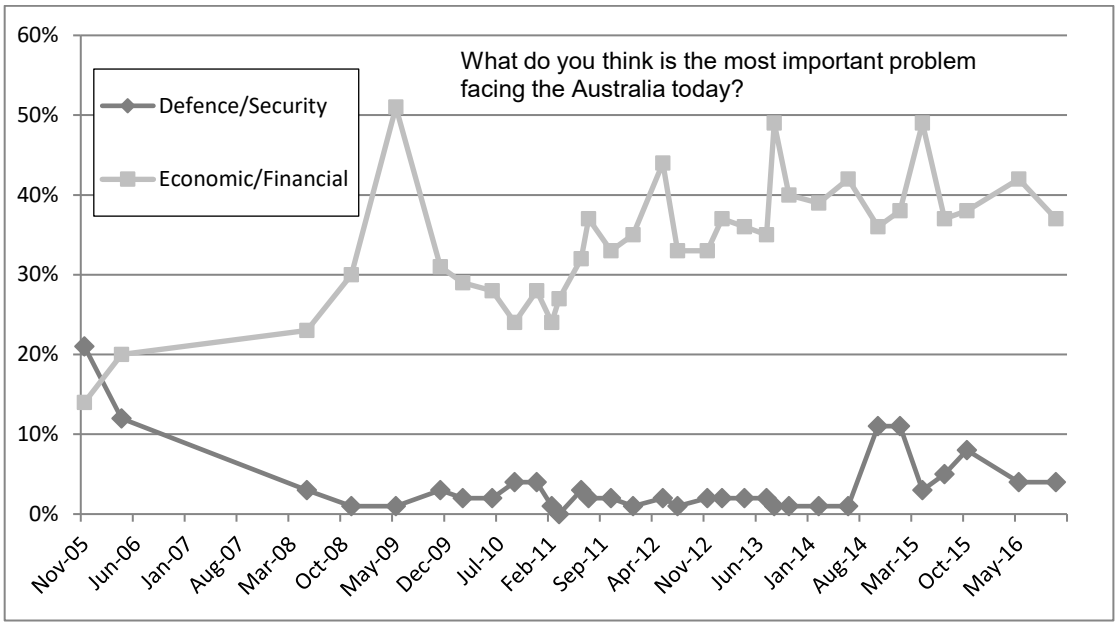
The relatively low priority currently given to defence is consistent with the downward trend in public perception of the seriousness of defence-related matters from late 2005 to mid-2014, see Figure 1.2.3. Note, however, the temporary peak in concern around the time of ISIL's rise in Iraq and the subsequent rebound follow terrorist attacks on Western targets in 2015. Naturally, perceptions of importance change as additional information comes to light.

Figure 1.2.2: What do people worry about?



Source: Roy Morgan Research, Finding No.7117, October 2016.

Figure 1.2.3: Less important than it used to be

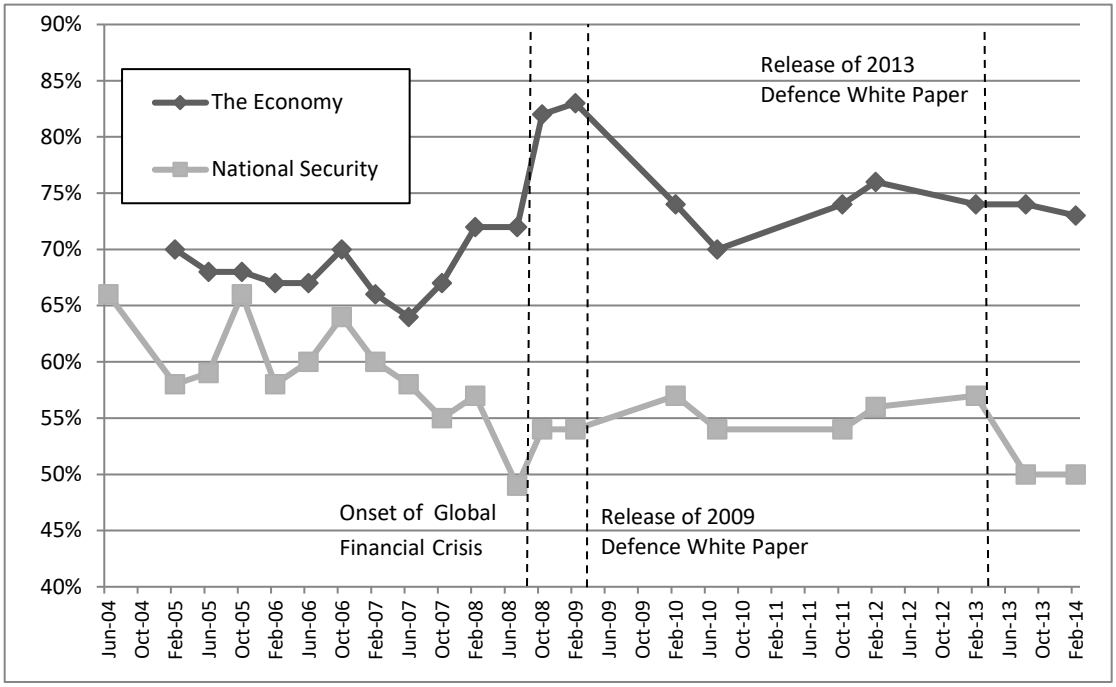


Source: Roy Morgan Research, Finding No. 7117, October 2016.
Defence/Security includes terrorism, wars, security, safety and relations with other countries.
Economic/Financial includes economy, cost of living, interest rates, unemployment, taxation, inequality.

The seemingly dramatic long-term change in public sentiment in Figure 1.2.3 is at least partially an artifact of respondants being asked to identify a single 'most important' issue. It's entirely possible for defence to still be important in its own right, even if it's not the most important issue of the day. With that in mind, we turn now to examine a more graduated measure of the perceived priority of defence-related issues over time. Figure 1.2.4 plots the percentage of Australians polled who rated 'national security' and/or 'the economy' as very

important in the context of the question: *Would you say each of the following issues is very important, fairly important or not important on how you personally will vote in the federal election?*

Figure 1.2.4: Guns versus butter



Source:Newspoll 2004 to 2014.

As expected, the fall in priority for national security is less dramatic in a survey where respondents can choose more than one item from a list of possiblilities. Nonetheless, it's still clear from the data that the GFC heralded a higher priority for the economy, partly at the expense of national security. It's interesting to note that, after a pronounced swing in favour of the economy around the time of the GFC, sentiment subsequently plateaued at a new level more favourable to economic issues and less favourable to national security.

Unfortunately, the poll presented in Figure 1.2.4 has been in abeyance since 2014. To look more closely at recent trends, the best we have is a poll asking people to identify their three most important issues. The most recent results are given in Table 1.2.1. Note that 'national security and terrorism' is near the top of the pack.

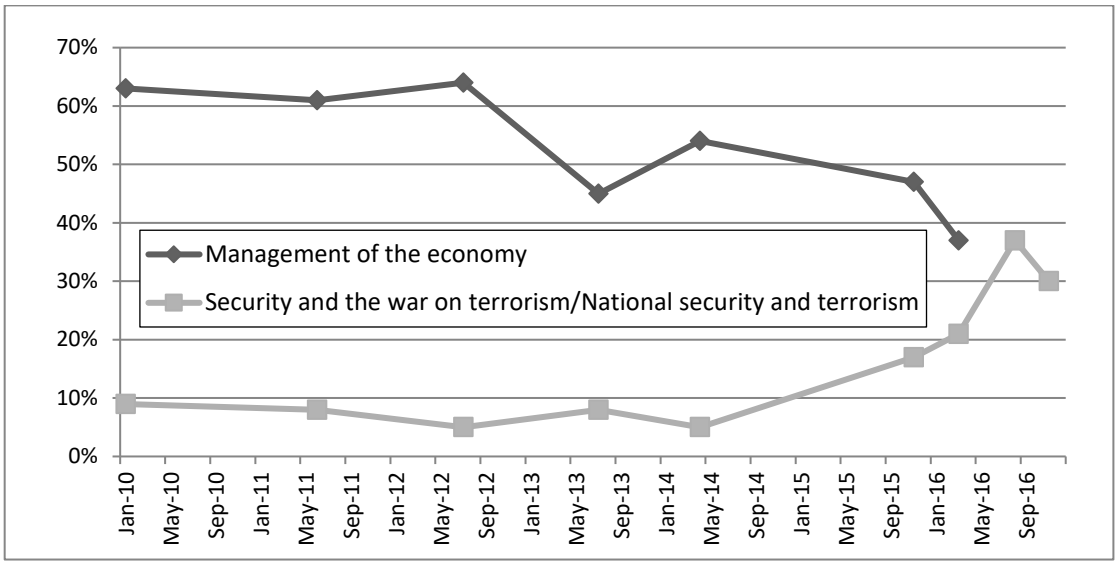
Table 1.2.1: Three most important issues? (November 2016)

Improving our health system	**44%**	Protecting workers' wages and conditions	**20%**
Housing affordability	**31%**	More funds for education	**17%**
Reducing unemployment	**31%**	Addressing climate change	**16%**
National security and terrorism	**30%**	Protecting the environment	**16%**
Tax avoidance by big companies	**26%**	Investing in public transport	**12%**
Reducing the budget deficit	**24%**	Investing in roads	**7%**
Protecting our borders	**21%**	Free trade agreements	**6%**

Source: Essential Media, 'Important issues', November 2016.

A time series for percentage choosing the categories of 'national security and terrorism' and 'management of the economy' appears in Figure 1.2.5 (unfortunately the latter category was discontinued in mid-2016) . As expected, the priority for security issues has risen over the past two years, consistent with Figure 1.2.3. However, we cannot know what impact the change to the alternative options has had.

Figure 1.2.5: Economy versus National Security and Terrorism



Source: Essential Media, 'Most important election issues', March 2016 & 'Important issues', November 2016.

Moreover, care needs to be taken with results such as those in Table 1.2.1 and Figure 1.2.5 because they manifestly depend upon the extent and nature of the options provided. Arguably, the 14 categories given in Table 1.2.1 are more idiosyncratic than comprehensive or generic. A more balanced, or at least more comprehensive, range of 19 options is used by the *Ipsos Issues Monitor*, the latest results of which are provided in Table 1.2.2.

Table 1.2.2: Three most important issues? (March 2017)

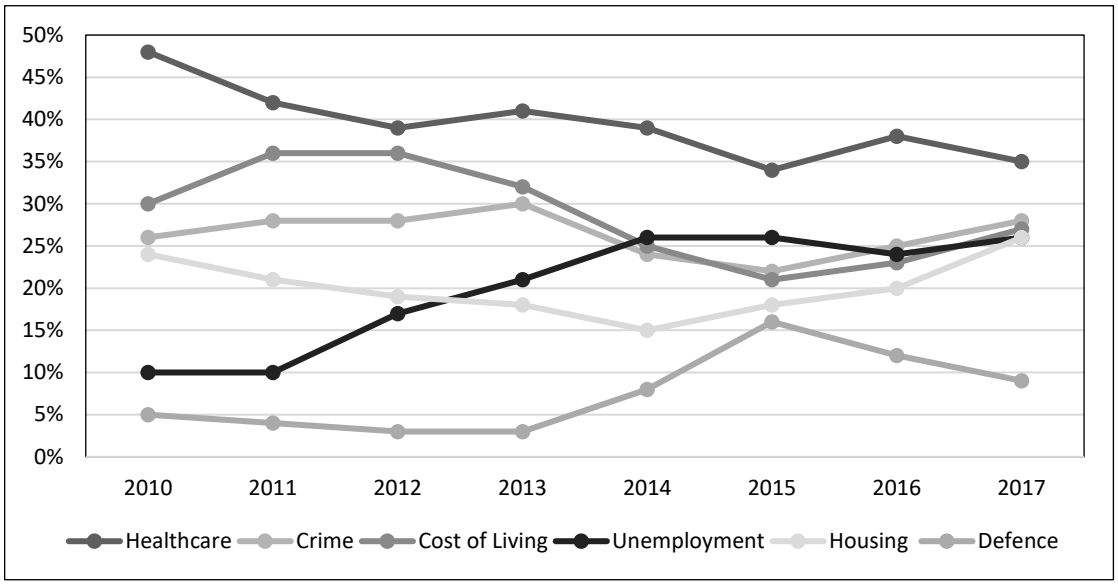
Healthcare	**35%**	Poverty	**13%**
Crime	**28%**	Defence	**9%**
Cost of living	**27%**	Transport	**8%**
Unemployment	**26%**	Personal debt	**8%**
Housing	**26%**	Racism	**7%**
The economy	**24%**	Taxation	**8%**
Immigration	**18%**	Population	**7%**
Drug abuse	**18%**	Petrol prices	**7%**
Education	**17%**	Indigenous issues	**2%**
Environment	**13%**		

Source: Ipsos Issues Monitor, March 2017.

Two significant factors differentiate the polls represented in Table 1.2.1 and Table 1.2.2. First, there is a greater range of options in the latter, which will tend to generate smaller percentages (by a factor of 0.74 on average). Second, the former asked about 'national security and terrorism' while the latter asked about 'defence'. Respondents might conceivably assign different prioities to those two related but distinct items. Thus, although

the Ipsos poll uses a more balanced set of 'issues', the two polls are complimentry. Figure 1.2.6 displays the historical results for defence and the top-5 responses.

Figure 1.2.6: Defence versus top-5 issues facing Australia



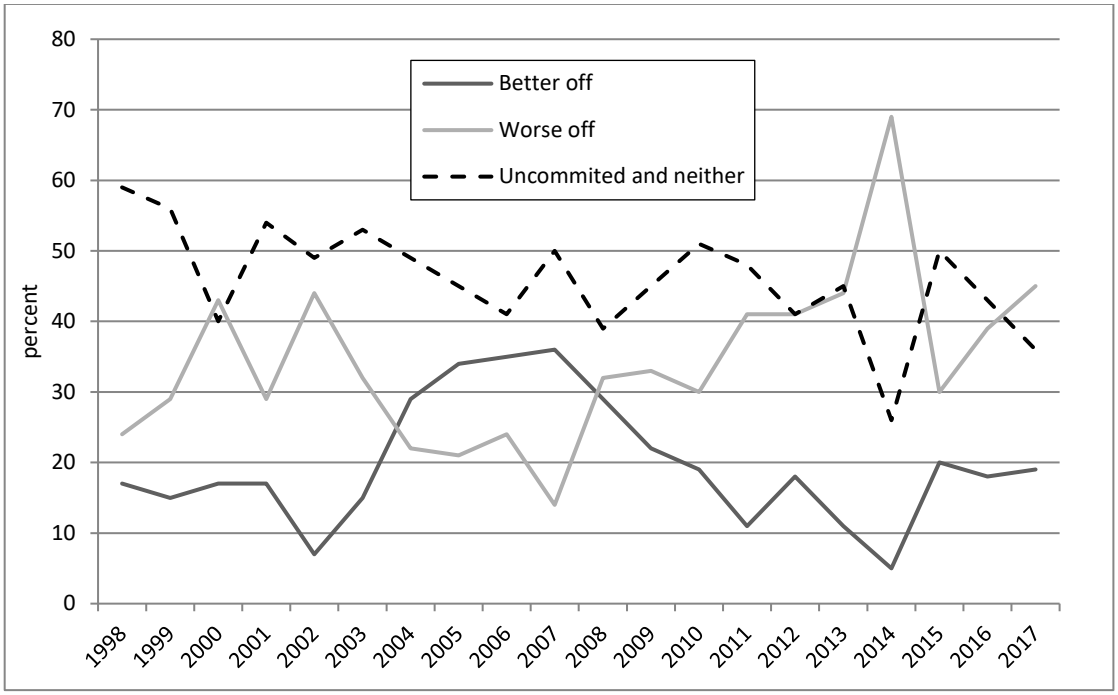
Source: Ipsos Issues Monitor, 2010 to 2017.

Consistant with previous results, (1) defence attracts a relatively low priority compared with other issues, and (2) there was a surge of concern in 2014 that's now abating.

Public opinion—budgets and surpluses

After the strong adverse reaction to the 2014 Budget, the 2015 Budget was relatively well received, see Figure 1.2.7. This year's budget continued the deterioration observed in 2016, with a further 6% increase in the number of people who felt that they were left worse off.

Figure 1.2.7: Better or worse off after budget?



Source: Newspoll, Budget Poll, April 1998 to 2017

There's an unresolvable tension in achieving fiscal consolidation. Every dollar used to reduce the deficit must come from either higher taxes or reduced government spending. Nonetheless, in both 2015 and 2017 more than 70% of people believe that a return to surplus is either 'very important' or 'somewhat important', see Table 1.2.3. However, prior to the 2017 Budget, 65% of people preferred to delay a return to surplus and retain services and infrastructure investment, see Table 1.2.4.

Table 1.2.3: Importance of surplus?

Q. How important is it that the Government returns the budget to surplus?		
	April 2015	May 2017
Very important	31%	31%
Somewhat important	40%	40%
Not very important	14%	15%
Not at all important	6%	4%
Don't know	9%	10%

Source: Essential Report, 28 April 2015, 9 May 2017

Table 1.2.4: Budget Surplus or Spending

Q. Do you think it is more important for the Government to return the budget to surplus as soon as possible – which may mean cutting services and raising taxes – OR should they delay the return to surplus and maintain services and invest in infrastructure?	
Return to surplus as soon as possible, cut services, raise taxes	18%
Delay return to surplus, maintain services, invest in infrastructure	65%
Don't know	18%

Source: Essential Report, 9 May 2017

But responses to questions about spending and surpluses depend on how the question is asked. In late April 2017, Newspoll found that 70% of respondants wanted the government to balance the budget through spending cuts, and only 20% of those surveyed favoured tax increases. Further historical polling on attitudes to spending and taxes can be found in previous editions of this Brief.

How much is enough?

In terms of the defence budget, the fundamental polling question is whether people think we should spend more, less, or the same. Yet there is remarkably little work done on the question by pollsters and academics. However, Defence published a report entitled *Guarding Against Uncertainty: Australian Attitudes to Defence* as part of the White Paper process. The report recounts views garnered through 'community consultation' and collates pre-existing polling from external sources.

On the question of spending, the report discusses historical polling (up to 2013) and provides a reasonable explanation for the long-term decline in support for higher defence spending. In recounting the views expressed in the community consultation, the report says:

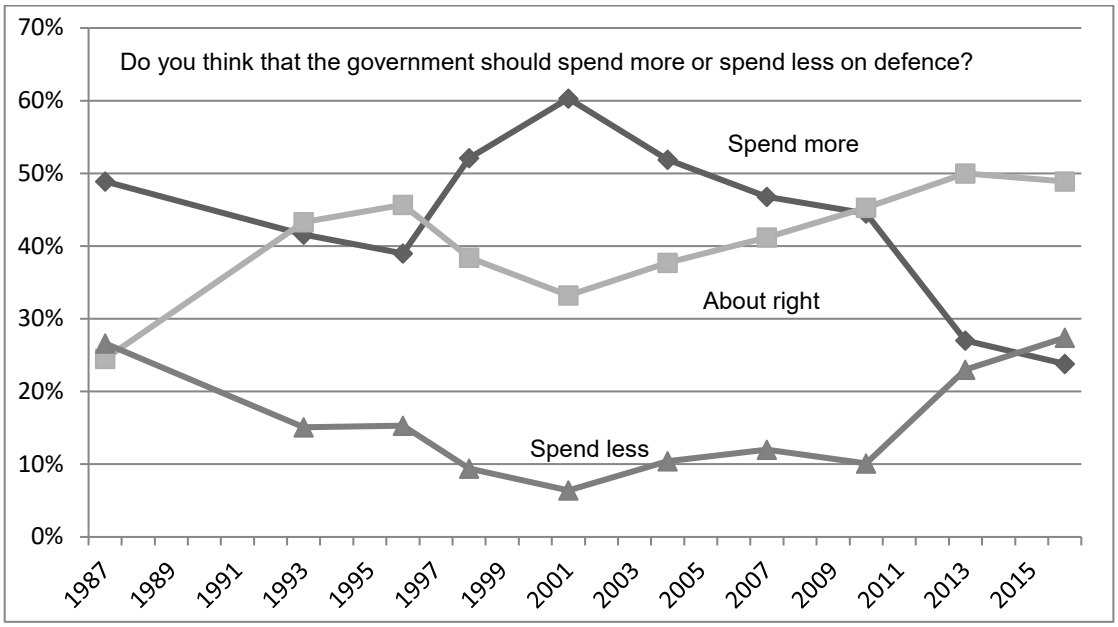
> *Interestingly, very few people had a problem with the general scale of Australia's defence spending. Not many queried the target of 2 per cent of Gross Domestic Product (GDP), set by both the Government and the opposition.*
>
> *People occasionally queried how a government could be sure that this target is the right one. A few suggested that it was too high and risked spending at the expense of domestic policy priorities regardless of the existence of a defence strategy. A few suggested that it was too low, especially if Australia were seeking greater*

independent capabilities or wanted to pay a premium for domestic production of defence capabilities. Many recognised that defence spending had recently dropped to historic lows. Overall, the level of comfort with defence spending levels that the panel encountered is consistent with recent polling.

Because the community consultation involved self-selected participants, it's impossible to say how representative those views are of broader opinion. It's a pity that the consultation process chose not to commission up-to-date polling (as occurred with the 2000 White Paper).

The longest-running poll on defence spending is the Australian Election Study (AES), which has been conducted coincident with (most) federal elections since 1987. The results appear in Figure 1.2.8 and Table 1.2.5. The *Guarding Against Uncertainty* report includes results from earlier surveys—albeit with varying wording of the question—going back to 1975. For consistency, we've included only the AES results. However, even then care is required, because the 2013 and 2016 results represent the response to a reworded question that (1) explicitly mentioned the prospect of higher taxation and (2) implicitly reminds respondents of the potential impact on other government services.

Figure 1.2.8: How much is enough?



Sources: McAllister et al: Trends in Australian political opinion: results from the Australian Election Study, 1987-2016.

Table 1.2.5: How much is enough?

Do you think that the government should spend more or spend less on defence? (%)

	1987	1993	1996	1998	2001	2004	2007	2010	2013	2016
Spend much more on defence		14.1	10.2	18.5	20.6	15.5	14.9	15.1	7.4	7.1
Spend some more on defence	48.9	27.5	28.8	33.6	39.7	36.4	31.9	29.4	19.6	16.7
About right at present*	24.5	43.3	45.7	38.4	33.2	37.7	41.2	45.3	49.4	48.9
Spend less on defence	26.6	11.3	11.2	7.5	4.7	8	8.4	7.7	16.1	18.7
Spend a lot less on defence		3.8	4.1	1.9	1.7	2.4	3.6	2.4	7.4	8.7

* 'Doesn't matter' 1987.

Source: McAllister et al: Trends in Australian political opinion: results from the Australian Election Study, 1987-2016.

The full AES 'public expenditure' results for 2013 and 2016 are provided in Table 1.2.6. The first-listed numbers are from 2013, and the bracketed numbers are from 2016. Although the figures have shifted somewhat, the relative priority is largely preserved and shows that the priority for defence compares poorly with several competing areas of social spending, such as health, education, pensions and even law enforcement and police.

Table 1.2.6: How much is enough, but don't forget you must pay for it?

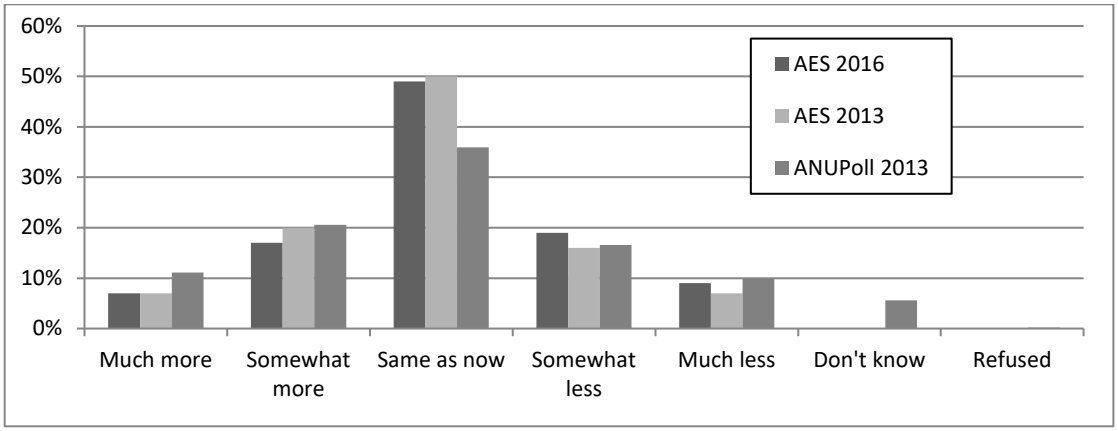
Please say whether there should be more or less public expenditure in each of the following areas. Remember if you say 'more' it could require a tax increase, and if you say 'less' it could require a reduction in those services. (%)

	Much more	Somewhat more	Same as now	Somewhat less	Much less
Health	32 (24)	46 (43)	19 (28)	1 (3)	2 (1)
Education	26 (23)	43 (39)	27 (34)	2 (3)	2 (1)
Old age pensions	22 (16)	43 (37)	31 (40)	2 (5)	2 (2)
Police and law enforcement	16 (12)	36 (33)	41 (47)	4 (7)	3 (2)
Business and industry	8 (6)	27 (21)	48 (51)	13 (17)	4 (5)
Defence	7 (7)	20 (17)	50 (49)	16 (19)	7 (9)
Welfare benefits	7 (9)	20 (26)	45 (52)	18 (10)	10 (4)
Unemployment benefits	5 (5)	14 (13)	48 (47)	22 (26)	11 (10)

Source: AES 2013 (2016). That is, results in brackets are for 2016.

By highlighting the opportunity cost of spending more on defence, the reworded question arguably predisposes respondents against spending of any type. As it happens, there are three other polls on defence spending from the same year that confirm the sensitivity to how questions are asked. The first was the 2013 ANUPoll conducted a couple of months following the 2013 AES, and reported by Ian McAllister in *Public Priorities for Government Expenditure*. Despite asking the question in a very similar format, the ANUPoll included categories of 'Don't know' and 'Refused'. The results are compared in Figure 1.2.9. Two differences are apparent. First, the respondents to the ANUPoll delivered a higher percentage of 'Much more' and 'Much less' responses. More significantly, it appears that the absence of a 'Don't know' category in the AES poll resulted in a higher number of 'Same as now' responses. This could have implications for interpreting the high 'About right' response in the historical AES data, Figure 1.2.7.

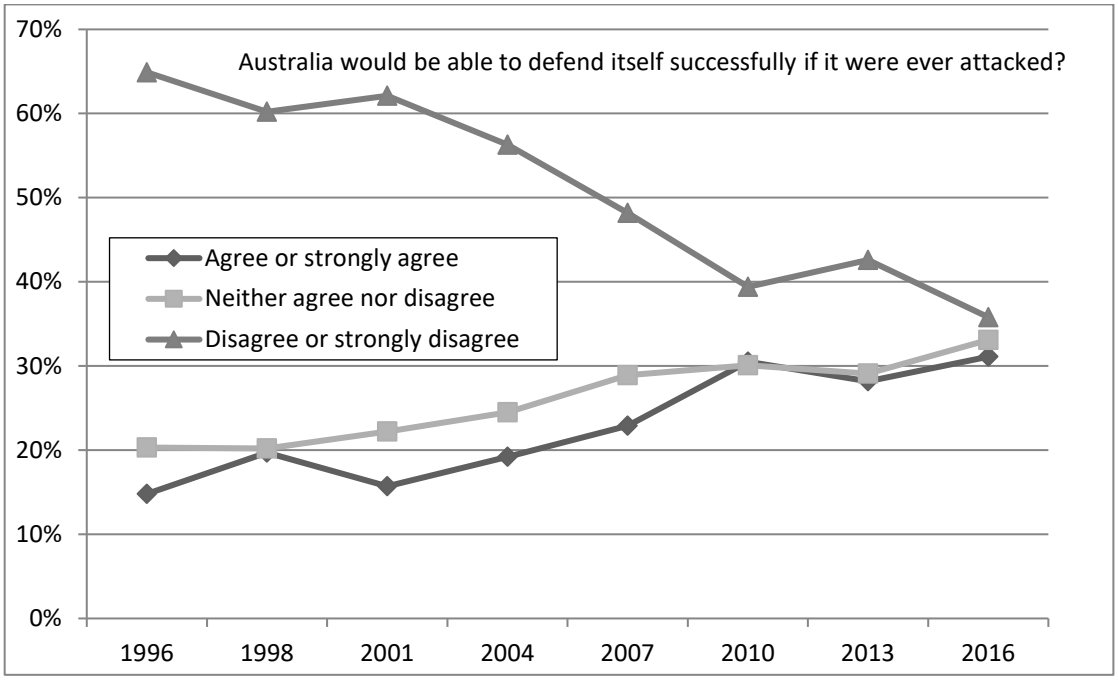
Figure 1.2.9: Comparing the 2013 ANUPoll and AES results on defence spending.



Source: AES 2013, 2016 and ANUPoll 2013

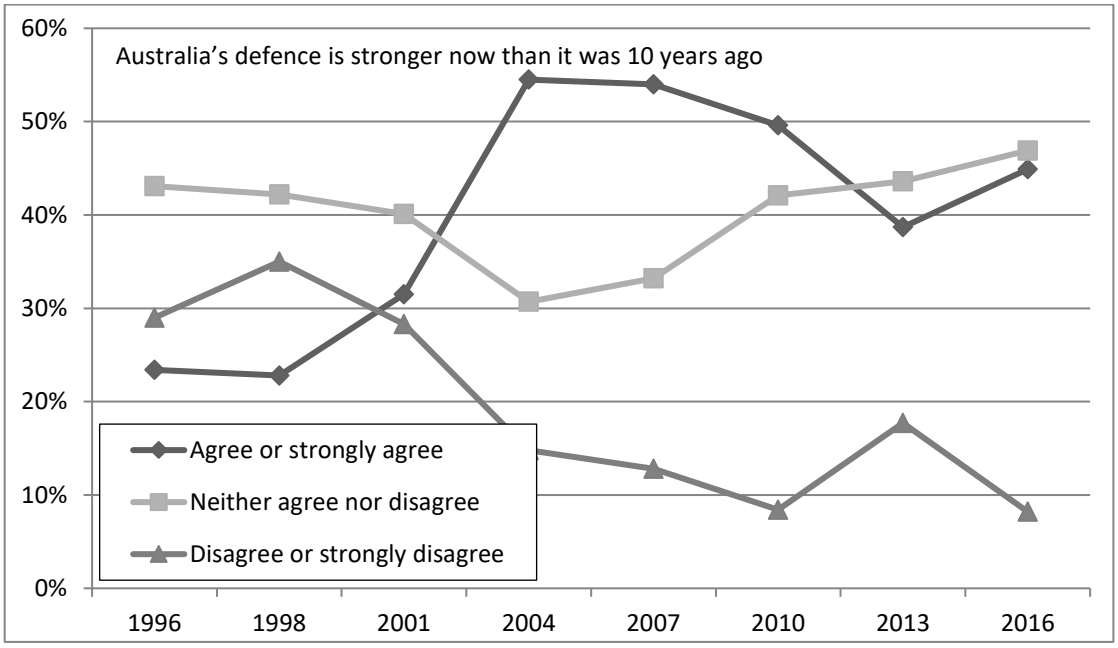
The AES asked two further questions about Australia's defence; 'can Australia defend itself', and 'is our defence force getting stronger?' The results appear in Figures 1.2.10 and 1.2.11, and are consistent with the falling support for defence spending in Figure 1.2.8. As is to be expected, growing confidence in the ability of the defence force has translated into a diminished willingness to devote additional resources to defence.

Figure 1.2.10: Can we defend ourselves?



Source: AES 2016

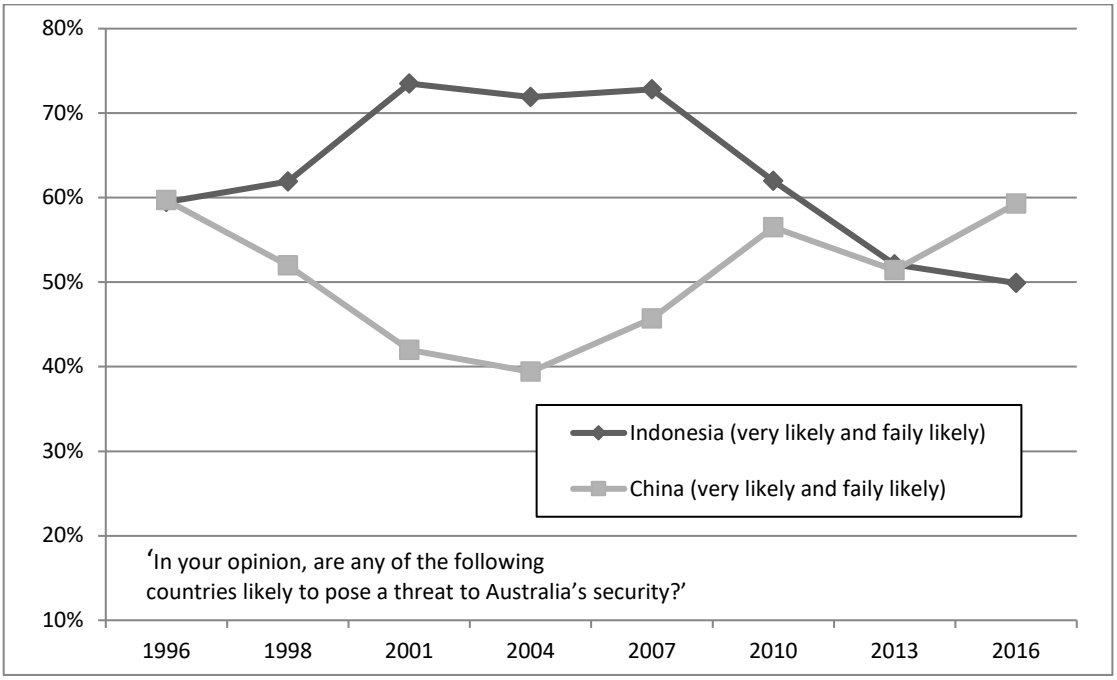
Figure 1.2.11: Are we getting stronger?



Source: AES 2016

Finally, the AES has asked a consistent series of questions about threat perceptions since 1996. Over that period, the two countries most frequently perceived as a threat by respondents have been Indonesia and China, Figure 1.2.12. It is noteworthy that China surpassed Indonesia as a perceived threat for the first time in 2016. That's what you get if you annex the South China Sea.

Figure 1.2.12: Who are you afraid of?



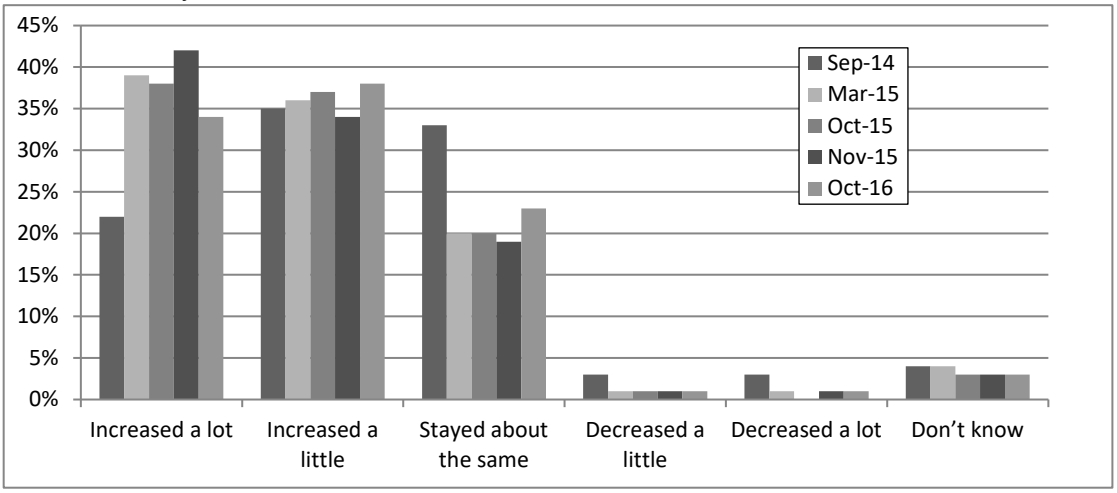
Source: AES 2016

Public opinion — Terrorism

Essential Media polls from 2014 to 2016 show that the public continues to perceive an increased threat of terrorism in Australia, Figure 1.2.13. Note the jump in perceived threat following the Lindt café siege in December 2014.

Figure 1.2.13: Perceived threat of terrorism

'Over the last few years, do you think that the threat of terrorism happening in Australia has increased, decreased or stayed much the same?'



Source: Essential Report, 2014 to 2016

An Essential Media poll from October 2016 found that 73% of respondents thought that the 'threat of terrorism happening in Australia has increased', 23% thought it had 'stayed about the same', and only 2% thought it had 'decreased'. Consistent with those finding, respondents to an Essential Media poll in early 2015 found that 56% of respondents favoured 'more restrictions on rights and freedom for some people so there can be more security', with only 16% against and 28% believing that pre-existing laws struck the right balance. A more recent poll from October 2016 canvassed a range of different anti-terrorism measures, Table 1.2.7.

Table 1.2.7: Not taking any chances

	Preventing Australian citizens suspected of fighting in Syria from leaving the country	Preventing dual nationals who are suspected of fighting in Syria from returning to Australia	Allowing the government to monitor phone calls and data of all citizens	Supporting on the ground intervention by western military, including Australia, in Syria	Investing in local programs to help de-radicalise youth
Support	64%	81%	44%	49%	79%
Oppose	19%	8%	43%	29%	9%
Don't know	18%	12%	14%	23%	13%

Source: Essential Report, October 2016

An ANU poll from July 2016 on attitudes to national security (ANUpoll Report No. 22) contained several interesting results. In response to the question: 'How concerned are you personally about yourself or a family member being the victim of a future terrorist attack in Australia?', 16% of respondents said that they were very concerned, 29% somewhat concerned, 35% not very concerned, and 20% not at all concerned. That's a 45%-55% split between those expressing higher as opposed to lower levels of concern. In contrast, however, when asked 'How concerned, if at all, are you about the possible rise of Islamic extremism in Australia?', 71% said that they were somewhat or very concerned, and only 29% said that they were not too concerned or not at all concerned.

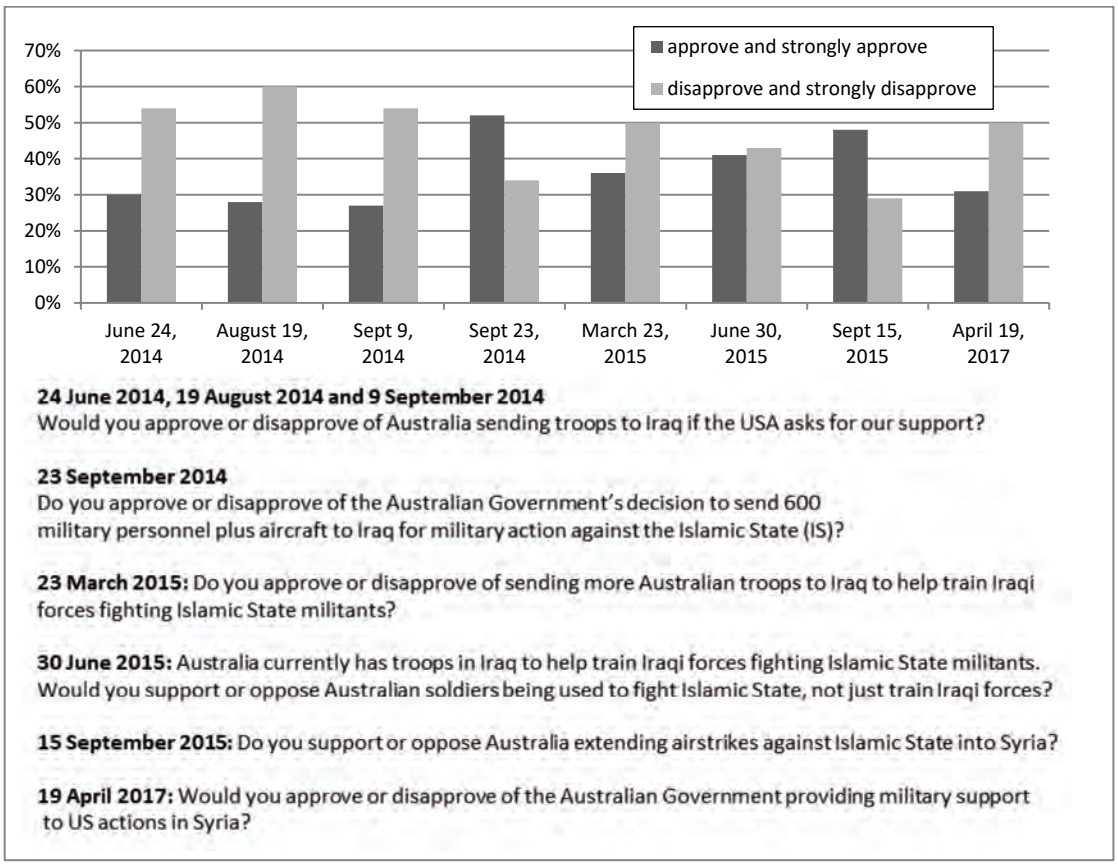
When asked about the government's actions to prevent terrorist attacks in Australia, 56% of respondents said the government could do more, 36% said it was doing all it can, and 8% said that it had done too much. Yet, when asked whether the government was spending too much or too little money to combat terrorism in Australia, 16% said too much, 24% said too little and 60% said about the right amount.

In response to the question 'Which concerns you more about the government's counter-terrorism policies?', 46% of respondents chose 'They have not gone far enough to adequately protect the country.', 28% said 'They have gone too far in restricting the average person's civil liberties.', 20% said neither, and 6% both. When asked about recently introduced telecommunications data retention laws, 67% said that they were justified 'to combat terrorism and protect national security', while 33% said that they were 'not justified as it violates citizens' privacy'. Finally, when asked 'Do you agree or disagree that current border control policies are necessary to protect us from threats such as Islamic extremism and terrorism?', 80% of respondents either approved or strongly approved, while only 18% disapproved or strongly disapproved.

Public opinion — Iraq deployment

In 2014, 2015 and 2017, public support for the deployment of the ADF to Iraq depended on both the timing and wording of the question (Figure 1.2.14).

Figure 1.2.14: Deployment to Iraq

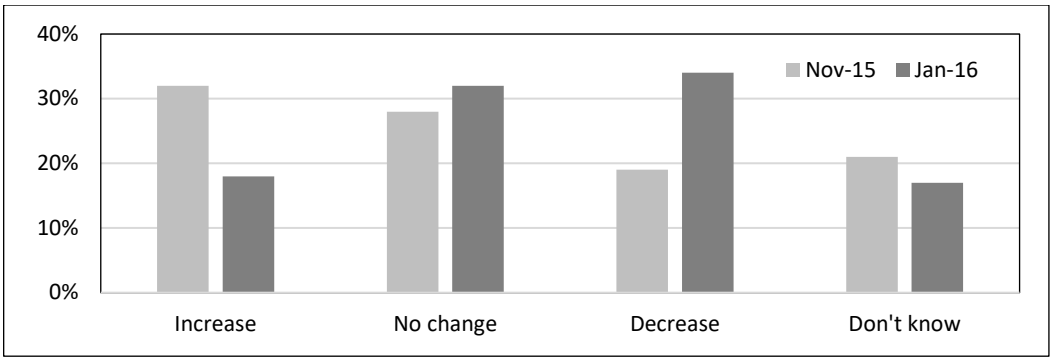


Source: Essential Report, 2014, 2015 and 2017.

Additional polling has focused on whether Australia should increase or decrease its military involvement in Iraq/Syria, Figure 1.2.15. As is often the case, initial support has declined over time (see also April 2017 poll in Figure 1.2.14).

Figure 1.2.15: More or less?

Q. Do you think Australia should increase or decrease our military involvement in Syria and Iraq against the Islamic State?

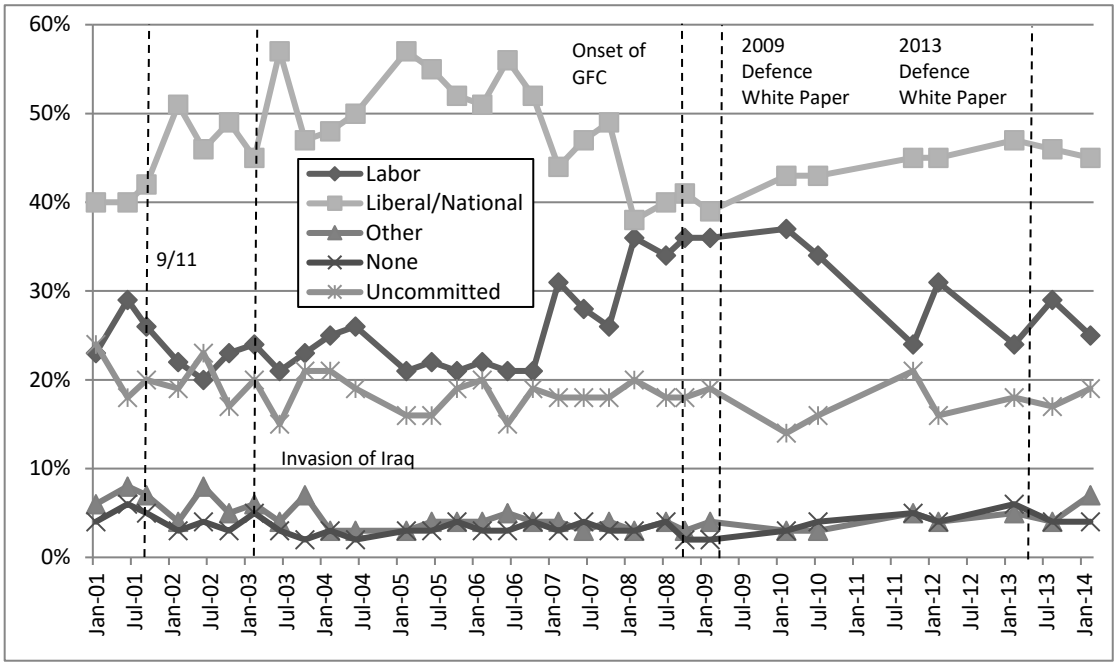


Source: Essential Report, 2015 and 2016.

Who is trusted to handle defence?

Figure 1.2.16 shows polling on who is best able to handle defence/national security. Note how the results diverged in favour of the Coalition following the 2009 Defence White Paper. The Coalition maintained a strong lead until the final poll in 2014.

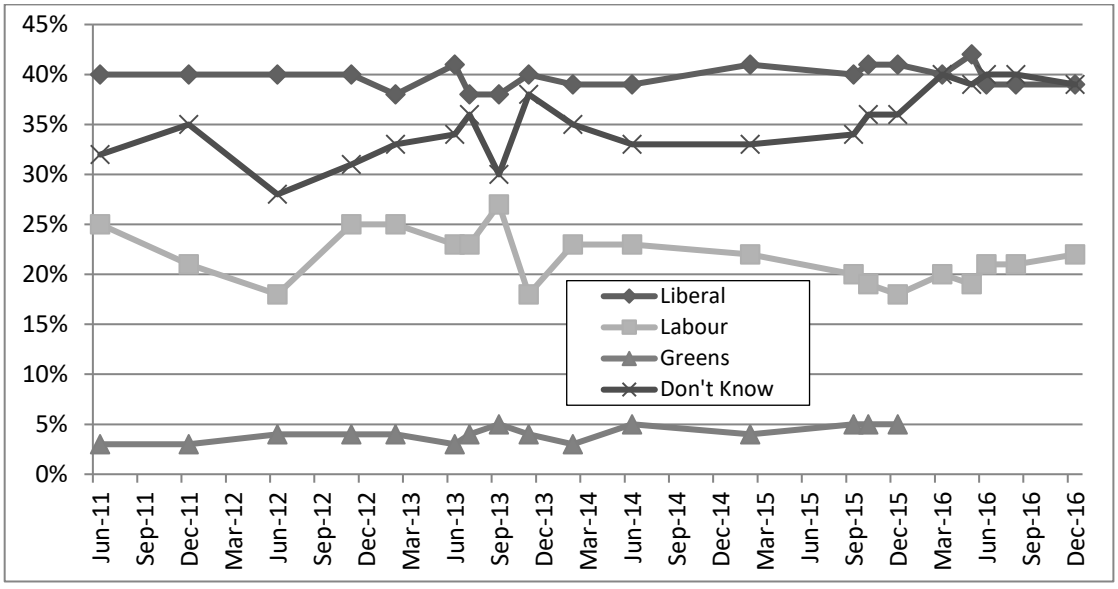
Figure 1.2.16: Who is best able to handle defence/national security?



Source: Newspoll for The Australian newspaper, January 2001 to February 2014.
(Defence pre-June 2004, National Security post-June 2004)

An overlapping and more recent picture can be found in Essential Media's 'trust most' poll graphed in Figure 1.2.17. The results are broadly consistent with the latter years of the Newspoll data. Of the 15 issues explored, 'security and the war on terrorism' has recorded the largest net difference in trust between the two parties in recent years.

Figure 1.2.17: Which party would you trust to handle 'security and the war on terrorism'



Source: Essential Media, June 2011 to December 2016. Greens were not included in final 5 polls.

Political volatility

The September 2016 federal election saw the Turnbull government re-elected with 76 out of 150 seats in the lower house; a one-seat majority. Labor won 69 seats and the remaining 5 seats went to independents and minor parties. Note that, although the two main parties only received 77% of the primary vote, they won almost 97% of the seats due to the electoral system. Interestingly, the large swing to 'other' candidates in the 2013 election (+5.8% in the primary vote) was consolidated in the 2016 election—despite the demise of the Palmer United Party, Table 1.2.8. Note that the two main parties between lost a net 2.2% of the primary vote in the 2016 election.

Table 1.2.8: Lower house primary votes and seats, 2016 federal election

	% vote	Swing %	Seats	% seats
Liberal/National Coalition	42.0	-3.5	76	50.7
Australian Labor Party	34.7	+1.3	69	46.0
The Greens	10.2	+1.6	1	0.7
Other	12.9	+0.5	4	2.7

Source: ABC Election Watch website.

A similar trend can be observed in the results for the Senate in the 2016 election (see Table 1.2.9). The two main parties lost 2.8% of the primary vote to the Greens and minor parties.

Table 1.2.9: Upper house primary votes and seats, 2016 federal election

	% vote	Swing	Seats	% seats
Liberal/National Coalition	35.2	-2.5	30	39.5
Australian Labor Party	29.8	-0.3	26	34.0
The Greens	8.7	0	9	11.8
One Nation	4.3	+3.8	4	5.2
Nick Xenophon Team	3.3	+1.4	3	3.9
Other	18.7	-2.4	4	5.2

Source: Australian Electoral Commission

Recent state elections have demonstrated the volatility of the electorate. The January 2015 Queensland election saw a massive 14% swing against the incumbents, and the March 2015 New South Wales election saw a sizable 10% swing. More recently, the 2017 WA election saw a 15.9% swing against the Liberal party, of which Labor gained only 9%. The remaining swing of almost 6% went to One Nation (5%) and other minor parties. As a measure of the declining fortunes of the two main political blocks, consider the growing support received by third-party candidates in the past four Australian federal elections, Table 1.2.10.

Table 1.2.10: The rise of the 'others' in Australian Federal Elections

	2007	2010	2013	2017
House of Representatives (non-Labor/Coalition/Green)	6.74	6.93	12.42	12.91
House of Representatives (non-Labor/Coalition)	14.53	18.69	21.07	23.23
Senate (non-Labor/Coalition/Green)	10.72	13.46	23.54	26.29
Senate (non-Labor/Coalition)	19.76	26.57	32.19	34.94

Source: Australian Electoral Commission

Three things are noteworthy:

- The electorate continues to migrate away from supporting the long-standing Labor-Coalition duopoly of power at the state and federal level.
- At the federal level, the government rules with a wafer-thin majority and the Senate is controlled by crossbenchers.
- Voters have demonstrated a willingness to switch allegiance quickly.

Voter disenchantment with mainstream politics is a global trend. A January 2017 Ipsos poll across 23 advanced economies found that, on average, 81% of respondents had either 'no confidence' or 'not very much confidence' in their country's political parties. Australia scored 79%. And cynicism is rife; an average of 63% of respondents agreed that their country 'needs a strong leader to take the country back from the rich and powerful'. In Australia, the figure was an alarming 71%. Finally, an average of 64% of respondents agreed that 'traditional parties and politicians [in their country] don't care about people like me'. The figure for Australia was a sobering 61%.

The risk is that the federal government's ability to resist populist demands will be diminished by its precarious electoral position—especially given the electorate's demonstrated volatility and deepening dissatisfaction with mainstream politics. It's no longer a question of whose turn it is to enjoy the perks of office. Instead, the major parties are fighting for survival. As a result, any government may struggle in the longer term to simultaneously placate a restive electorate, boost defence spending, and return the budget to surplus.

The government's election platform

Perhaps because it released a Defence White Paper in 2016, the Turnbull government did not produce a formal Defence policy platform for the 2016 election. Consequently, we cannot continue to track delivery as we have in the past. However, taking the key high-level commitments from the 2016 Defence White Paper, and the defence-related undertakings in their 'Jobs and Growth in South Australia' platform from the 2016 election, a tidy set of key commitments can be drawn together, see Table 1.2.11. Where possible, an assessment of progress to date has been provided.

Table 1.2.11: Key Coalition defence policy policies

Policy	Status
Increase defence spending to 2% of GDP according to the explicit funding envelope in the 2016 Defence White Paper.	On track
Increase size of Australian Defence Force to 62,400	On track
Build 12 submarines in South Australia	Proceeding
Build 9 frigates in South Australia and establish a continuous production program, cut steel in 2020.	Location confirmed, date uncertain
Build 2 OPV is South Australian, cut steel in 2018.	Location confirmed
Build 10 OPV in Western Australia and establish a continuous production program.	Proceeding

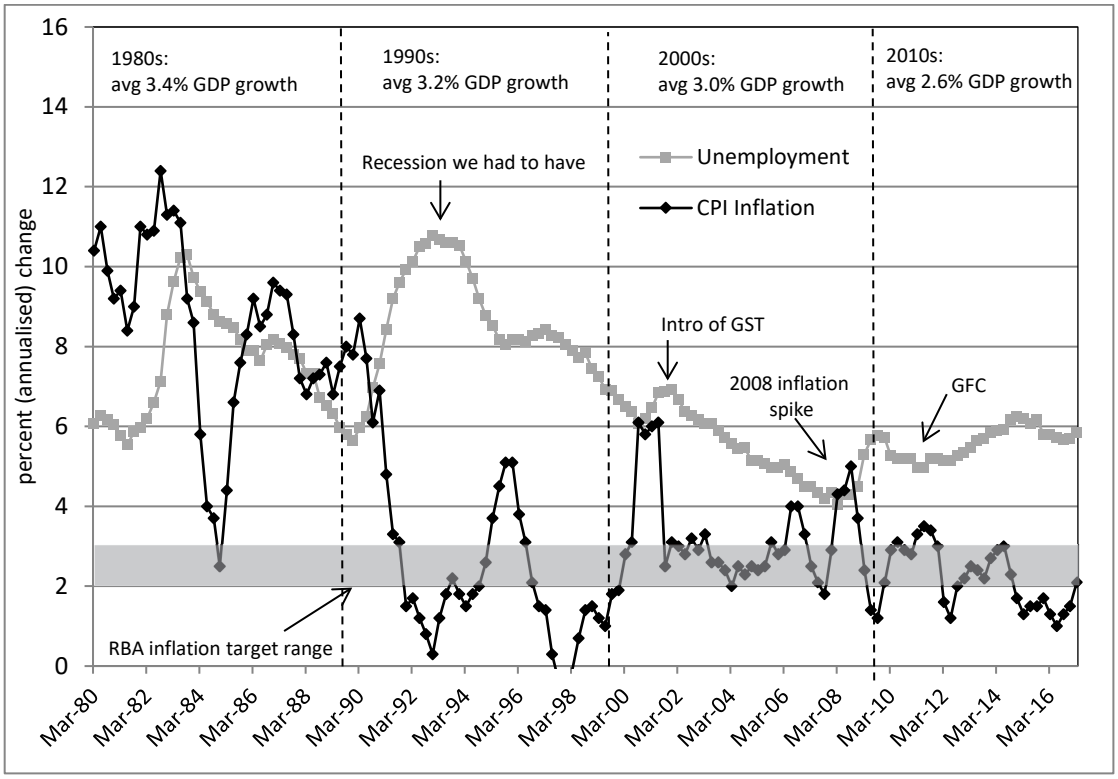
Source: 2016 Defence White Paper, Coalitions Policy for Jobs and Growth in South Australia, and ministerial announcements.

1.3 Economic Context

From the early 1990s until late 2008, Australia enjoyed relatively favourable economic conditions, see Figure 1.3.1. Three things stood out:

- In the 1990s, inflation fell to effectively half of what it had been in the 1970s and 1980s, and has stayed there since, notwithstanding a short-lived spike in 2008.
- Economic growth was healthy, averaging 3.4% during the 1990s and 3.2% from 2000 to 2007, despite a fall in labour productivity growth.
- Unemployment fell from a peak of 10.8% in late 1992 to a 34-year low of 4% in early 2008 (at the same time as workforce participation edged up from 62.7% to 65.2%).

Figure 1.3.1: Australian economic performance 1980 to 2016

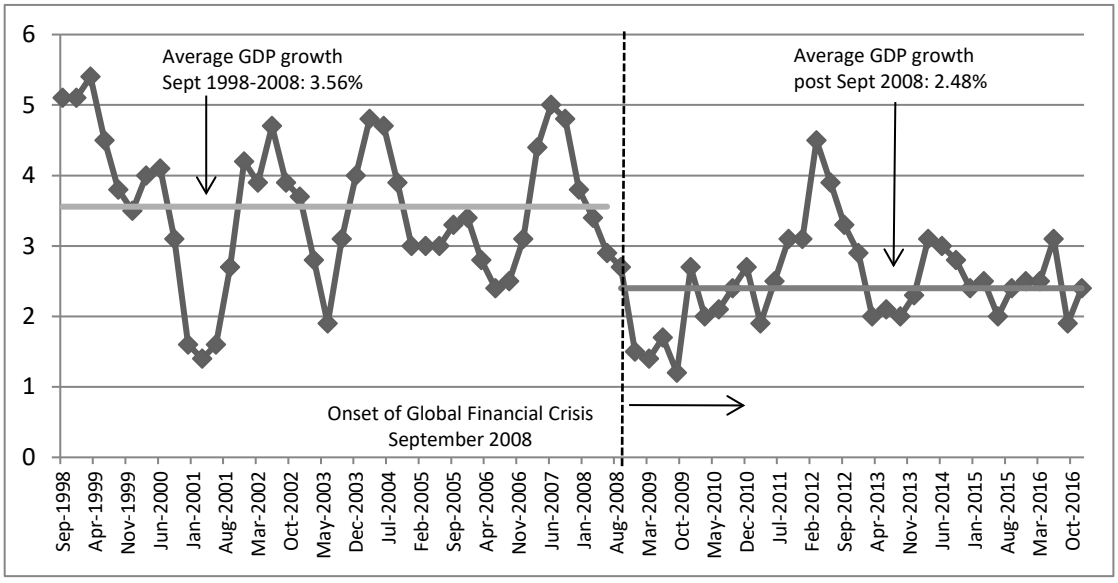


Source: Reserve Bank of Australia (RBA), Australian Bureau of Statistics (ABS) and Treasury statistics.

Strong economic growth allowed the Howard government to simultaneously increase spending and cut taxes in its later years. It was a happy time all around. Few areas were happier than Defence, which saw its funding grow in tandem with GDP from 1999 onwards. But from around 2004, when unemployment fell below 5%, capacity constraints started to be felt in the economy and inflation spiked around 2008.

Then, in late 2008, the GFC hit and it looked as though a substantial recession was on the cards. But Australia weathered the economic storm better than expected, and only experienced a limited slowdown. Nonetheless, a return to trend growth is yet to emerge (see Figure 1.3.2). Indeed, economic growth for the decade prior to 2009 averaged 3.2% compared with 2.2% subsequently.

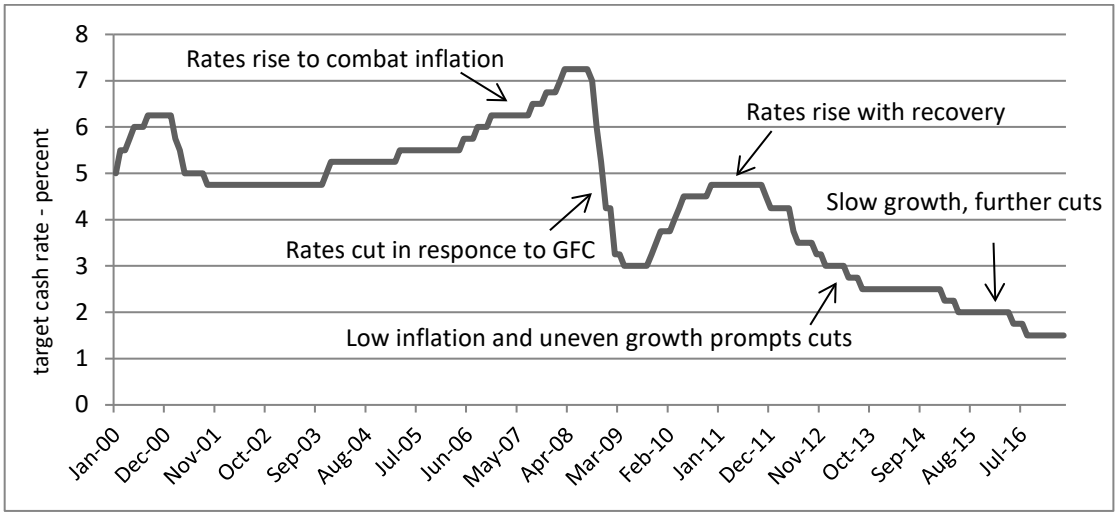
Figure 1.3.2: Seasonally adjusted annual GDP growth by quarter (per cent)



Source: Reserve Bank of Australia (RBA), Australian Bureau of Statistics (ABS).

The timing of events is reflected in the changes to the RBA target cash rate set out in Figure 1.3.3. From late 2009 until late 2010, rising inflation and restored growth saw the official interest rate rise progressively by 1.75%. Over the same period, unemployment fell to around 5.2%. In late 2011, however, the RBA changed tack and cut rates by 1% in three steps over a six-month period to an expansionary 3.75% as inflation moderated. Over the next fifteen months, from May 2012 to August 2013, the cash rate fell by another 1.25% as unemployment hedged upwards. Two further cuts were made in the first half of 2015. On the day of the 2016 Budget, the cash rate was revised down again to 1.75% in response to soft inflation figures, and then down to 1.5% in August 2016.

Figure 1.3.3: RBA target cash rate 2001 to 2017

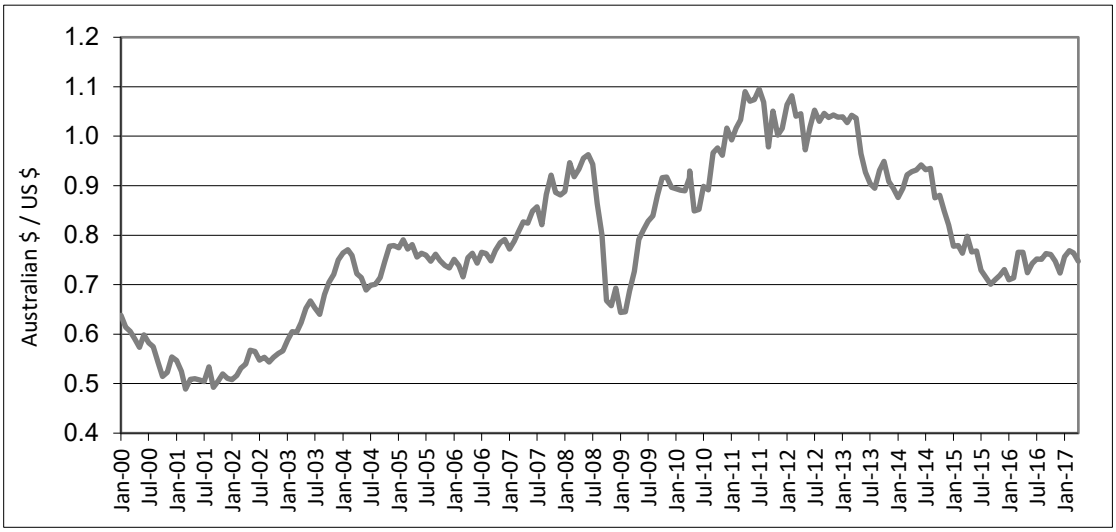


Source: RBA

Defence funding is affected by two economic parameters; the value of the Australian dollar—particularly relative to the US dollar—and the rate of inflation. These are explored below, beginning with foreign exchange.

Defence currently spends something like $6–7 billion a year on foreign equipment, mostly in contracts written in US dollars. And while Defence is insulated from foreign exchange fluctuations on a no-win, no-loss basis, the government, and ultimately the taxpayer, feels the pain or gain. In recent years, the USD–AUD exchange rate has fluctuated substantially, as Figure 1.3.4 shows. At the time of writing, the exchange rate was around US$0.73, having reached a post-float high of $1.11 against the US dollar in July 2011. The 2017 budget assumes a rate of US$0.76.

Figure 1.3.4: Foreign exchange



Source: RBA

Since 2009-10, the Defence budget has nominally received a fixed 2.5% annual indexation, calculated from 2009-10 but only applied from 2013-14. (This is separate from and in addition to the adjustments made for foreign exchange). The relative percentage gain or loss compared with CPI and 'core' inflation is calculated in Table 1.3.1, including historical figures for comparison. Since the White Paper, Defence has gained 1.5% of additional buying power compared with CPI (or around $522 million p.a. based on a $34.7 billion budget).

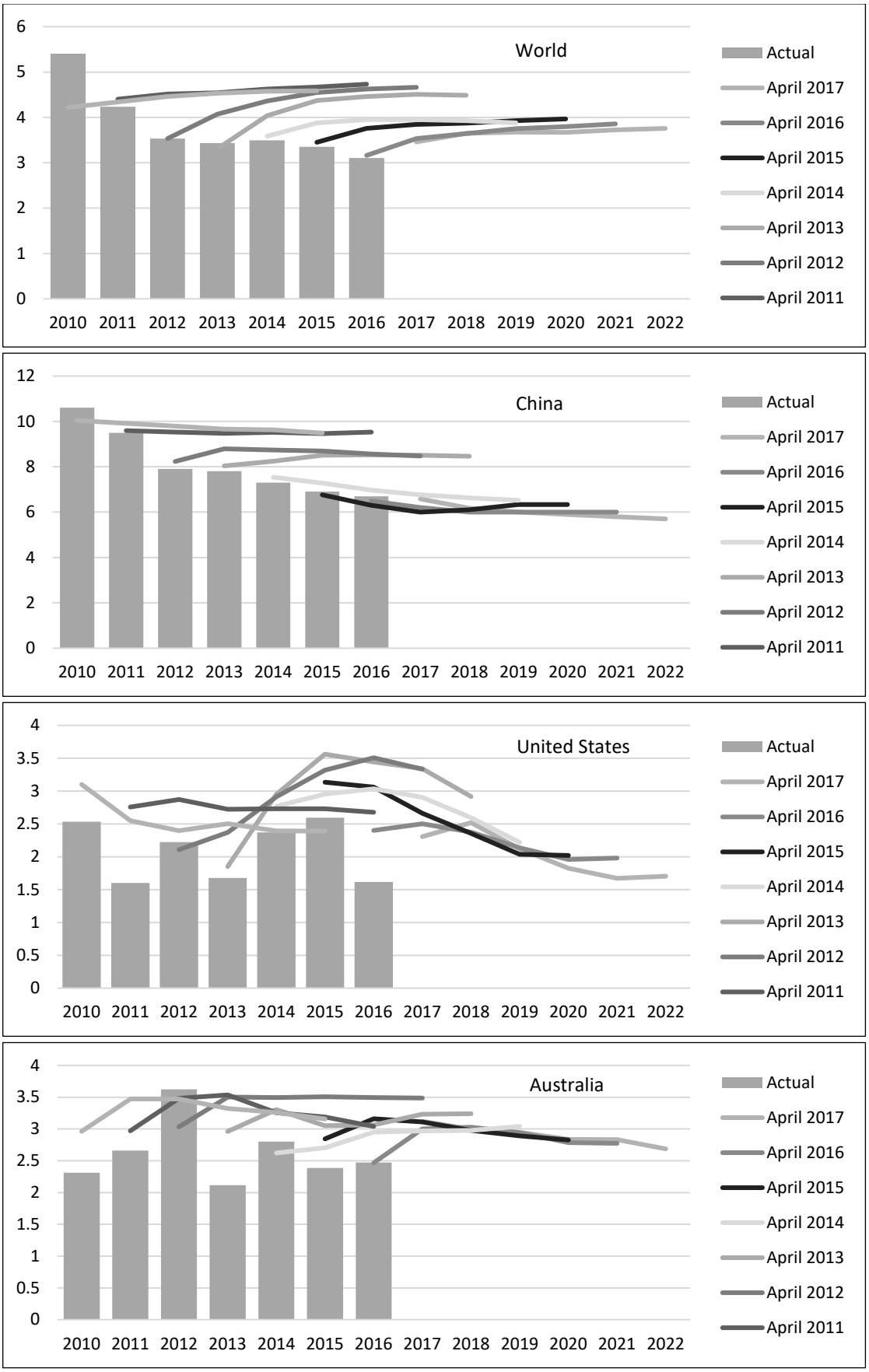
Table 1.3.1: CPI inflation, 'core' inflation and 2.5% indexation

	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21
Fixed 2.5%	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
CPI	2.9	3.4	3.1	2.4	3.1	2.4	2.3	2.7	1.7	1.4	1.7	1.8	2.2	2.4	2.5
Difference	-0.4	-0.9	-0.6	0.1	-0.6	0.1	0.2	-0.2	0.8	1.1	0.8	0.7	0.3	0.1	
Fixed 2.5%	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
'core' inflation*	2.9	3.9	4.4	3.3	2.5	2.3	2.4	2.6	2.4	1.8					
Difference	-0.4	-1.4	-1.9	-0.8	0.0	0.2	0.1	-0.1	0.1	0.7					

*Source: APH Library, RBA, ABS and Budget Papers. *Average of the RBA weighted median and trimmed mean measures.*

The frustratingly slow growth of economies worldwide is shown in Figure 1.3.5, which compares actual GDP growth with successive IMF estimates. Time and time again hopes of recovery have been dashed.

Figure 1.3.5: Slower than expected growth around the world (percent annual growth)

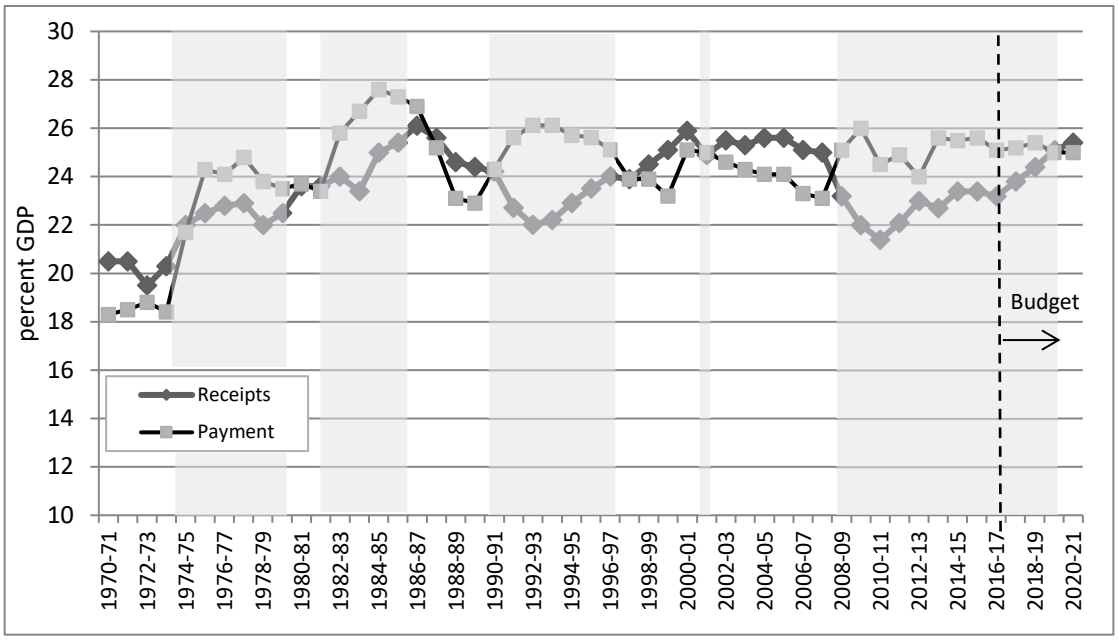


Source: IMF World Economic Outlook, April 2010-2017

1.4 Fiscal Context

Annual Australian Government payments grew from 18.3% to 27.6% of GDP between 1970 and 1984 (see Figure 1.4.1). Subsequently, payments moderated downward to around 23% in 2012, and have since fluctuated around an average of 25% of GDP.

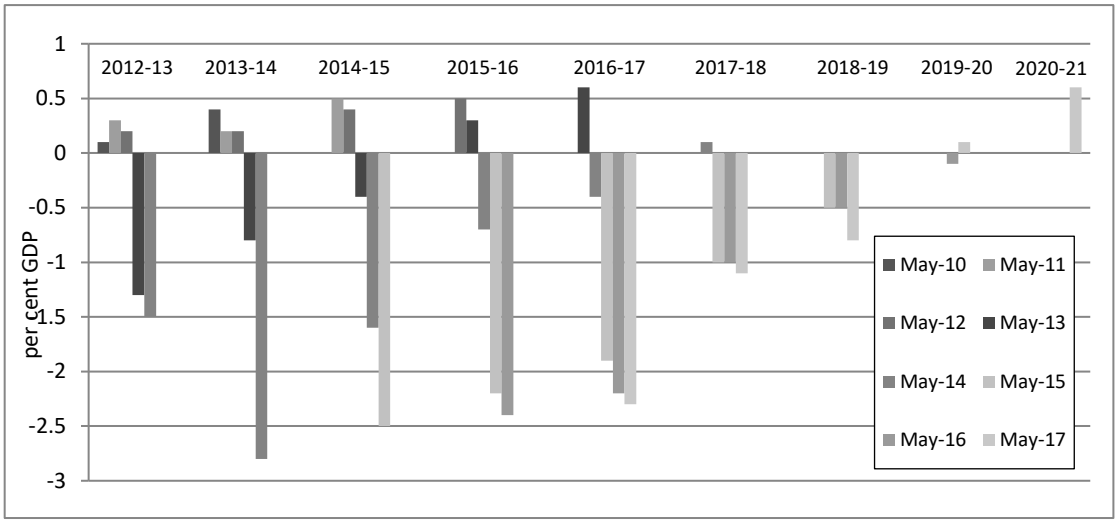
Figure 1.4.1: Australian Government payments and receipts 1970 to 2020



Source: Treasury Budget Papers, Budget 2017-18. Note: receipts are exclusive of Future Fund earnings.

Over the period 1970 to 2016, the Australian Government ran deficits in 29 out of 47 years, as marked in grey overshadow in Figure 1.4.1. The most recent excursion into deficit budgeting was caused by the GFC, which precipitated falling receipts, rising 'automatic stabiliser' spending and policy-led Keynesian spending. From 2012 onwards, there was a further deterioration of the government's fiscal outlook as projected revenues failed to materialise. Figure 1.4.2 graphs the dramatic changes to, and slow recovery in, the fiscal outlook in successive official estimates from 2012 onwards.

Figure 1.4.2: The changing outlook—fiscal balance per cent GDP



Source: 2009-10 to 2017-18 Budget Papers

A more detailed comparison appears in Table 1.4.1, which compares the outlooks in the past six budgets. Note the severe and continuing deterioration in the government's fiscal position between 2012 and 2015; deficits are shaded in grey. Critical figures are as follows; the planned $1.5 billion surplus (as at May 2012) for 2012-13 turned into a $19.4 billion deficit, and the predicted deficit (as at May 2013) for 2013-14 grew from $18 billion to almost $50 billion.

Table 1.4.1: Budget aggregates 2012-13 to 2017-18 Budgets (nominal billion dollars)

		Historical Figures							Budget Estimates					
		2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
2012-13	$m cash	**-27.1**	**-54.8**	**-47.7**	**-44.4**	**1.5**	**2.0**	**5.3**	**7.5**					
	% GDP	-2.2	-4.3	-3.4	-3.0	0.1	0.1	0.3	0.4					
	$m fiscal	**-29.7**	**-52.9**	**-42.0**	**-42.0**	**2.5**	**2.6**	**7.0**	**9.5**					
	% GDP	-2.4	-4.1	-2.8	-2.8	0.2	0.2	0.4	0.5					
2013-14	$m cash	**-27.1**	**-54.8**	**-47.7**	**-43.4**	**-19.4**	**-18.0**	**-10.9**	**0.8**	**6.6**				
	% GDP	-2.2	-4.3	-3.4	-2.9	-1.3	-1.1	-0.6	0.0	**0.4**				
	$m fiscal	**-29.7**	**-52.9**	**-42.0**	**-44.5**	**-20.3**	**-13.5**	**-6.3**	**6.0**	**10.8**				
	% GDP	-2.4	-4.1	-2.8	-3.0	-1.3	-0.8	-0.4	0.3	**0.6**				
2014-15	$m cash	**-27.1**	**-54.8**	**-47.7**	**-43.4**	**-18.8**	**-49.9**	**-29.8**	**-17.1**	**-10.6**	**-2.8**			
	% GDP	-2.2	-4.3	-3.4	-2.9	-1.2	-3.1	-1.8	-1.0	-0.6	-0.2			
	$m fiscal	**-29.7**	**-52.9**	**-42.0**	**-44.5**	**-23.5**	**-45.1**	**-25.9**	**-12.2**	**-6.6**	**1.0**			
	% GDP	-2.4	-4.1	-2.8	-3.0	-1.5	-2.8	-1.6	-0.7	-0.4	0.1			
2015-16	$m cash	**-27.0**	**-54.5**	**-47.5**	**-43.4**	**-18.8**	**-48.5**	**-41.1**	**-35.1**	**-25.8**	**-14.4**	**-6.9**		
	% GDP	-2.1	-4.2	-3.4	-2.9	-1.2	-3.1	-2.6	-2.1	-1.5	-0.8	-0.4		
	$m fiscal	**-29.7**	**53.9**	**-51.8**	**-44.5**	**-23.5**	**-43.7**	**-39.4**	**-33.0**	**-23.4**	**-9.2**	**-3.3**		
	% GDP	-2.4	-4.2	-3.7	-3.0	-1.5	-2.8	-2.5	-2.0	-1.3	-0.5	-0.2		
2016-17	$m cash	**-27.0**	**-54.5**	**-47.5**	**-43.4**	**-18.8**	**-48.5**	**-37.9**	**-39.9**	**-37.1**	**-26.1**	**-15.4**	**-6.0**	
	% GDP	-2.1	-4.2	-3.4	-2.9	-1.2	-3.1	-2.4	-2.4	-2.2	-1.4	-0.8	-0.3	
	$m fiscal	**-29.7**	**53.9**	**-51.8**	**-44.7**	**-23.5**	**-43.7**	**-40.0**	**-39.4**	**-37.1**	**-18.7**	**-9.8**	**-2.0**	
	% GDP	-2.4	-4.2	-3.7	-3.0	-1.5	-2.8	-2.5	-2.4	-2.2	-1.0	-0.5	-0.1	
2017-18	$m cash	**-27.0**	**-54.5**	**-47.5**	**-43.4**	**-18.8**	**-48.5**	**-37.9**	**-39.6**	**-37.6**	**-29.4**	**-21.4**	**-2.5**	**7.4**
	% GDP	-2.1	-4.2	-3.4	-2.9	-1.2	-3.1	-2.3	-2.4	-2.1	-1.6	-1.1	-0.1	0.4
	$m fiscal	**-29.9**	**53.9**	**-52.2**	**-44.7**	**-23.9**	**-44.2**	**-40.8**	**-37.5**	**-40.7**	**-20.3**	**-15.5**	**-2.7**	**11.4**
	% GDP	-2.4	-4.2	-3.7	-3.0	-1.6	-2.8	-2.5	-2.3	-2.3	-1.1	-0.8	0.1	0.6

Source: Treasury Budget Papers No. 1. Cash=Underlying Cash, Fiscal=Fiscal Balance

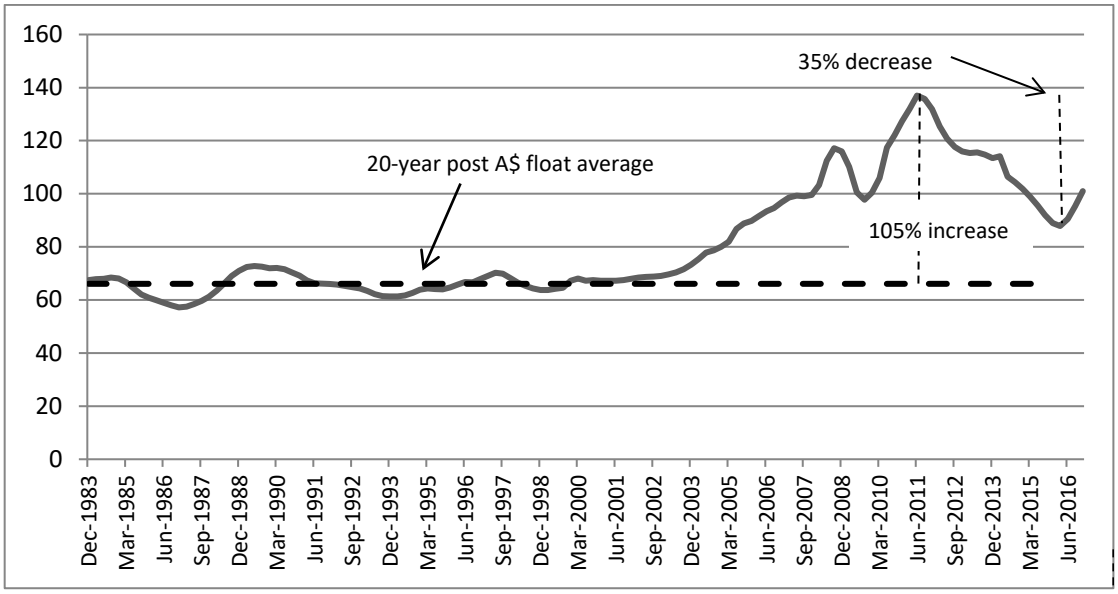
The recent deterioration in government revenues is due to several factors, including reduced company profits, sluggish nominal GDP growth (tax depends on nominal rather than real GDP levels), and slow wage growth. A key factor overall was the fall in Australia's terms of trade, Figure 1.4.3.

The terms of trade measure the quantity of imports an economy can purchase per unit of exports. Concurrent with the mining boom, Australia's terms of trade grew substantially, reaching a historical peak in September 2011 before falling 34% and then recovering in 2016. This year's budget forecasts that the terms of trade will fall by 7% over the next two financial years.

Absent savings, deficits result in debt. Fortunately, unlike most other advanced economies, Australia entered the GFC with no debt. As a result, our accumulated and projected debt is

far below the daunting levels—typically 80-100% of GDP—faced by many European economies and the United States. Figure 1.4.4 shows the past and projected net Australian Government debt out to 2020-21 as assessed in May 2014 and May 2017. The deterioration in our debt position in the intervening years is apparent. Economic growth, coupled with the assumed remediation of the deficit, results in debt peaking as a share of GDP in 2018-19.

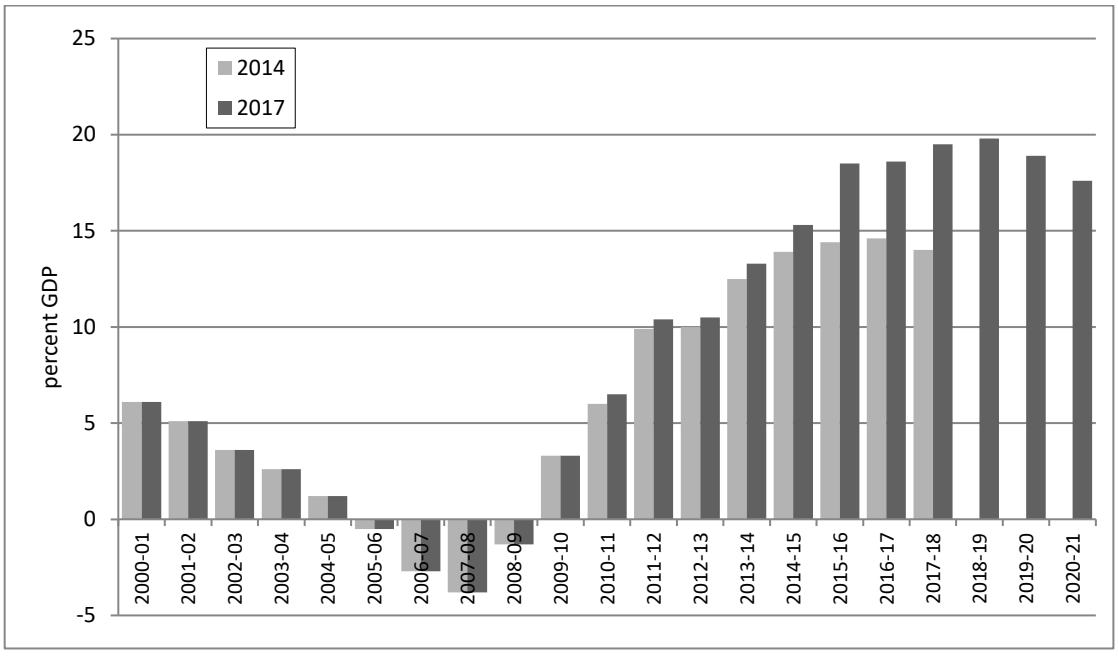
Figure 1.4.3: Australia's terms of trade index



Source: ABS Australian National Accounts 5206.0.

Although net debt of around 19.8% of GDP is not extraordinary by international standards, it is far from desirable. Australia has a narrow export base and high household debt levels. Thus, aside from the substantial ongoing impost of interest payments, we are somewhat vulnerable in the event of another financial crisis or economic downturn.

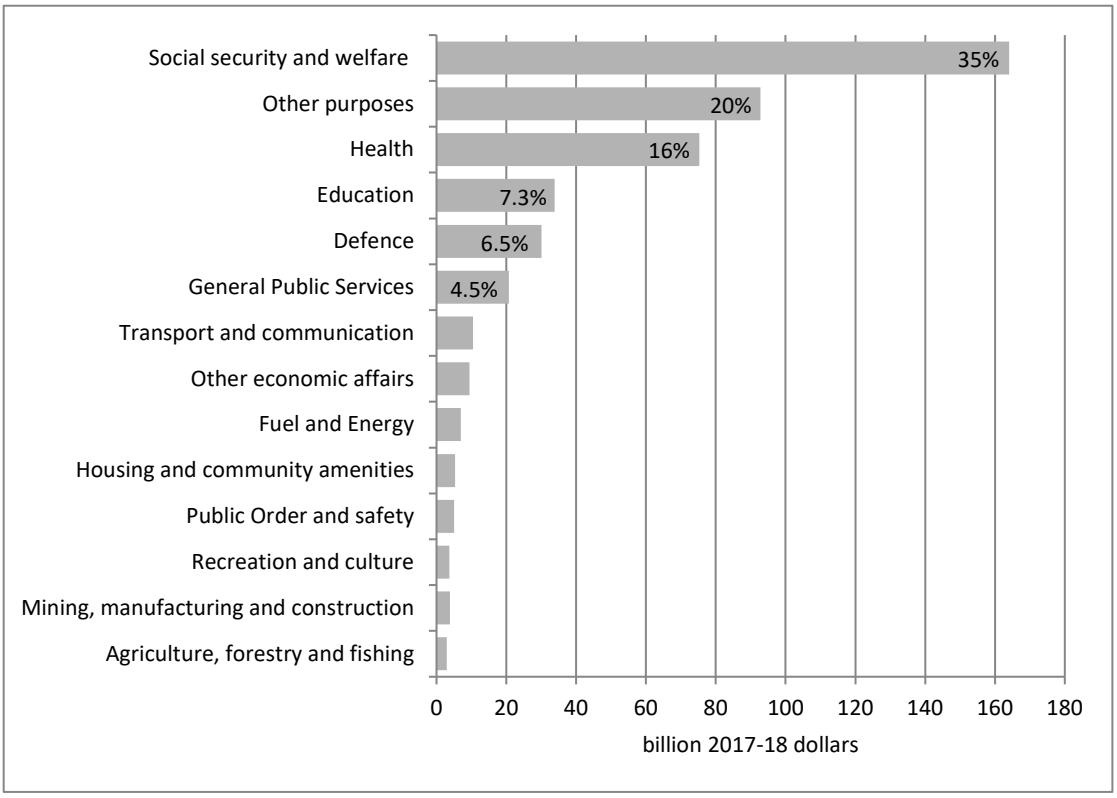
Figure 1.4.4: Australian Government net debt



Source: Treasury Papers, May 2014 and 2017.

To put defence spending properly into a fiscal context, we turn now to examine the structure of Australian Government spending. Figure 1.4.5 shows Australian Government spending by function for 2017-18. As can be seen, defence spending accounts for a relatively small part of the total. The reputation of defence as a 'big spender' probably arose because it involves a small number of very large purchases rather than many millions of small payments as in health, education and social security. Note that in this chart defence spending excludes capital investment because of the peculiarities of Treasury's accounting system.

Figure 1.4.5: Australian Government expenses by function 2017-18



Source: 2017-18 Budget Papers

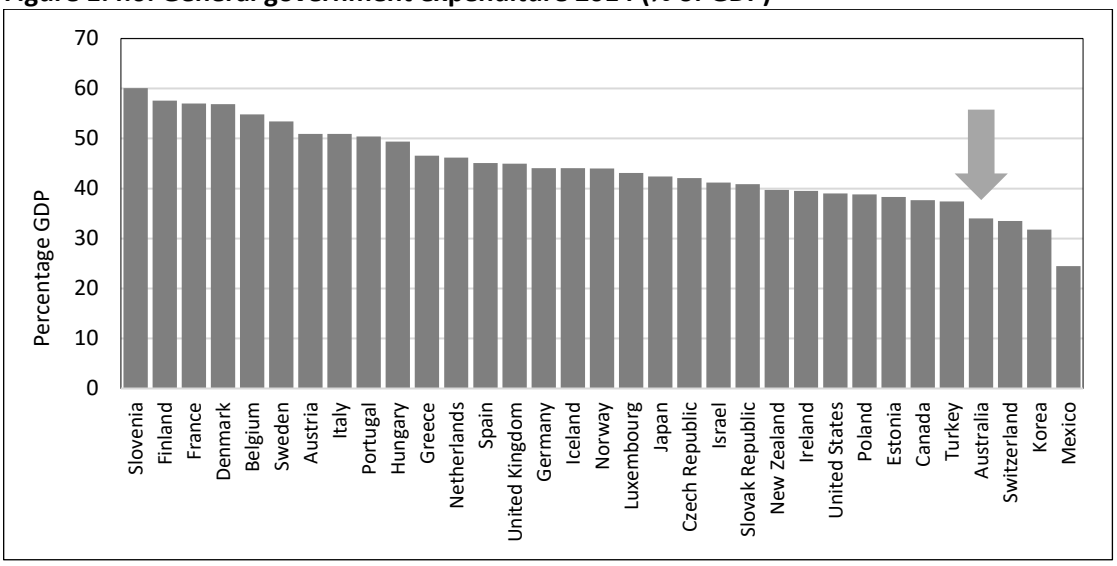
Comparing defence spending with other components of federal (i.e. Australian Government) spending fails to take into account the additional public revenues expended at the state and local level. In 2011, for example, OECD statistics show that federal spending accounted for only around two-thirds of public spending. Taking local and state government spending into account, defence spending represents only around 4% of public expenditure in Australia. Even that figure fails to properly put defence spending into context. The denominator in the ratio (general government expenditure) is highly dependent on the extent to which the government intermediates between individuals and the providers of services such as health and education. The level of intermediation varies substantially between different countries, as demonstrated in Figure 1.4.6, which shows general government expenditure across the OECD.

Because of Australia's relatively low level of general government expenditure, the percentage devoted to defence is higher than it otherwise would be. A better way to capture the true scale of defence spending relative to the usual cited 'opportunity cost' areas of

social spending, health, pensions and education is to compare defence spending to the total (public plus private) expenditure in those areas. This is done in Figure 1.4.7.

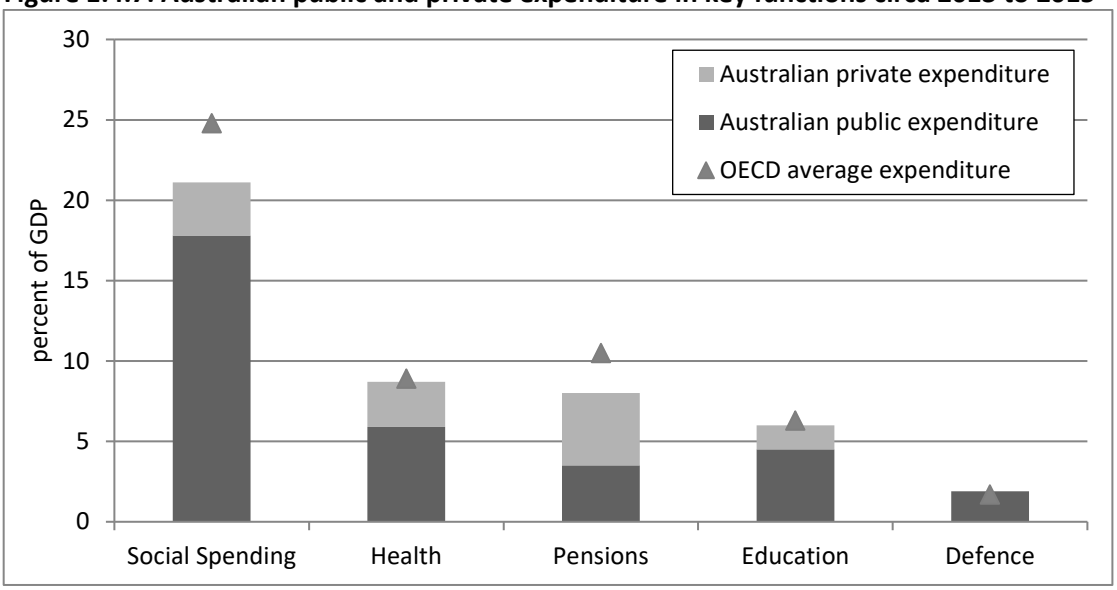
As is clear from the figure, defence expenditure is small compared with combined public and private expenditure in the four areas. Moreover, although Australia's general government expenditure is small by OECD standards, our public plus private expenditure in these areas is fully commensurate with the aggregate OECD expenditure.

Figure 1.4.6: General government expenditure 2014 (% of GDP)



Source: OECD Factbook, 2015-16. Revenues used as proxy for Australia, Canada, Greece, New Zealand, and Poland.

Figure 1.4.7: Australian public and private expenditure in key functions circa 2013 to 2015



Source: OECD Factbook, 2013 to 2015 (Defence OECD figure is the actually NATO European average for 2012).

The critical point to observe is that defence is different from the competing areas of expenditure in a very important respect. Although a shortfall in government spending on social, health, pensions or education can be made up for through private spending, in practice only the government can provide the public good of defence. Thus, any shortfall in the provision of defence by the government can't be remediated.

1.5 Defence Organisation and Management

The Outcomes and Program Framework

Since 2009-10, the Defence budget has been set out according to a framework of 'outcomes' and 'programs', which replaced the 'outcomes' and 'outputs' framework established in 1999.

> **Outcomes** are the results or benefits that the Commonwealth aims to deliver to the community through the work of its agencies. They are specified for each agency, and are meant to express the purpose or goal of each agency's activities.
>
> **Programs** are activities that agencies undertake in pursuit of the outcomes they are expected to deliver.

The performance of agencies is measured under the framework. This is done through specific targets (like flying hours for Air Force) and, ultimately, the extent to which their programs deliver the outcomes intended. So, the aim is to show not only how much an agency is *doing*, but what it's achieving. Defence has recently been restructured following the First Principles Review, see Chapter 4. The outcome/program structure changed again this year.

The Defence Outcomes

As of May 2017, the Defence Outcomes are:

Outcome 1: The protection and advancement of Australia's national interests through the provision of military capabilities and the promotion of security and stability.

Outcome 2: 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.

The programs that contribute to these outcomes are set out in Figure 1.5.1. Note that the programs are closely aligned with the actual organisational structure of Defence, as can be seen by comparison with the Defence 'wiring diagram' in Figure 1.5.2.

This framework provides greater visibility of resources consumption within the organisation than the output-based approach that was in place up to 2007-08. But that comes at the loss of knowing what it costs to deliver military capability, which is what the old framework attempted to do. Ultimately, what really matters is how much it costs to deliver ships, planes and battalions ready for deployment, not how much money is spent on inputs such as health services, legal advice or personnel management. Of course, in a perfect world we'd be told both.

Figure 1.5.1: The Defence Outcome-Program framework (May 2017)

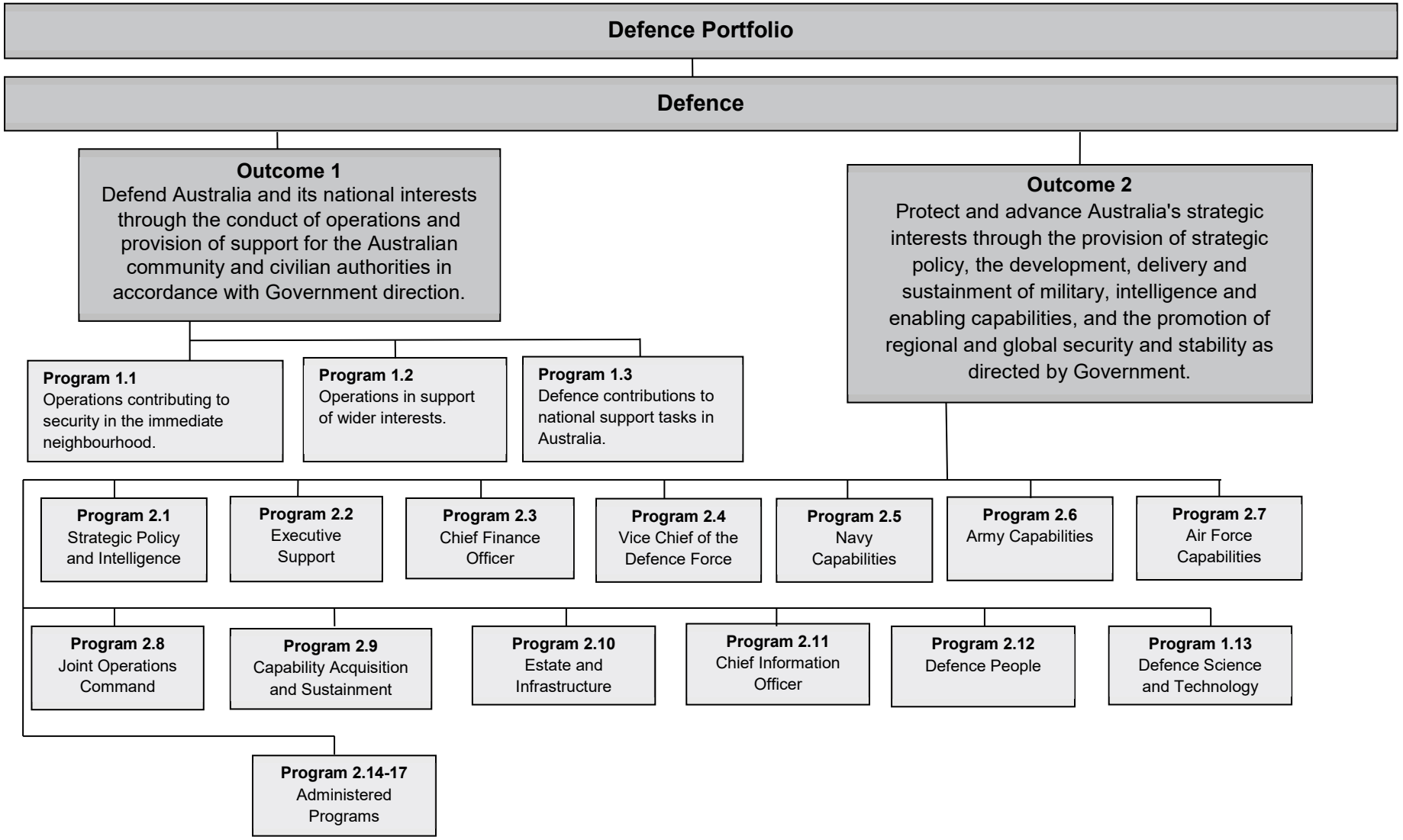
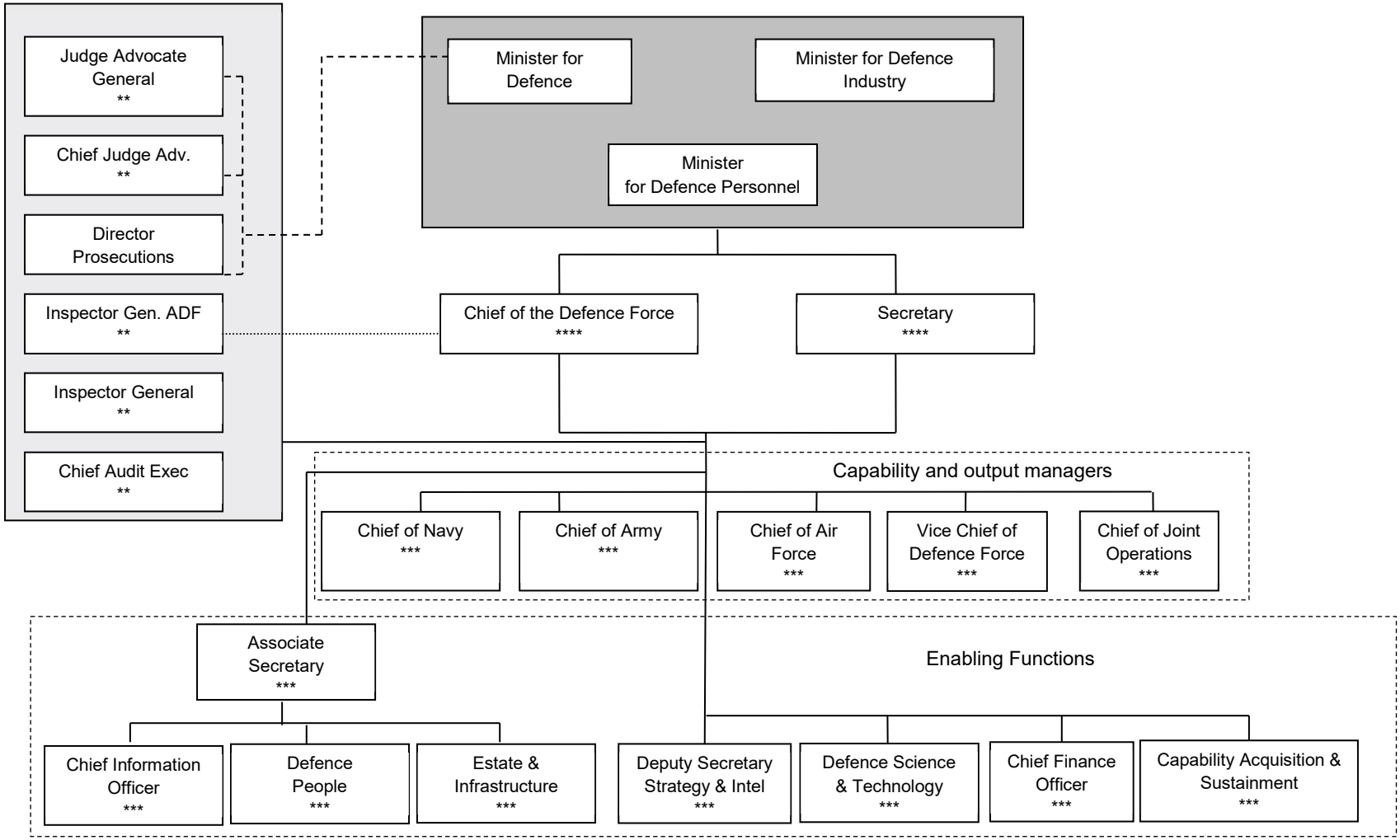


Figure 1.5.2: Defence organisational structure (as May 2017)



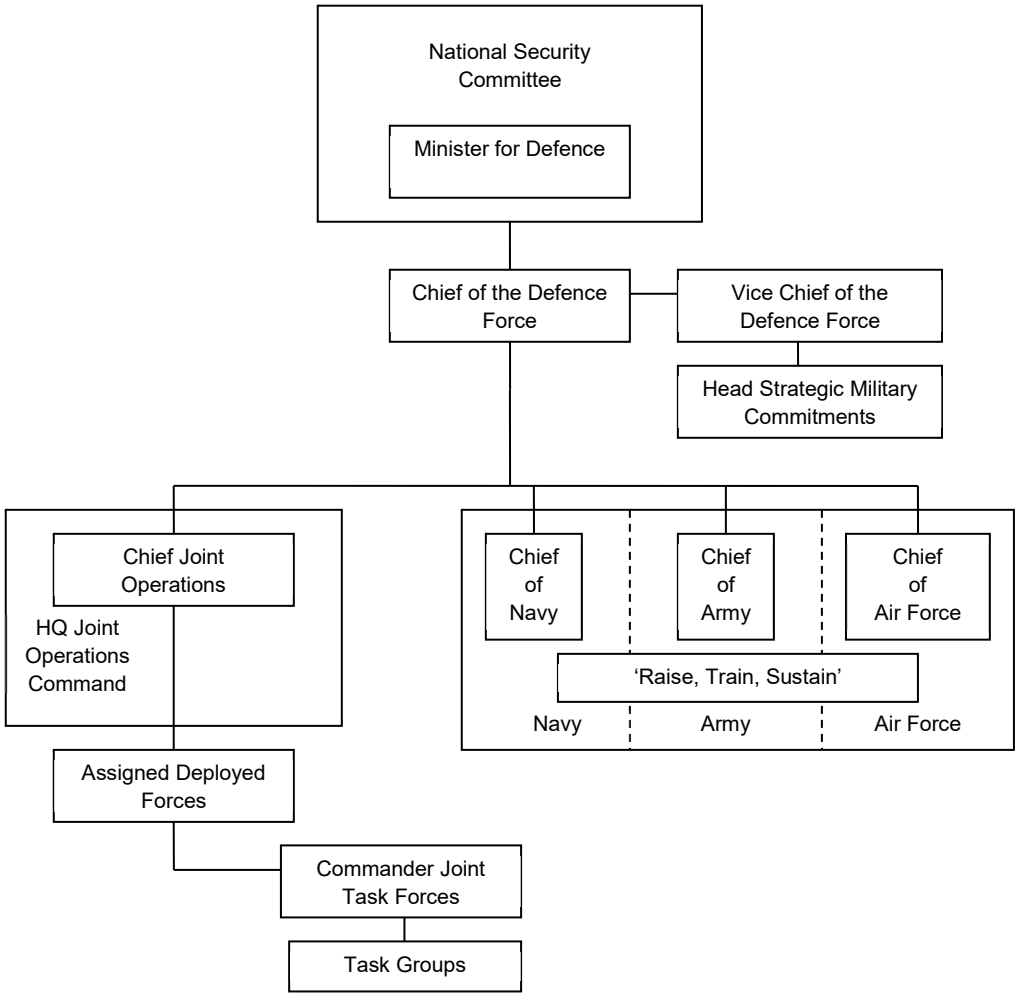
ADF command structure

It's important not to confuse the day-to-day management of the Department of Defence with the command of military operations. The former occurs through the diarchy of the CDF and Secretary and the group/program arrangements outlined above. The latter is exercised through a formal command chain and dedicated headquarters structure.

On a day-to-day basis, the three Services (Navy, Army, and Air Force) are responsible for raising, training and sustaining their forces. When forces are deployed on operations or major exercises, the designated force elements are assigned to Headquarters Joint Operations Command (HQJOC) for that purpose. Since late 2008, HQJOC has been housed at a purpose-built facility near Bungendore in rural NSW and is staffed by around 800 personnel.

A more detailed outline of ADF command and HQJOC appears in Chapter 2.6 of this brief under Program 1.5.

Figure 1.5.3: ADF command structure



1.6 National Security Spending

The events of 9/11 prompted the recognition that no single agency has the capacity, or range of capabilities necessary to ensure our security. The threat of terrorism within Australia, and to Australians abroad, has forced a whole-of-government approach to national security at the federal level. Even beyond the threat of terrorism, it's increasingly recognised that our national security interests are best served by a coordinated approach that uses all of the levers available to government.

It's beyond the scope of this Defence Budget Brief to analyse and explain the budgets of all the agencies that contribute to national security. Instead, we'll content ourselves with a broad-brush description of how much is spent in key agencies. If nothing else, it provides a useful yardstick against which we can measure what's spent on defence. Unfortunately, because of the difficulty in finding data, our discussion excludes spending at the state and local levels.

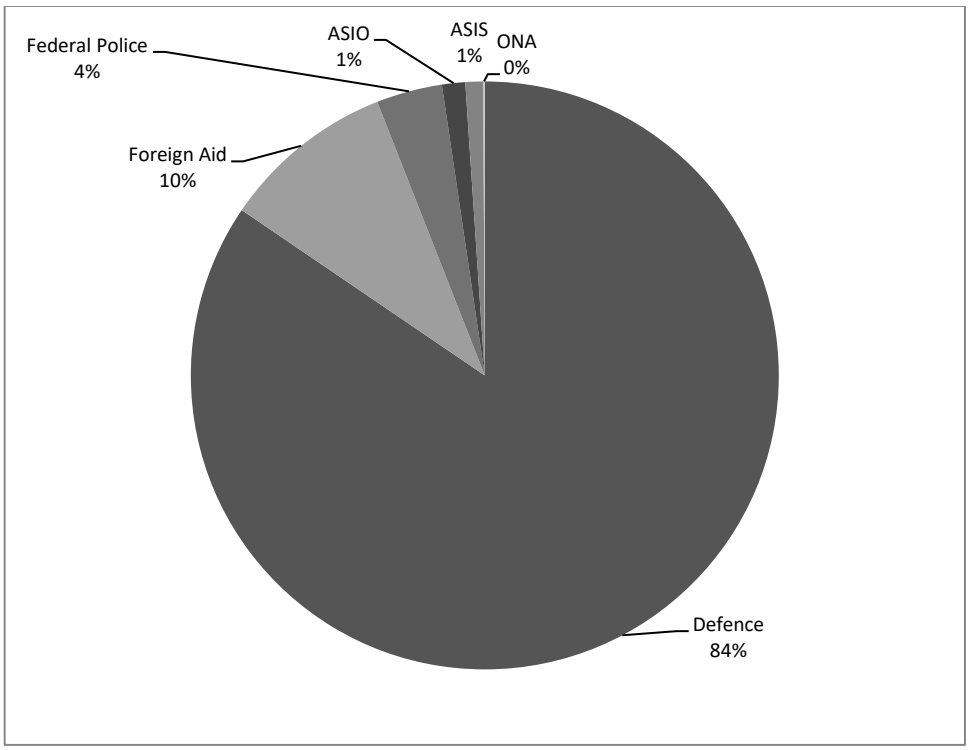
Last year's budget papers included a 14-page glossy brochure, *Protecting Australia*, which explained the steps taken by the government to keep Australia safe and secure. This year, defence was lucky to rate a mention in the context of job creation. Nonetheless, spending across the national security community continues apace. Of note was the additional $300 million provide to the Australian Federal Police to 'lead the charge against terrorism, organised crime, child exploitation and other crimes'.

Several federal agencies can make a credible claim to delivering some part of our national security. In selecting agencies, we've taken a liberal view of what constitutes national security, although we've excluded funding for outcomes within agencies that are clearly unrelated. Here's our list, which can't claim to be exhaustive, in alphabetical order:

- Australian Federal Police (AFP)
- Australian Security Intelligence Organisation (ASIO)
- Australian Secret Intelligence Service (ASIS)
- Department of Defence (DOD)
- Overseas Development Assistance (DFAT)
- Office of National Assessments (ONA).

Clearly, some of the activities of the listed agencies (even with the restriction to specific outcomes) go beyond national security. Conversely, other agencies that have been left out, like the Australian Border Force, make a significant contribution to national security within their broader range of responsibilities. Such is the challenge of dealing with the aggregated data available in the budget papers. Figure 1.6.1 compares the appropriations allocated to each of the agencies in 2017-18. Note that because of the absorption of AusAID into DFAT, care should be taken comparing Overseas Development Assistance to that in earlier years.

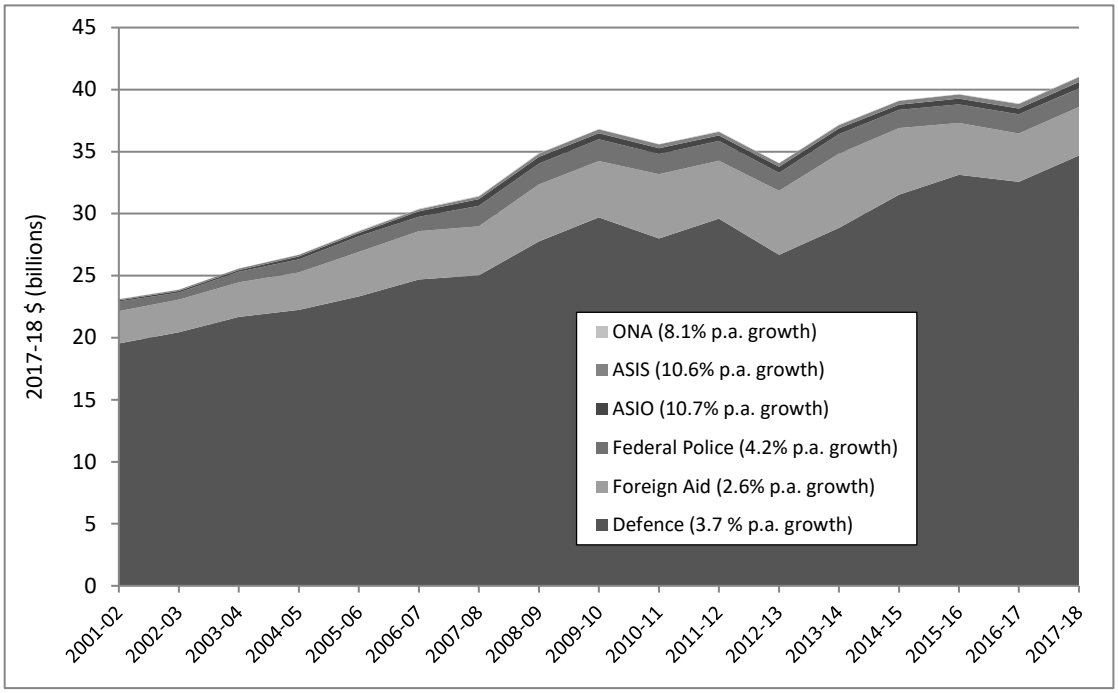
Figure 1.6.1: Federal national security spending



Source: 2017-18 Budget Paper No. 4 and ASPI calculation of Net Defence Funding

Figure 1.6.2 shows the real growth in spending by various national security agencies since 2000-01. Because changes in outputs and the presentation of budget figures make it difficult to extract precisely comparable figures from year to year, the numbers should be used with caution—though the broad trends are clear.

Figure 1.6.2: Federal national security appropriations 2001-02 to 2017-18



Source: 2002-03 to 2017-18 Budget Paper No. 4 and ASPI calculation of Net Defence Funding. [All growth rates compounding.]

1.7 Measuring Defence Spending

The amount a country spends on defence is a direct measure of its commitment to protect itself. Accordingly, a lot of attention is placed on comparing levels of defence spending between countries and on tracking the rates at which those levels are increasing or decreasing. Here in Australia, for example, a lot of attention was placed on achieving 3% real growth in the Defence budget during the 2000s, and then 2% of GDP became the focus this decade. It's important, therefore, that reporting of defence spending captures what's going on.

Table 1.7.1 sets out the presentation in the 2017-18 Portfolio Budget Statement (PBS) [Table 1, p.19] excluding the administered appropriations. (We ignore the administered appropriations for superannuation and housing because they aren't controlled by Defence, but are appropriated through the organisation for convenience.)

Table 1.7.1 Total Defence funding FY 2017-18

	2017-18 ($'000)
Departmental	
1. Output Appropriation	32,205,226
2. Equity Injection	2,365,307
3. Prior Year Appropriation	
4. Current year's appropriation (1+2+3)	**34,570,533**
5. Drawdown of appropriations carried forward	
6 Other appropriation receivable movements	
7. Returns to Official Public Account (OPA)	-919
8 Funding to/from OPA (5+6+7)	**-919**
9. Funding from Government (4+8)	**34,569,614**
10. Capital Receipts	117,282
11. Own-source Revenue	503,986
12. Funding from other sources (10+11)	**621,268**
13. Total Defence Funding (9+11)	**35,190,882**
20. Appropriation receivable	687,345
21. Cash in bank	47,597
22. Total appropriations carried forward	**734,942**

Source: 2017-18 PBS

The easiest way to explore what a better approach might be is to examine each of the elements appearing in Table 1.7.1.

Current year's appropriations: This is the least ambiguous part of the problem. Each year the government formally appropriates money to Defence. The breakdown of the appropriation in terms of outputs and equity is an artefact of accrual accounting that needn't concern us. What matters is that this is the quantum of cold hard cash the government plans to make available to Defence for the financial year. As such, any credible measure of Defence funding must include this money.

Drawdown of appropriations carried forward: Because funding may either be spent or received in a year other than the appropriation year, an Appropriation Receivable account is utilised (held in the Official Public Account). This recognises that departmental Appropriations don't lapse unless specifically extinguished by the Minister for Finance. Some, but not all, drawdowns of that account are included at serial 5 and 6.

Capital Receipts: As custodian of more than $86 billion of public assets, including land, buildings and military equipment, Defence inevitably receives cash from the disposal of items that are no longer needed. Some of this money is returned to government via a Return to the Official Public Account (OPA). The remainder is retained by Defence and is called Net Capital Receipts. Given that Net Capital Receipts are generated from the sale of public assets, it's correct to count this income as part of Defence funding.

Own-source Revenues: Defence receives revenue from several sources. These include the supply of goods and services to third parties such as Defence personnel, who pay a share of the cost of their food and lodging provided by Defence, and foreign governments that purchase items like fuel. It makes little sense to include this as part of Defence funding. While it's perhaps reasonable to include revenue raised by using public assets (like Defence accommodation), the vast bulk of Own-source Revenue reflects Defence acting as an intermediary that transfers goods between third-party providers and third-party customers.

For example, the sale of fuel to a foreign government or rations to personnel delivers no revenue to Defence that's not at least equal to the cost of doing so. Or to put it another way, no one could seriously contend that Defence funding has risen by $50 million simply because, for example, an extra $50 million of fuel was purchased and sold on to the United States. Figure 1.7.1 depicts the flow of funds into and out of Defence.

Appropriation receivable and cash at bank: These are funds appropriated in prior years that have not been spent. Sources of unspent funds include superfluous no-win no-loss adjustments that are yet to be returned to the Public Account, and accumulated underspends from prior year output appropriations and equity injections. Although this money is available to be spent, and sometimes is, it does not represent new funding for Defence. However, the waxing and waning of funds held as appropriations receivable, and in the bank, must be considered when calculating how much money was spent in prior years. Historical budget figures have been adjusted accordingly in our calculations.

What is the 'Defence budget'?

Considering the above, it seems sensible to include Funding from Government, Net Capital Receipts (= Capital Receipts – Return to OPA), Net Bank Balance Shifts, Appropriation Receivable Shifts, but not Own-source Revenue. Table 1.7.2 shows the calculation of Total Defence funding and 'ASPI Net Defence' funding for 2017-18. Our calculation of Net Defence funding yields a figure 1.5% lower (albeit $500 million in absolute terms) than Total Defence funding. Comparison of Total Defence funding and ASPI Net Defence with the explicit funding guidance provided in the 2016 Defence White Paper can be found in Chapter 3. Unless otherwise specified, all figures for defence funding in this Brief refer to ASPI Net Defence funding.

Figure 1.7.1: Defence Cash and Resource Flows

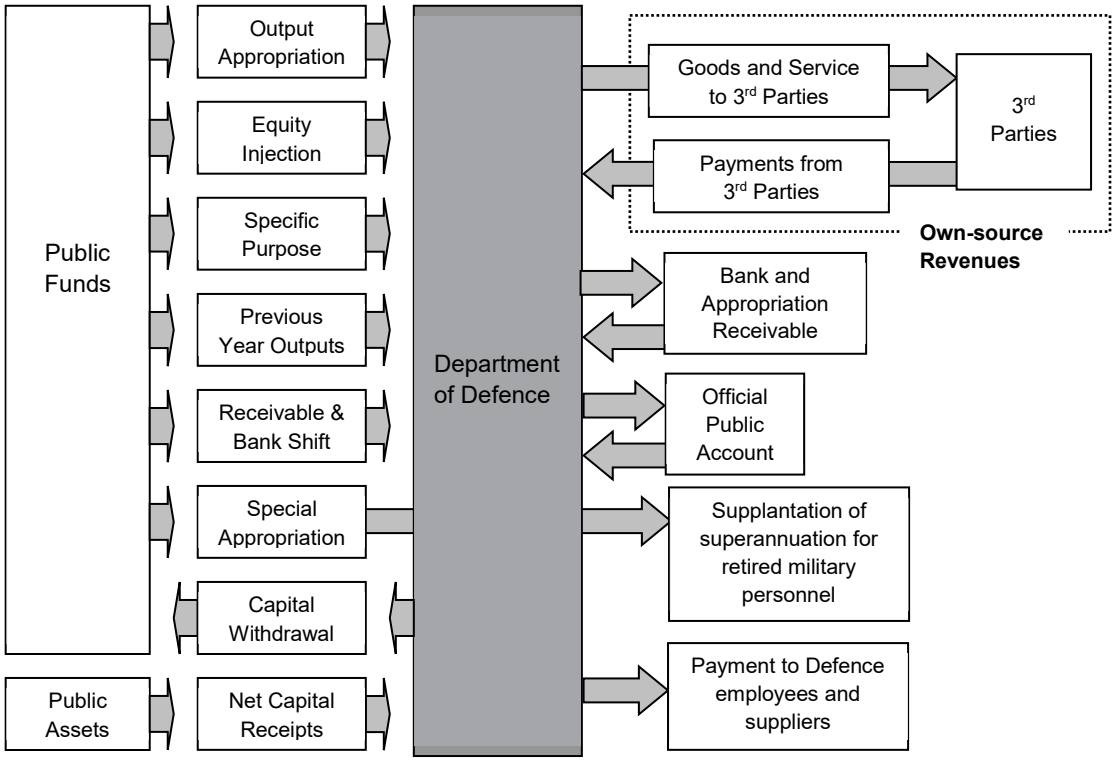


Table 1.7.2: Total Defence resourcing for FY 2017-18

	2017-18	
	Total Defence Funding	**ASPI Net Defence Funding**
Departmental		
1. Output Appropriation	32,205,226	32,205,226
2. Equity Injection	2,365,307	2,365,307
3. Prior Year Appropriation		
4. Current year's appropriation	34,570,533	34,570,533
5. Drawdown of appropriations carried forward		
6 Other appropriation receivable movements		
7. Returns to OPA	-919	-919
8. Funding from Government	34,569,614	34,569,614
9. Capital Receipts	117,282	117,282
10. Own-source Revenue	503,986	
11. Funding from other sources	621,268	117,282
12. Total Defence funding	**35,190,882**	
13. Anticipated shift in bank balance		0
14. Anticipated shift in appropriation receivable		0
15. ASPI Net Defence funding		**34,686,896**

1.8 Where Does the Money Go?

Developed with Annaliese FitzGerald

Over the next financial year, Defence will spend in excess of $34.7 billion, equivalent to $2,875 dollars per individual taxpayer in Australia. While there's surely a wide variation in the level of satisfaction (or frustration) felt by individual taxpayers, there are around 100,000 individuals and thousands of firms whose livelihoods derive from defence expenditure on the other side of the transaction. This section explores the how, what, where and to whom of Australian defence spending.

What follows provides a snapshot of where the money went in the most recent financial year where data is available, which means in practice a mix of 2015-16 and 2016-17. Unfortunately, the nature of the available data complicates the task. In particular, because Defence's financial accounts are presented in accrual terms, there is often a choice between using cash or expense figures (see box). Unfortunately, many items of interest are only presented in one format or the other. As a result, it's sometimes necessary to mix the accounting equivalent of apples and oranges in order to build a complete picture. In the face of these data limitations, every care has been taken to ensure that the resulting depictions are broadly accurate. Nonetheless, the resulting picture will often be more illustrative than precise.

Accrual accounting

Since the turn of the century, Defence has reported its financial situation using accrual accounting. At the heart of accrual accounting are three 'statements'.

The *Operating Statement*, or *Comprehensive Income Statement*, reports on the expenses incurred and revenues received over the reporting period. Expenses and revenues are not necessarily cash transactions. Expenses reflect the consumption of resources, such as depreciation in the value of assets and the consumption of inventory—likewise for revenues.

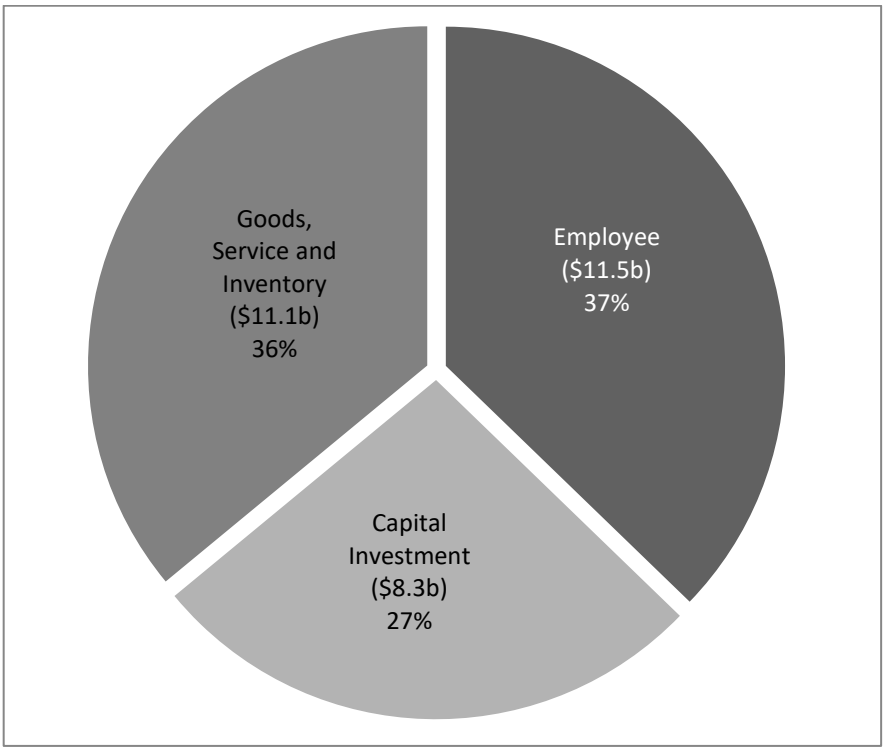
The other two statements are more straightforward. The *Balance Sheet* reports changes to the value of assets and liabilities held over the reporting period, and the *Cash Flow Statement* reports on the concrete cash transactions for the period.

Dividing the pie

Just as there are many ways to slice a pie, there are a number of different ways to sub-divide defence expenditure—each of which can provide a useful perspective. Given the presentation of the financial statements, the easiest way to break up the budget is in terms of the following three components: capital investment, employee expenditure and a final category of 'goods, services and inventory'. Capital investment represents spending on assets that will be retained for long periods of time (such as buildings and military equipment), employee expenditure represents spending related to employees, and the final category picks up everything else. In practice, it represents spending on things that are consumed (although in the case of inventory, it's things that may be consumed in the future). Note that because Defence derives revenue from housing and rationing, care has

been taken to ensure the final figures are net of this financial 'churn'. Figure 1.8.1 shows the breakdown of 2016-17 defence expenditure based on Defence's cash flow statement.

Figure 1.8.1: Investment, employee, and other expenditure 2016-17



Source: 2016-17 PAES

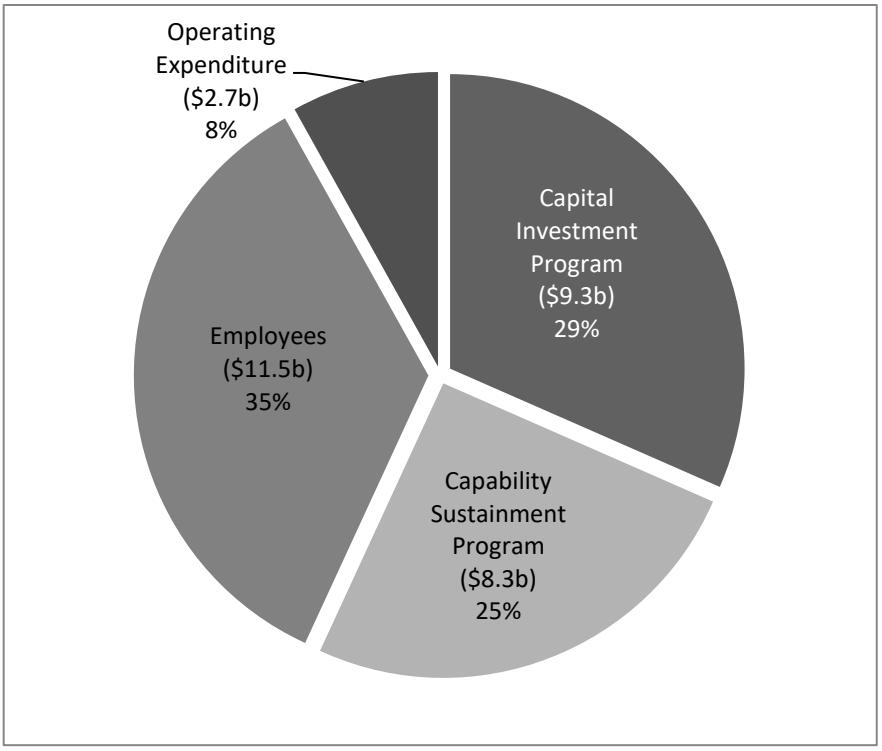
Despite misguided claims to the contrary, there is no optimal breakdown between the three categories. Over time, the proportions can shift for a variety of reasons; for example, as in-house labour intensity changes in response to technological developments and the out/in-sourcing of activities. Similarly, the proportion spent on investment can change when a period of force expansion and modernisation is embarked upon. Comparisons between different countries are spurious for these reasons and also because the relative cost of labour and capital can vary substantially between countries—not to mention the impossibility of apples-to-apples comparisons due to different accounting systems.

The 2016 Defence White Paper chose a different way to break down defence expenditure by sub-dividing it into 'capital investment', 'sustainment', 'employees' and 'operating expenditure' (see Figure 5 on page 182 of the 2016 Defence White Paper). We're not sure how the categories were defined, but we think that the breakdown relies on two budgeting programs within Defence called the *Capital Investment Program* and the *Capability Sustainment Program*. Although both are listed in the official budget papers, they're not mentioned in the Annual Report. That's understandable because, far from being standard accounting categories, the two programs are defined by and unique to Defence budgeting. Our best attempt to reproduce the White Paper breakdown for 2016-17 appears in Figure 1.8.2.

The final category of 'operating expenditure' used by the White Paper is potentially confusing because it's the term usually used to describe the residual after capital and

personnel costs have been subtracted from the total budget (i.e. what we have called Goods, Services and Inventory).

Figure 1.8.2: Investment, employee, sustainment and operating expenditure 2016-17



Source: 2016-17 PAES

Before turning to look in more detail at what makes up the three (or four) categories defined above, there are a couple of alternative ways to divide the budget that merit discussion. The first is the division of the budget between the three military services and some residual departmental core. Perhaps not surprising for a self-proclaimed 'joint force' there's no unique or straightforward way to say how much is spent on each of the three services. The best we can do is say how much money spent by, or at the direction of, the three services. In doing so, it's natural to also look at how much money is spent by other organisational components of Defence via the reported Program expenses. Even then, the situation is complicated by several factors. First, the churn of own-source revenue (as explained in Section 1.7). Second, the internal transfer of funds from the three Services to Capability Acquisition and Sustainment Group (CASG) to fund sustainment activities. Third, and most importantly, the Program expenses are only reported in accrual terms, which means that depreciation on assets (and amortization of intangibles) is included but capital investment is not.

In Table 1.8.1 we've tried to track the flow of resources to show the organisational entities that actually spend the cash. Depreciation and similar accrual shifts have been subtracted from the individual program expenses to yield an estimate of the resources they directly consume on the non-asset related items of employees and suppliers. In practice, funding for depreciation flows directly into capital investment and is not controlled by the owners of the associated assets. Note that the supplemental funds received for military operations

(Programs 2.1, 2.2 and 3.1) flow through to the actual organisationally based Programs—though the details are unavailable.

It is interesting to note that CASG was responsible for spending 44 % of the overall budget and fully 66% of the non-personnel budget. Despite the vagaries of accrual expenses and the difficulty of tracking inter-group transfers, the resulting matrix broadly reproduces the 2016-17 cash breakdown between investment (28%), employees (35%) and goods, services and inventory (37%) when 'suppliers expenses' are substituted for the last category.

Table 1.8.1: Estimating the cash spent by Defence's eighteen programs

#	Program	Employee Expenses (a)	Suppliers Expense (b)	Sustainment Transfers (c)	Investment Expenditure (d)	Total	% of Defence Budget
1.1	Strategy & Intelligence	320.7	548.3			869.0	0.0%
1.2	Navy	2,043.3	2,466.0	-2,118.3		2,391.0	7.5%
1.3	Army	4,054.7	1,910.7	-1,554.7		4,410.8	13.8%
1.4	Air Force	2,029.1	2,492.8	-2,246.4		2,275.5	7.1%
1.5	Joint Operations	6.7	37.3	0.0		44.1	0.1%
1.6	VCDF	605.4	487.7	0.0		1093.1	3.4%
1.7	CASG	450.1	186.2	5,919.4	6,998.0	13,553.6	42.3%
1.8	Executive Support	100.7	123.2			223.8	0.7%
1.9	Estate and Infrastructure	1096.6	2098.4		1,260.9	4,455.8	13.9%
1.10	Chief Information Officer	119.6	903.1		745.5	1,772.2	5.5%
1.11	Defence People	183.2	322.2			505.4	1.6%
1.12	Defence Science & Technology	291.7	143.7			435.4	1.4%
1.13	Chief Finance Officer	119.6	67.0			186.5	0.6%
2.1	Security of immediate neighbourhood	0.0	1.1			1.1	0.0%
2.2	Support of wider interests	115.3	585.3			700.7	2.2%
3.1	National support tasks in Australia	8.5	13.9			22.5	0.1%
	Total	**11,225**	**11,839**		**9,008.4**	**32,071.4**	
	%	35%	37%		28.1%		

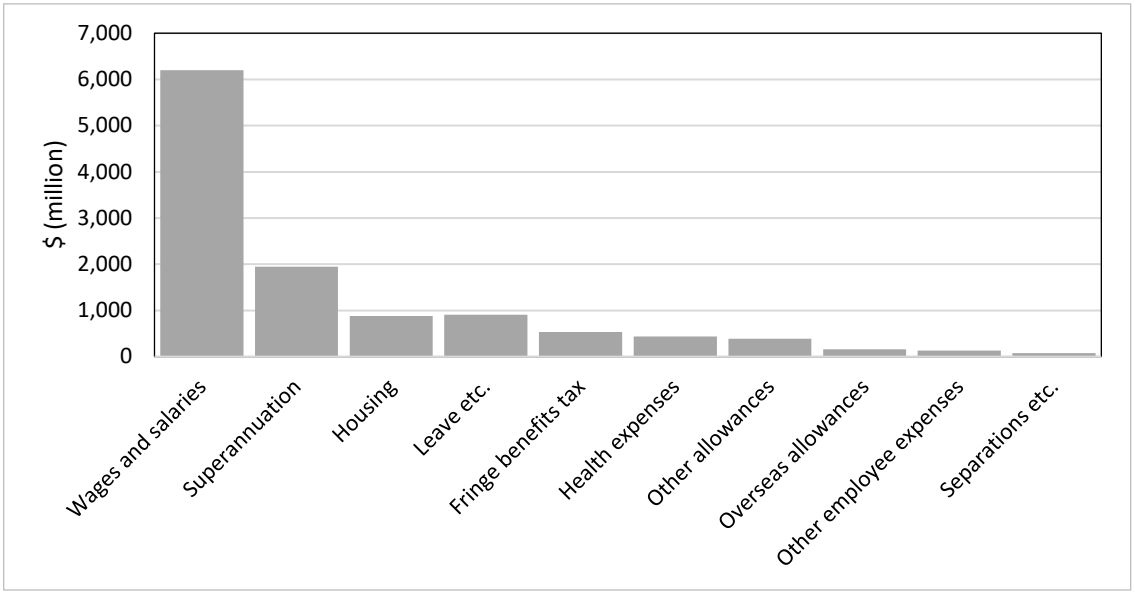
Source: 2016-17 PAES

Having looked at how the total budget can be subdivided, we now turn to examine what's contained within the broad categories of employees, capital investment and goods, services and inventory. Due to the unavailability of data for 2016-17 (pending the Annual Report), we have to step back a year to 2015-16.

Personnel expenditure

A breakdown of total employee expenses by category for 2015-16 is given in Figure 1.8.3, and the subdivision into military and Australian Public Service (APS) employee expenses appears in Table 1.8.2. Not unexpectedly, most of the money goes towards wages, salaries and superannuation (70%). Note however, that in the case of military employee expenses, there are significant proportions spent on housing, fringe benefits tax, health care and allowances. As a result, although wages, salaries and superannuation account for 83% of APS employee expenses, the same category only accounts for 67% of military expenses. An analysis of military and civilian per capita costs can be found in Chapter 2.5, including historical trends.

Figure 1.8.3: Defence employee expenses, 2015-16



Source: 2015-16 Defence Annual Report (DAR)

Table 1.8.2: Defence employee expenses, 2015-16

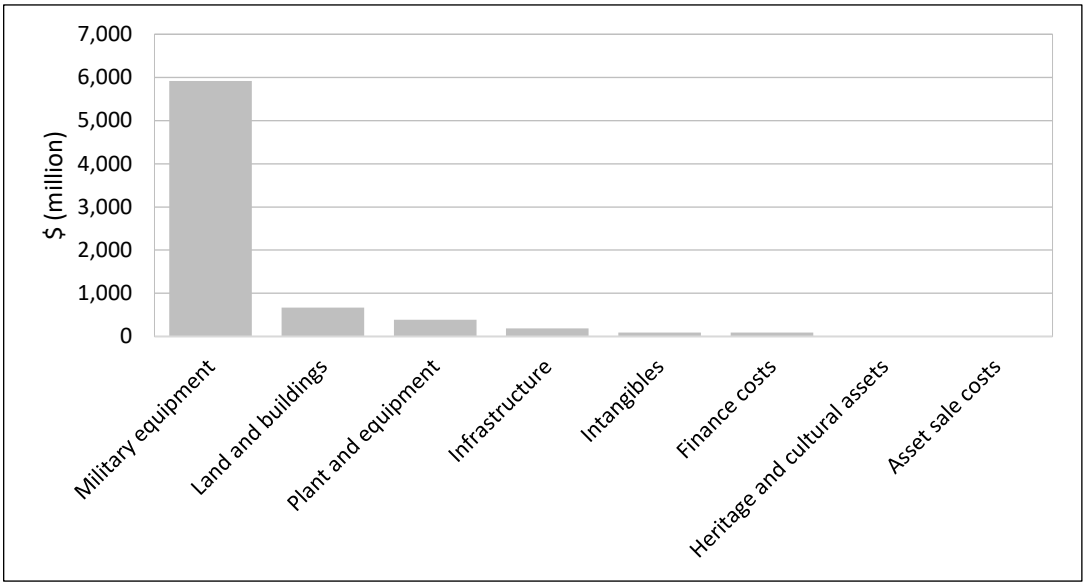
	ADF		APS	
	$ million	**%**	**$ million**	**%**
Wages and salaries	4,731	49.6%	1,470	69.7%
Superannuation:	1,659	17.4%	284	13.5%
Housing	878	9.2%		
Leave and other entitlements	684	7.2%	225	10.7%
Fringe benefits tax	517	5.4%	16	0.8%
Health expenses	430	4.5%	5	0.3%
Other allowances	347	3.6%	43	2.0%
Overseas allowances	158	1.7%		
Separation and redundancies	12	0.1%	64	3.0%
Other employee expenses	130	1.4%	1	0.0%
Total	**9,547**		**2,109**	

Source: 2015-16 DAR

Capital investment

The distribution of capital investment across accounting categories appears in Figure 1.8.4 for 2015-16. As expected, the two largest categories are specialist military equipment (80%) and land and buildings (9%). It's not readily possible to allocate equipment expenditure between the three services and joint capabilities.

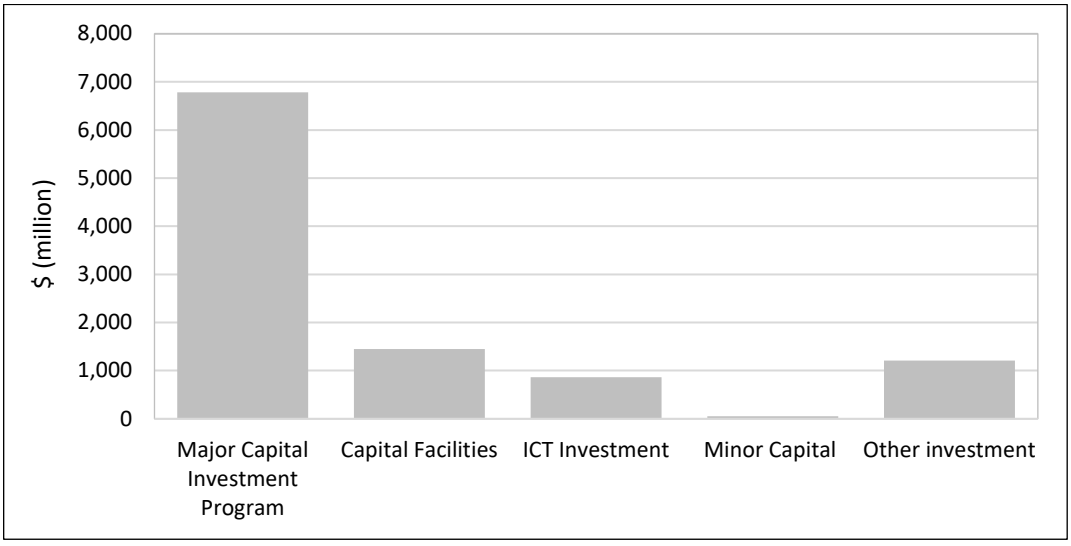
Figure 1.8.4: Defence capital investment, 2015-16



Source: 2015-16 DAR

The Capital Investment Program for 2016-17 appears in Figure 1.8.5. It reflects how Defence actually budgets for and manages its capital investment. Care is needed comparing the results with Figure 1.8.4 for two reasons. First, the latter comes from the 2016-17 PAES rather than annual report (Defence does not report on the outcomes of its investment program). Second, around 12% of the Capital Investment Program represents operating costs rather than actual investment—i.e. the cost of making investments.

Figure 1.8.5: Defence Capital Investment Program, 2016-17



Source: 2016-17 PAES

Goods, services and inventory

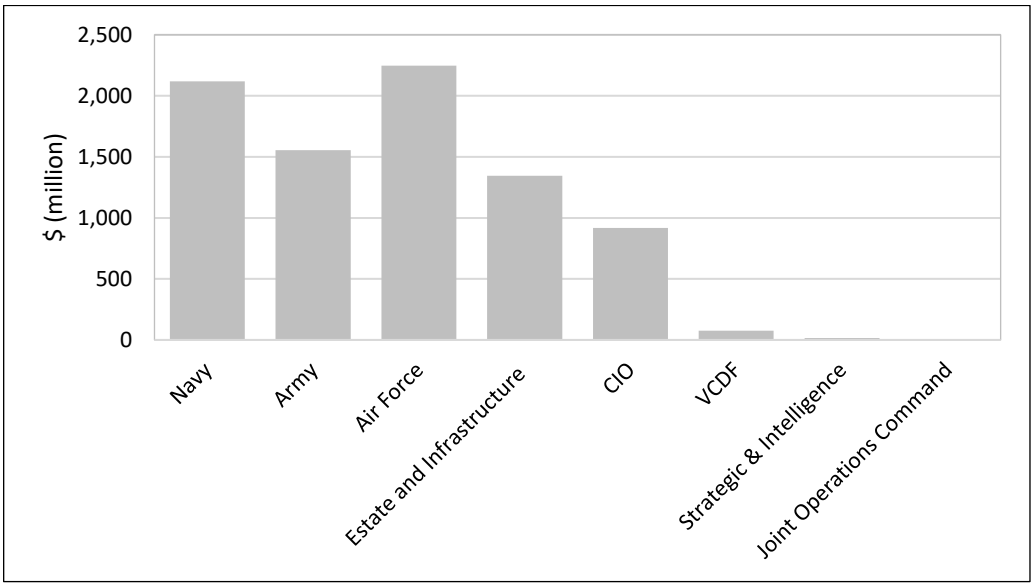
Table 1.8.3 gives the breakdown of suppliers expenses for 2015-16. The two largest categories, sustainment of specialist military equipment (36%) and inventory consumption (10%) account for almost half of what's spent. Around 69% of the resources consumed within suppliers expenses is managed through the Capability Sustainment Program, which allocates sustainment funding to Defence groups/programs, see Figure 1.8.6.

Table 1.8.3: Defence suppliers expenses, 2015-16

Category	Expense ($m)	%
Sustainment of specialist military equipment	4,299	36%
Inventory consumption	1,187	10%
Other goods and services	1,632	14%
Communications and information technology	1,328	11%
Estate upkeep	996	8%
Training	458	4%
Freight, storage, and removal	466	4%
Utilities	326	3%
Garrison support and mess operations	293	2%
Professional services/technical advice	276	2%
Travel	236	2%
Research and development	165	1%
Purchase of minor assets	161	1%
Total	11,824	

Source: 2015-16 DAR

Figure 1.8.6: Capability Sustainment Program, 2016-17



Source: 2016-17 PAES

Bringing the preceding discussion analysis together, Table 1.8.4 lists the expenditure categories by rank order for 2015-16.

Table 1.8.4: Expenditure categories by rank

#	Type	Category	Cost $m
1	Employees	Wages and salaries	6,201
2	Capital Investment	Military equipment	5,919
3	Goods & Services	Sustainment of specialist military equipment	4,299
4	Employees	Superannuation	1,943
5	Goods & Services	Other goods and services	1,632
6	Goods & Services	Communications and information technology	1,328
7	Goods & Services	Inventory consumption	1,187
8	Goods & Services	Estate upkeep	996
9	Employees	Leave and other entitlements	909
10	Employees	Housing	878
11	Capital Investment	Land and buildings	673
12	Employees	Fringe benefits tax	533
13	Goods & Services	Freight, storage and removal	466
14	Goods & Services	Training	458
15	Employees	Health expenses	435
16	Employees	Other allowances	390
17	Capital Investment	Plant and equipment	389
18	Goods & Services	Utilities	326
19	Goods & Services	Garrison support and mess operations	293
20	Goods & Services	Professional services/technical advice	276
21	Goods & Services	Travel	236
22	Capital Investment	Infrastructure	187
23	Goods & Services	Research and development	165
24	Goods & Services	Purchase of minor assets	161
25	Employees	Overseas allowances	158
26	Employees	Other employee expenses	131
27	Capital Investment	Intangibles	94
28	Capital Investment	Finance costs	88
29	Employees	Separation and redundancies	76
30	Capital Investment	Heritage and cultural assets	6
31	Capital Investment	Asset sale costs	4
		Total	**30,837**

Source: 2015-16 DAR

Chapter 2 – Defence Budget 2017-18 PBS Explained

The 177 pages of the 2017-18 Defence Portfolio Budget Statements (PBS) set out the government's plan for the expenditure of around $34.7 billion by Defence in the coming financial year.

This chapter explains and where possible analyses the information in the PBS. In doing so, we skim over those parts of the PBS that are relatively clear, and focus on those areas where explanation might be useful.

Some of the material that follows is unavoidably technical due to the disciplines and complexities of accounting. However, it isn't necessary to read this chapter as a whole, or in sequence, to gain insight. Every attempt has been made to enable the reader to jump in and look at those items of most interest.

This Brief doesn't cover in any detail the funds administered by Defence on behalf of the government for superannuation and housing support services for current and retired Defence personnel.

Most parts of the guide are best read with the PBS at hand. Copies can be downloaded from the web at <http://www.defence.gov.au/budget/>.

The PBS begins with something akin to an executive summary [PBS p. 1–13] which provides a useful snapshot of governance arrangements, resources and portfolio structure of Defence. Rather than recount this material, we turn now to examine the main body of the document.

2.1: Strategic Direction Statement [PBS Section 1.1]

The overview chapter of the PBS provides a synopsis of the 2016 Defence White Paper and its accompanying Integrated Investment Plan and Defence Industry Policy Statement. The tone is formal but upbeat. There's also a brief mention of the reforms underway following the First Principles Review.

2.2: Resourcing [PBS Section 1.2 & 1.3]

The 'rubber hits the road' in Sections 1.2 and 1.3 of the PBS, in terms of allocating money to get things done. It contains the resource statements, new budget measures and the funding bottom line.

How much money will Defence get?

On page 19 of the PBS, we get to the heart of the issue. Table 1 gives three key figures for the Defence budget:

- **Funding from Government,** being those funds formally *appropriated* to Defence by the government for departmental purposes along with shifts in appropriations receivable (unspent money from previous years). In 2017-18, *Funding from Government* will amount to $34,569,614,000.
- **Total Defence funding,** being those funds available to Defence including appropriations and revenue from other sources. In 2017-18, *Total Defence funding* will amount to $35,190,882,000.
- **Total Defence resourcing,** being Total Defence Funding plus those funds appropriated administratively through Defence for superannuation and defence housing subsidies. In 2017-18, *Total Defence resourcing* will amount to $40,741,124,000.

Of these three figures, *Total Defence funding* is the one most usually quoted as the Defence budget. It represents the funds expended by Defence to deliver the departmental outcomes and maintain the ongoing program of investment in new equipment and facilities. Note, *Total Defence funding* doesn't include administered funds for superannuation and defence housing subsidies.

However, as explained in the last chapter, *Total Defence funding* is inflated by a churning of money that delivers no military capability or outcome. We believe that the *ASPI net Defence funding* figure gives a more accurate picture of how much is being spent on delivering defence capability and outcomes. Henceforth, we will only present the *ASPI net Defence funding* figure.

How much money will Defence receive?

Table 2.2.1 displays Defence funding for the past sixteen, and the next four financial years. Also shown are both the nominal and real year-to-year percentage growth rates.

When calculating the real growth rate, the nominal dollar values of the individual years have been converted to a single base year using the Consumer Price Index (CPI) to reflect the

opportunity cost incurred by the taxpayer. Note that this is not the deflator used within government to adjust the defence budget from year to year. From 2001-02 until 2009-10 that was the implicit Non-Farm GDP Deflator (NFGDPD) and from 2009-10 onwards it has been nominally fixed at 2.5% in accord with the funding model introduced in the 2009 Defence White Paper. Externally, it no longer matters because the decade-long funding guidance in the 2016 White Paper was given in nominal dollars.

Table 2.2.1: ASPI Net Defence Funding – real (2017-18$) and nominal

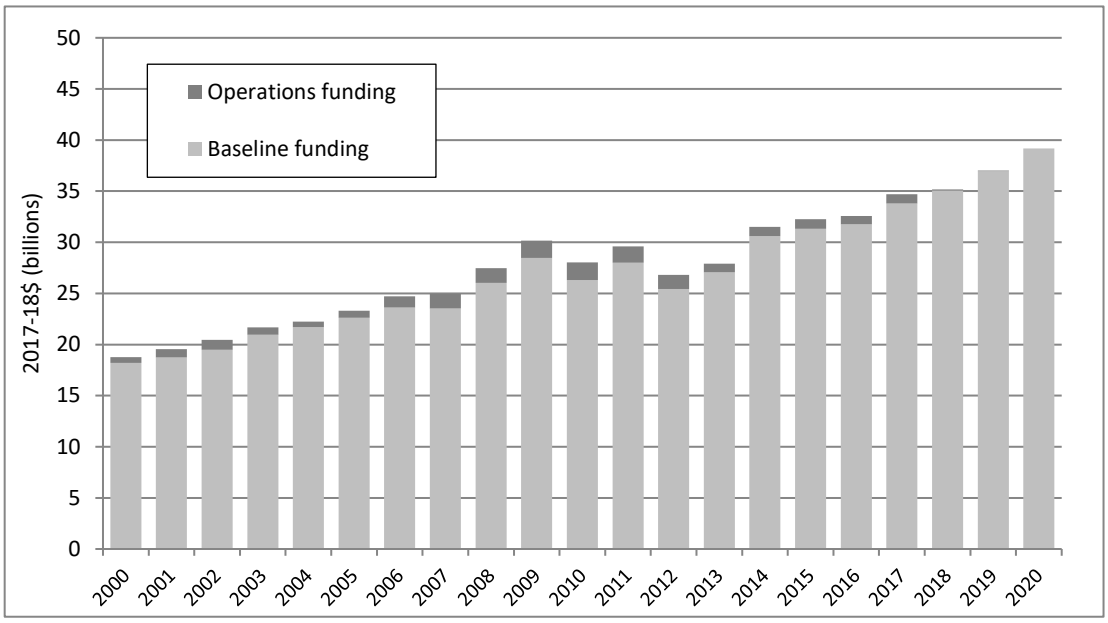
	Funds (nominal)	Growth (nominal)	Funds (real)	Growth (real)
01-02	13,191	7.08%	19,543	4.11%
02-03	14,216	7.78%	20,448	4.63%
03-04	15,439	8.60%	21,685	6.05%
04-05	16,224	5.09%	22,252	2.61%
05-06	17,547	8.15%	23,318	4.79%
06-07	19,140	9.08%	24,703	5.94%
07-08	19,993	4.46%	24,964	1.06%
08-09	22,689	13.48%	27,474	10.05%
09-10	25,480	12.30%	30,153	9.75%
10-11	24,432	-4.11%	28,040	-7.01%
11-12	26,381	7.98%	29,595	5.55%
12-13	24,437	-7.37%	26,805	-9.43%
13-14	26,132	6.94%	27,907	4.11%
14-15	30,023	14.89%	31,522	12.95%
15-16	31,151	3.76%	32,260	2.34%
16-17	31,995	2.71%	32,572	0.97%
17-18	34,687	8.42%	34,687	6.49%
18-19	35,937	3.60%	35,178	1.41%
19-20	38,713	7.73%	37,005	5.19%
20-21	42,010	8.51%	39,176	5.87%

Source: 2017-18 PBS, and *earlier Defence Annual Reports (DAR) and Portfolio Additional Estimates Statements (PAES).*

The *arithmetic* average annual rate of real growth in the budget over the past decade (commencing in 2008-09) has been 3.6%. Over the same period, the effective *compounding* annual rate of real growth was 3.3%. Looking forward, things are more encouraging. Over the four years covered by the budget and estimates, the *arithmetic* average annual rate of real growth in the budget from 2017-18 to 2020-21 comes out to be 4.7%. Over the same period, the effective *compounding* annual rate of real growth is the same. Note that real spending next year will increase by about 1.4% in real terms relative to this year.

These calculated growth figures should be viewed with some caution due to the perturbing effect of operational supplementation, see Figure 2.2.1. Chapter 3 of this brief examines the longer term funding commitment contained in the 2016 Defence White Paper.

Figure 2.2.1: Real Net Defence Funding – 2000 to 2020



Source: 2017-18 PBS, 2016-17 PAES and earlier DAR. 2005 = 2005-06 etc.

What is the Defence share of GDP?

Table 2.2.2 gives ASPI net Defence funding as a percentage of GDP for recent and (as projected for) future years. As shown, the share of GDP will grow from 1.83% in 2016-17 to 1.90% in 2017-18. (Last year's estimate has changed due to shifts in both foreign exchange, spending and GDP.) Over the subsequent three years, the GDP share will grow to 2.03%. Note that current and recent spending is boosted by elevated levels of operational supplementation which are not reflected in the latter years of the forward estimates.

Table 2.2.2: ASPI Net Defence Funding as a percentage of GDP

2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
1.74	1.75	1.78	1.79	1.76	1.76	1.76	1.70	1.80	1.96	1.73	1.77	1.60	1.65	1.86	1.88	1.83	1.90	1.90	1.95	2.03

Source: Analysis of data from 2017-18 Budget Overview, 2017-18 PBS and earlier DAR

What is the Defence share of Commonwealth payments?

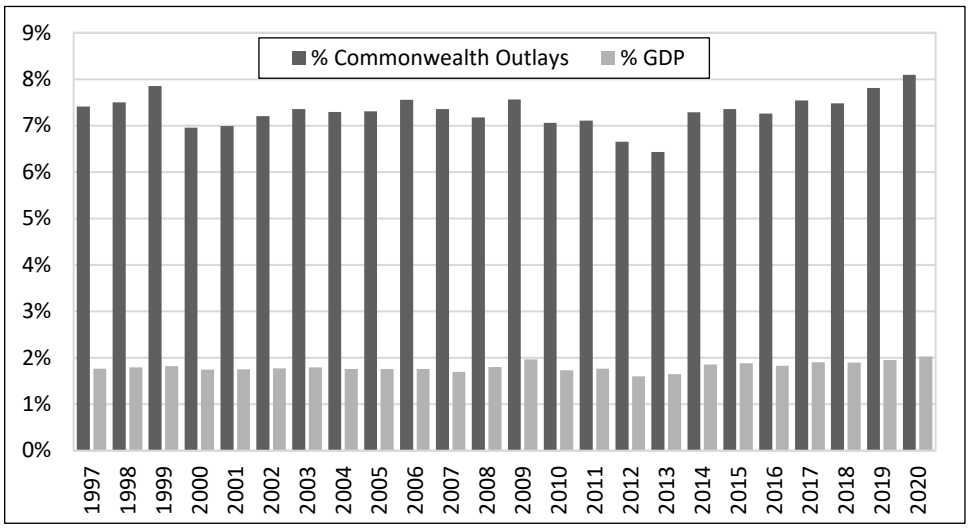
Defence spending as a percentage of total Commonwealth payments is shown in Table 2.2.3. On current plans, Defence's share of payments will rise slowly over the forward estimates period. Figure 2.2.2 graphs the percentage GDP and share of Commonwealth payments from 1997 to 2020.

Table 2.2.3: ASPI Net Defence Funding as a percentage of Commonwealth payments

2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
7.4	7.5	7.9	7.0	7.0	7.2	7.4	7.3	7.3	7.6	7.4	7.2	7.6	7.1	7.1	6.7	6.4	7.3	7.4	7.3	7.5

Source: Analysis of data from 2017-18 Budget Overview, 2017-18 PBS and earlier DAR

Figure 2.2.2: Net Defence funding as a percentage of payments and GDP



Source: Analysis of data from Budget Overview, 2017-18 PBS and earlier, DAR 2005 = 2005-06 etc.

Changes since the last budget

Since the last budget, measures and adjustments have been undertaken that provide context for this year's budget. Table 2.2.4 shows the key items from the 2016-17 Portfolio Additional Estimates Statement (PAES) [Table 6, p.15], small items are omitted.

Table 2.2.4: Key measures and adjustments from the 2016-17 PAES (million $)

	16-17	17-18	18-19	19-20	4 year total
Operation Highroad – extension	36.1	2.9	0.3	-	39.3
Public Sector Transformation and the Efficiency Dividend	-	-57.6	-101.5	-129.5	-288.6
Community Infrastructure Projects	-4.0	-16.0	-4.0		-24.0
PFA contamination	-3.8	-8.2	-1.6	-0.4	-14.0
Afghan National Security Forces	-	-	-	-	-
Measures	**27.5**	**-78.9**	**-106.9**	**-129.9**	**-288.2**
Foreign Exchange	-435.0	-549.6	-656.3	-684.3	-2,325.2
Adjustments	**-436.2**	**-549.6**	**-656.3**	**-684.3**	**-2,326.4**
Total	**-408.8**	**-628.6**	**-763.2**	**-814.2**	**-2,614.8**

Source: 2016-17 PAES. Note: Ten-year totals were not disclosed.

Operational supplementation

Defence is funded on a no-loss/no-win basis for the net additional cost of operational deployments. Adjustments amounting to $39.3 million were made to funding for Operation Highroad (Australia's contribution to Afghanistan).

Public Sector Transformation and the Efficiency Dividend

Defence funding will be cut by $288.6 million over three years as part of a broader public sector efficiency dividend introduced in the 2016-17 Budget.

Community Infrastructure Projects — new announcements

Defence will lose $24 million to help fund community infrastructure projects as part of a $560 million program over four years from 2016-17.

Management of Per- and Poly-Fluorinated Alkyl (PFA) Substances at Defence bases

The Government will provide $18 million over four years from to manage per- and poly-fluorinated alkyl substance contamination at RAAF Base Williamtown and Army Aviation Centre Oakey—including a $14 million transfer to the Department of Health. An additional $37 million has also been provisioned for managing, containing and remediating contamination and any other associated matters. The cost will be absorbed from existing Defence resources.

Afghan National Security Forces

The Government will provide US$300 million over three years from 2017-18 to continue Australia's contribution to the sustainment of Afghan National Security Forces to 2020. The cost of this measure will comprise US$80 million per annum for the Afghan National Army, to be met from within the existing resources of the Department of Defence, and US$20 million per annum for the Afghan National Police, which will be met from within existing Official Development Assistance funding.

2.3 Funding from Government

2016 Defence White Paper

The 2016 Defence White Paper provided an additional $29.9 billion over the decade commencing 2016-17, see Table 2.3.1. Details of White Paper funding are explored in Chapter 3 of this Brief. No changes to White paper funding were reported in the 2017-18 Budget.

Table 2.3.1: 2016 Defence White Paper additional funding

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
New White Paper Funding $ (million)	700	0	60	600	1,800	3,200	4,500	5,540	6,256	7,202

Source: 2016 Defence White Paper

The 2016-17 Budget Measures and Adjustments [PBS p. 20 – 21]

Each year, changes to the Defence budget are set out in PBS Table 2 (page 20). Usually the changes fall into three categories: budget measures, savings measures and budget adjustments. The distinction between the three is variable, with identical items classified differently from one year to the next. There are also so-called 'absorbed measures', which are unfunded initiatives that must be funded from within existing Defence resources. Inevitably, this means that either other activities must be foregone or efficiency savings created. The individual measures and adjustments are detailed in Table 2.3.2.

Table 2.3.2: 2017-18 Budget Measures and Adjustments (million $)

	2017-18	2018-19	2019-20	2020-21	Total
Measures					
Defence Force Ombudsman					
Defence – efficiencies	-69.8	-72 3	-76 3	-85.7	-304.1
2018 Commonwealth Games	33 9	0.3			34.2
Redress Scheme for Survivors of Child Sexual Abuse	-25.8				-25.8
Overseas Allowances for Employees - efficiencies	-0 9	-2 2	-3.8	-6.6	-13.5
Australian Naval Infrastructure Pty Ltd - infrastructure	nfp	nfp	nfp	nfp	nfp
Veteran Centric Reform					
PFA Contamination - Research					
Total	**-62.6**	**-74.3**	**-80.1**	**-92.2**	**-309.2**
Adjustments					
Foreign Exchange	-97.2	-235.1	-4.1	374.6	38.2
Operation Okra—extension	430.0	50.3	29.8		510.2
Operation Accordion—extension	218.9	24.5	23.1		266.5
Operation Manitou—extension	42.7	-1.9			40.8
Operation Highroad—extension	72.8	-8.8	1.8		65.9
Operation Resolute—extension	52.8				52.9
Superannuation adjustment	-1.5	-1.5	-1.5	-1.5	-5.8
Total	**718.6**	**-172.3**	**49.1**	**373.2**	**968.6**
Total Variation to Funding	**656.1**	**-246.6**	**-31.0**	**280.9**	**659.4**

Source: 2017-18 PBS and Budget Paper #2. Numbers may not add due to rounding.

The budget initiatives in detail

In the past, the PBS contained detailed explanations of the various measures. However, the PBS has been silent on such matters for several years now. Fortunately, further information regarding Defence measures is available in Treasury's Budget Paper Number 2. This information is reproduced below—often verbatim—along with supporting data where available. See Chapter 6 of this Brief for more on the cost and composition of ADF deployments.

Measures

Defence Force Ombudsman - continuation and expansion

The Government will continue the existing functions of the Defence Force Ombudsman (DFO) and expand its role to include the ability to make orders for reparation payments. These payments would be in relation to serious abuse, including sexual assault and the mismanagement of an incident by Defence. The Government will provide $12.6 million to continue the operations of the DFO in 2017-18 and an additional $19.5 million over four years from 2017-18 for reparation payments. Costs will be absorbed by Defence.

Department of Defence — efficiencies

The Government will achieve savings of $304.1 million from Defence over four years from

2017-18 through efficiencies resulting from reductions in the numbers of consultants and contractors used in Defence, as well as limiting the costs of non-operational overseas and business travel.

Gold Coast 2018 Commonwealth Games — additional support
The Government will provide additional funding to contribute to the staging of the Gold Coast Commonwealth Games in April 2018, including $34.2 million over two years from 2017-18 for the Australian Defence Force contribution to security support for the Games and the Queen's Baton Relay.

Commonwealth Redress Scheme for Survivors of Institutional Child Sexual Abuse
The Government will provide $33.4 million in 2017-18 to establish the Commonwealth Redress Scheme for Survivors of Institutional Child Sexual Abuse, including through $25.8 million of redirected Defence funding.

Overseas Allowances for Australian Government Employees — efficiencies
The Government will standardise overseas allowances for Australian Government employees to ensure that conditions of service are appropriate to facilitate the deployment of staff in the pursuit of Australia's interests internationally. As a result, Defence will lose $13.5 million over four years.

Australian Naval Infrastructure Pty Ltd — supporting shipbuilding infrastructure
The Government will provide equity injections over the next four years to Australian Naval Infrastructure Pty Ltd to facilitate the development and construction of infrastructure at the Osborne shipbuilding facility to support the Government's continuous shipbuilding program. The expenditure for this measure is not for publication (nfp) due to commercial-in-confidence considerations. However, the Naval Shipbuilding Plan released following the budget said that up to $535 million would be spent on facilities at Osborne SA, plus another $100 million in Henderson WA.

Veteran Centric Reform
The Government will provide $166.6 million over four years from 2017-18 to commence transforming and improving veterans' services to more effectively and efficiently meet the current and future needs of veterans and their dependants. Defence's (unspecified) costs will be met from within existing resources

Per-and Poly-Fluorinated Alkyl Substances — National Health Research Program
The Government will provide $12.5 million over four years from 2017-18 to establish a National Research Program to study the potential effects of exposure to per-and poly-fluorinated alkyl substances (PFAS) on human health. The Program will be informed by an expert health panel and administered by the National Health and Medical Research Council. The cost of this measure will be met from within the existing resources of the Department of Defence and the Department of Health.

Adjustments

Foreign exchange adjustment
Because of changes in the value of the Australian dollar, Defence lost $336.4 million over

three years, but gained an additional $374.6 million for 2020-21. The net result was an additional $38.2 million.

Operational supplementation

Five of this year's budget measures provide operational supplementation for ADF operations, including:

> **Operation Okra** is Australia's contribution to the international coalition against ISIL, or Daesh, in Iraq. An additional $510.2 million was provided over three years.
>
> **Operation Accordion** supports the sustainment of ADF operations, enables contingency planning and enhances regional relationships in the Middle East Region. An additional $266.5 million was provided over three years.
>
> **Operation Manitou** supports international efforts to promote maritime security, stability and prosperity in the Middle East Region. An additional $40.8 million was provided over two years.
>
> **Operation Highroad** is Australia's contribution to international efforts in Afghanistan. An additional $65.9 million was provided over three years.
>
> **Operation Resolute** is the ADF's contribution to the whole-of-government effort to protect Australia's borders and offshore maritime interests. An additional $52.9 million was provided for one year. That's a substantial jump compared with past funding of around $20 million p.a.

Miscellaneous

A total of $5.8 million was transferred from Defence as part of the return of superannuation governance and admin fees.

So, what happened?

This year's Defence budget is easy to understand. Four key things have happened:

- Defence received $970 million in operational supplementation, including $34.2 million for the 2018 Commonwealth Games.
- Defence contributed $26 million to help fund a redress scheme for survivors of child sexual abuse.
- Despite past promises of 'no further cuts', $318 million over four years was cut from the Defence budget through efficiency dividends (on top of $289 million lost in the PAES).
- Defence contributed at least $535 million, and as much as $635 million, to the newly created Australian Naval Infrastructure Pty Ltd.

Does it all add up?

Yes, to within around $20 million, the funding from the 2016-17 PBS can be traced through the measures in the 2016-17 PAES and 2017-18 PBS to recover the funding in the latter. Preservation of the 2016 White paper funding is explored further in Chapter 3.

2.4: Capital Investment Program [PBS Section 1.4]

Information on the Capital Budget is spread across several areas of the PBS. The Capital Budget represents Defence's plans for capital investment in new equipment, upgrades, facilities and non-military capital items. It's formally described in accounting terms in the Capital Budget Statement in Table 53 on page 104 of the PBS, although that is not very revealing.

Capital Investment Program [PBS p.22]

The Capital Investment Program is detailed in Table 4 of the PBS (page 22), which we've reproduced in part in Table 2.4.1

Table 2.4.1: The Capital Investment Program (million $)

	Unapproved Major Capital Investment (DCP)	Approved Major Capital Investment	Subtotal	Minors Program	ICT Investment Plan	Other Capital	Capital Facilities Programme	Total
	a	b	a+b	c	d	e	f	a+b+c+d+e+f
2006-07		4,019	4,019			925	653	5,598
2007-08		4,030	4,030			829	570	5,429
2008-09		3,943	3,943			742	963	5,648
2009-10		5,150	5,150			626	1,504	7,280
2010-11		4,838	4,838			883	1,211	6,932
2011-12		4,208	4,208			739	997	5,944
2012-13	30	3,327	3,357			276	1,019	4,652
2013-14	14	3,544	3,558			1,482	1,222	6,262
2014-15	328	5,753	6,081	101	400	754	1,303	8,638
2015-16	285	6,280	6,565	88	490	1,056	1,082	9,281
2016-17	-	-	6,786	53	862	1,212	1,451	10,364
2017-18	874	6,579	7,426	75	889	1,186	2,026	11,602
2018-19	-	-	8,639	124	1,071	1,170	1,909	12,912
2019-20	-	-	9,740	144	1,011	962	2,178	14,034
2020-21	-	-	11,663	235	1,137	356	2,593	15,984

Source: 2012-13 to 2016-17 PAES and 2017-18 PBS and various DAR. The AMCIP figure for 2011-12 doesn't include the additional $825 million booked in 2010-11 by DMO and paid for by Defence in 2011-12. Where possible, large shifts due to accumulation and drawdown of the old DMO special account have been accounted for (mostly in early years).

Unfortunately, the projected result for prior years hasn't been included in recent PBS, so we've been forced to use the revised estimate from the 2016-17 PAES. Similarly, because the Defence Annual Report no longer reports on the capital investment program, we've had to

use the revised estimates from 2012-13 onwards. In a further deterioration in transparency, the approved and unapproved capital programs are now grouped in together.

There are four components to the Capital Investment Program:

Unapproved Major Capital Investment Program, or Defence Capability Plan (DCP): This represents Major Capital Investment projects that have not yet received second-pass approval from government. Major Capital Investment projects are generally of more than $20 million value and predominantly involve the purchase of military equipment, (previously called 'Pink Book' projects). The preparation of these projects for approval is the responsibility of the Capability Managers. Once approved, projects generally pass to the CASG for delivery.

Approved Major Capital Investment Program: Projects already approved by government and under way, previously called the 'White Book'. Once approved, projects generally pass to the CASG for delivery.

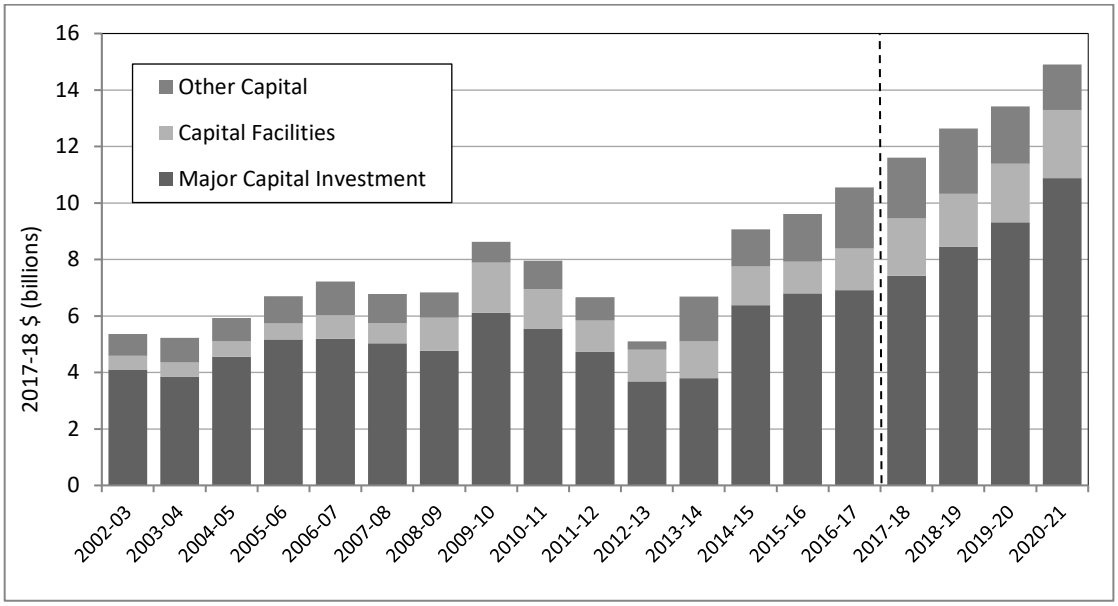
Capital Facilities: Approved and Unapproved Capital Facilities Projects, including everything from new barracks to upgrades of existing facilities. These projects are the responsibility of the Infrastructure Division in the Defence Support and Reform Group.

Other Capital: including Minor Capital Investment (projects costing less than $20 million), repairable items, non-capital facilities, plant and equipment, and software and intangibles. In recent years, minor capital and ICT investment has been listed separately.

What are the trends in the Capital Investment Program?

Recent actual and projected real spending in the Capital Investment Program is shown in Figure 2.4.1 in 2016-17 dollars.

Figure 2.4.1: Recent and planned trends in the Capital Investment Program



Source: 2012-13 to 2016-17 PAES and 2016-17 PBS and various DAR. The AMCIP figure for 2011-12 does not take account of an additional $825 million booked in 2010-11 by DMO and paid for by Defence in 2011-12.

Note that the figures for 2012-13 to 2016-17 are uncertain because no official figures have been released for the anticipated or actual outcome for those years. Minors and ICT investment have been grouped in with 'Other Capital'. The trough in funding around 2012-13 resulted from the then government's attempt to get back to surplus that year. Chapter 3 further explores the capital investment program.

Retained Capital Receipts [PBS page 22]

The Capital Budget is funded in part through the proceeds from sales of property, plant and equipment and other capital receipts. Table 2.4.2 shows recently planned and achieved assets sales (including both property and other assets).

Table 2.4.2: Proceeds from the sale of assets ($ million)

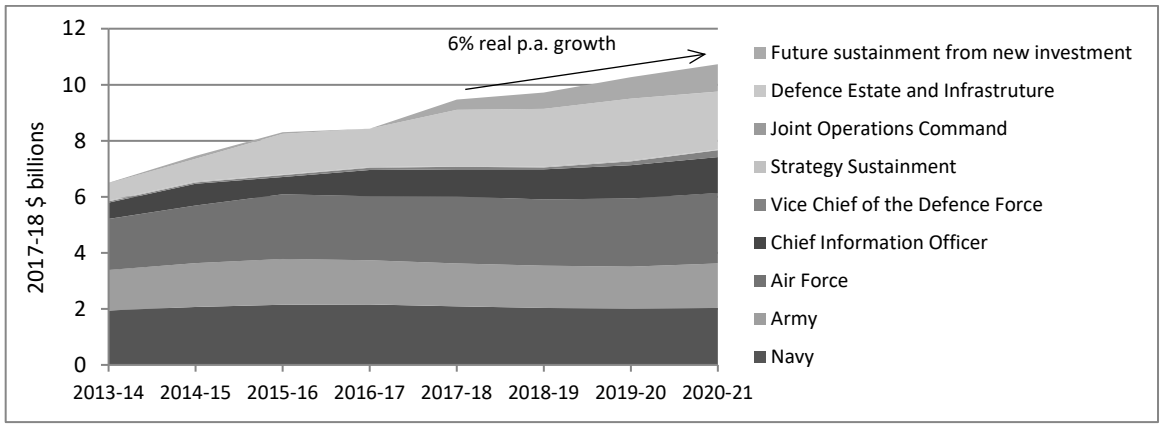
	Budgeted	Achieved	Shortfall		Budgeted	Achieved	Shortfall
pre 2000	–	77	–	**2010-11**	156	138	18
2000–01	820	87	733	**2011-12**	118	134	-16
2001–02	1023	199	824	**2012-13**	127	undisclosed	
2002–03	700	632	68	**2013-14**	102	undisclosed	
2003–04	306	184	122	**2014-15**	73	undisclosed	
2004-05	231	143	88	**2015-16**	200	undisclosed	
2005-06	95	108	-13	**2016-17**	-44	undisclosed	
2006-07	38	134	-96	**2017-18**	162		
2007-08	99	65	-34	**2018-19**	205		
2008-09	285	5	280	**2019-20**	355		
2009-10	287	61	226	**2020-21**	44		

Source: DAR and PBS

Capability Sustainment Program [PBS page 22]

Figure 2.4.2 plots the Capability Sustainment Program by group. Note that recent growth is driven in large part by the 2015-16 inclusion of estate and garrison support. Across the forward estimates, sustainment costs will rise in real terms by 5.4% p.a. compounding.

Figure 2.4.2: The Capability Sustainment Program



Source: 2013-14 to 2017-17 PBS and PAES

2.5: People [PBS Section 1.5]

Overview

Over the past fifteen years, Defence's military and civilian workforces have been on a roller coaster ride. There have been periods of unplanned and planned growth, and periods of unplanned and planned reductions in both workforces. Over the same period, the long-term target strength of the ADF has slowly but surely grown from around 50,000 to around 62,400, while the long-term target size of the civilian workforce grew to a peak of more than 22,000 around 2009, only to fall back to where it is today at 17,350.

Since 2000, there've been a range of initiatives to improve the management of personnel from a business and planning perspective, and to enhance the development, care, recruitment and retention of personnel. The most substantial changes arose in late 2006, when the then-government allocated an additional $1 billion for recruitment and retention over ten years, with a further $2.1 billion made available the next year. The 2006 and 2007 funding initiatives were a response to unplanned reductions in the preceding years. In the late 2000s, ADF numbers grew more quickly than planned (after the GFC) but then fell three years in a row despite plans to grow the force. ADF numbers have recovered over the past two years and now appear to be under control; recruitment is doing well by historical standards, and separation rates are falling.

On the civilian side, numbers were driven down in the first half of the decade by successive efficiency measures. However, the 2016 White Paper boosted planned numbers from a target of 17,800 to 18,200. New positions are being created in 'information technology support, simulation, support to Navy engineering and logistics, security, force design and analysis, and strategic and international policy, including civilian policy officers posted overseas'. However, civilian numbers fell 600 positions below its budgeted level in 2016-17.

How big is the workforce?

According to the PBS, in 2017–18 Defence will be funded to maintain an average of:

- 59,194 full-time military personnel
- 17,970 APS civilians
- 19,700 Reservists

In addition, there will be 2,087 'contractors'.

Full-time military numbers will rise over the next four years to 60,585 and begins with an additional 318 people in 2017-18. Reserve days are planned to grow from 994,000 days to 1,044,000 over the next four years. Civilian APS personnel numbers will rise by around 620 in 2017-18, compared with 2016-17, and will recover to 18,200 in 2018-19. Historical and planned workforce numbers are detailed in Table 2.5.1

Table 2.5.1: Workforce summary for Defence (average funded strength)

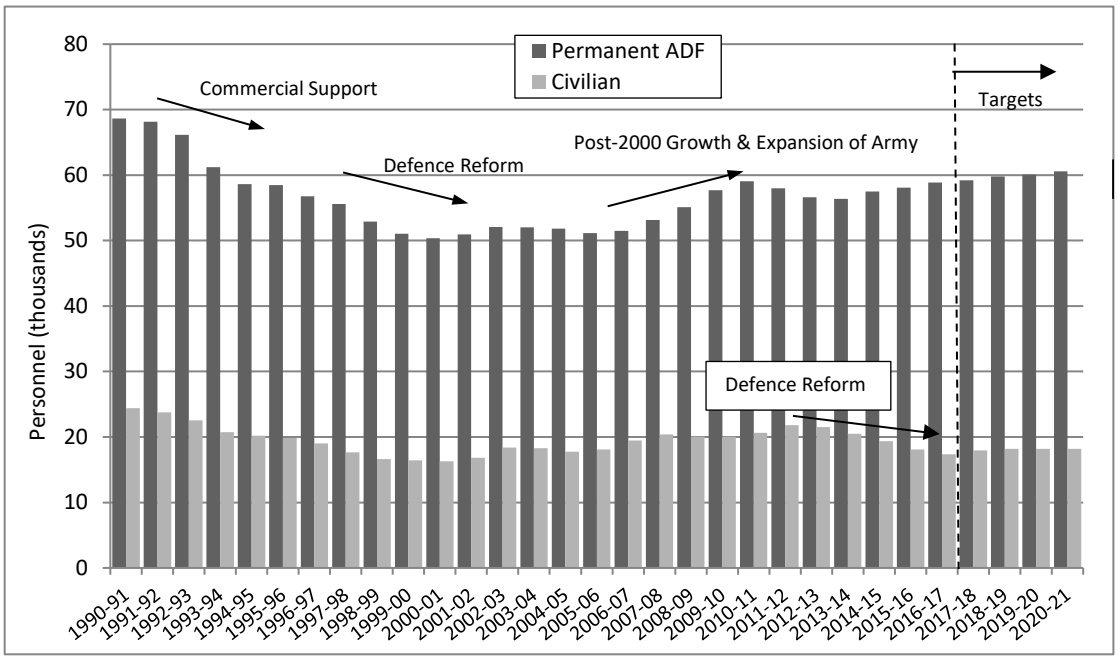
	2002-03 actual	2003-04 actual	2004-05 actual	2005-06 actual	2006-07 actual	2007-08 actual	2008-09 actual	2009-10 actual	2010-11 actual	2011-12 actual	2012-13 actual	2013-14 actual	2014-15 actual	2015-16 actual	2016-17 proj.	2017-18 budget	2018-19 est.	2019-20 est.	2020-21 est.
Navy	12,847	13,133	13,089	12,767	12,690	12,935	13,182	13,828	14,207	14,054	13,760	13,862	14,070	14,232	14,219	14,123	14,683	14,718	14,763
Army	25,587	25,446	25,356	25,241	25,525	26,611	27,833	29,339	30,253	29,697	28,928	28,568	29,366	29,635	30,352	30,672	30,874	30,936	31,115
Air Force	13,646	13,455	13,368	13,143	13,289	13,621	14,066	14,530	14,624	14,243	13,919	13,934	14,076	14,194	14,305	14,399	14,237	14,436	14,707
TOTAL	**52,080**	**52,034**	**51,813**	**51,151**	**51,504**	**53,167**	**55,081**	**57,697**	**59,084**	**57,994**	**56,607**	**56,364**	**57,512**	**58,061**	**58,876**	**59,194**	**59,794**	**60,090**	**60,585**
Active Reserve	**19,620**	**20,488**	**19,275**	**19,464**	**19,562**	**20,340**	**20,277**	**21,248**	**21,339**	**22,072**	**20,708**	**19,741**	**19,362**	**19,338**	**19,170**	**19,470**	**19,720**	**19,720**	**19,720**
High Readiness	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**	**-**	**230**	**230**	**230**	**230**	**230**
Total Reserve	**19,620**	**20,488**	**19,275**	**19,464**	**19,562**	**20,340**	**20,277**	**21,248**	**21,339**	**22,072**	**20,708**	**19,941**	**19,362**	**19,338**	**19,400**	**19,700**	**19,950**	**19,950**	**19,950**
Civilians																			
Defence	18,385	18,303	13,390	13,577	14,516	15,087	14,489	14,532	15,115	15,829	15,786	15,280	14,861	18,071	17,350	17,970	18,200	18,200	18,200
DMO	-	-	4,363	4,502	4,951	5,304	5,552	5,526	5,533	5,989	5,748	5,216	4,481						
Total Civilian	**18,385**	**18,303**	**17,753**	**18,079**	**19,467**	**20,391**	**20,041**	**20,058**	**20,648**	**21,818**	**21,534**	**20,496**	**19,342**	**18,071**	**17,350**	**17,970**	**18,200**	**18,200**	**18,200**
Contract																			
Defence	2,311	1,880	1,913	1,277	810	620	1,008	700	581	467	358	340	350	421	2,087*	-	-	-	-
DMO	-	-	-	374	298	181	176	120	24	45	33	18	11						
Total	2,311	1,880	1,913	1,651	1,099	801	1,184	820	605	512	391	**358**	**361**	421	2,087*	-	-	-	-
PSP & Civilian	**20,696**	**20,183**	**19,666**	**19,730**	**20,575**	**21,192**	**21,225**	**20,878**	**21,253**	**22,330**	**21,925**	**20,854**	**19,703**	**18,492**		-	-	-	-

*Source: DAR, PBS, PAES. Reserve numbers post 2016-17 estimated on the basis of days of Reserve activity in PBS and days/reservist for 2016-17. *New definition adopted, refers to number of contractors 'engaged'*

Historical background

During the 1990s full-time ADF numbers dropped from nearly 70,000 to 50,000 personnel, as shown in Figure 2.5.1. The bulk of these reductions were due to outsourcing under the Commercial Support and Defence Reform programs (although around 5,600 permanent ADF positions had already been transferred to the Reserves by the 1991 Force Structure Review). In fact, the initial goal of the Defence Reform Program (DRP) was to reduce the strength of the ADF to 43,500 but that was soon revised up to 50,000, thereby arresting the decline. That was done by re-directing DRP savings to buy-back the ADF positions, the goal being to redirect personnel from support areas to the combat force—though there's little evidence of that occurring.

Figure 2.5.1 Historical and Planned Defence Workforce



Source: Various DAR, 2001-02 Defence Budget Brief and 2017-18 PBS

The 2000 White Paper then set permanent ADF personnel numbers on a growth path towards a figure between 53,000 to 54,000. Subsequent budgets added additional personnel for a range of initiatives including, most especially, the expansion of the Army. By 2009 the target had grown to around 57,000.

The 2009 Defence White Paper revised the full-time ADF target up to approximately 57,800 and the civilian workforce up to 21,900 over the decade. Subsequent reductions in planned savings under the Strategic Reform Program saw the targets grow to around 59,000 and 23,000 respectively. The 2013 Defence White Paper said that permanent ADF would be maintained at around 59,000 and that civilian number would fall by 1,000 to around 20,500, effectively those targets existing prior to that time. Cuts to civilian numbers were subsequently imposed, but substantial unplanned losses also emerged in 2016-17.

The 2016 White Paper boosted the military target to 62,400 and set the civilian target at 18,200, partially reversing the impact of efficiency measures of immediately preceding years.

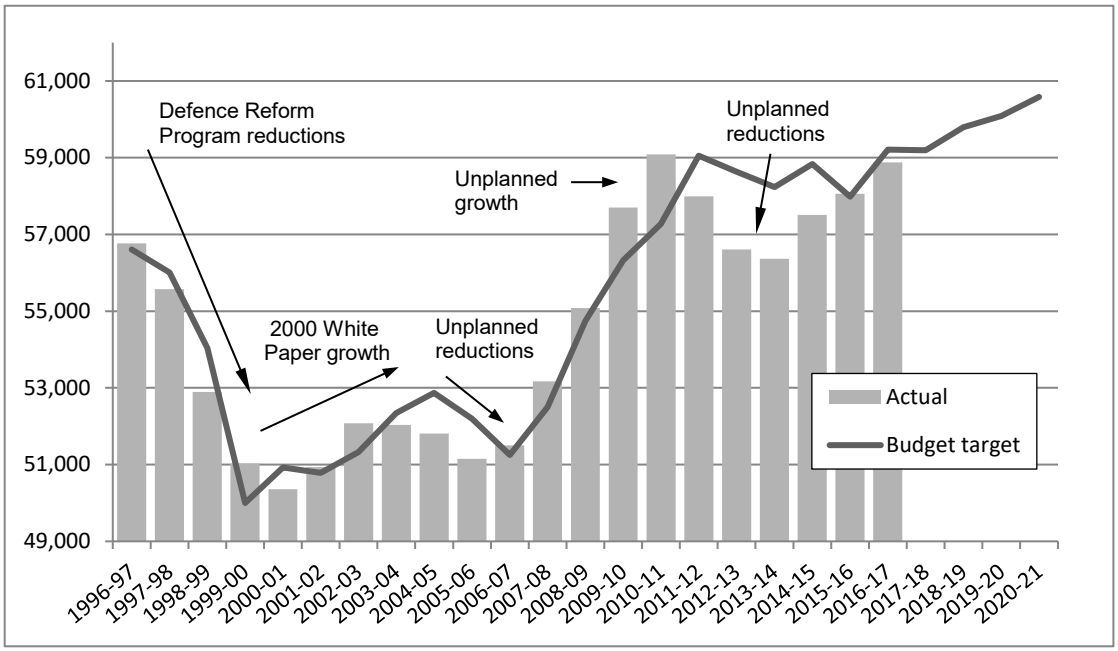
Permanent ADF numbers

The changing size of the permanent ADF is captured in Figure 2.5.2. In the initial years following the 2000 White Paper, permanent ADF numbers grew steadily until 2003-04 when poor recruiting outcomes saw numbers fall for three years in a row—notwithstanding budgeting for growth in each instance. Then, in 2006-07, numbers began to rise to the extent that budget estimates were exceeded three years in a row. All signs being that the revamp of recruiting and retention policy (and a lot of extra money) slowly but steadily turned the personnel situation around.

Then, for two years commencing in 2009-10 military numbers grew much more quickly than planned because of better than expected recruitment and retention. In 2009-10 military personnel numbers exceeded planned levels by 1,372. To redress this unplanned growth, the permanent ADF was supposed to *decrease* by around 400 people in 2010-11. Instead, the ADF grew by a further 1,387 persons, exceeding planned levels by 1,808. During 2011-12, action was taken to get military numbers back to planned levels, with more success than planned, so that actual numbers fell to around 1,000 below target. The trend continued over the next two years, with numbers falling 2,000 and 1,870 below target in 2012-13 and 2013-14 respectively. The result for 2014-15 was a shortfall of 1,327, although for the first time in four years, numbers grew. The result for 2015-16 was just above target, and the force grew by another 815 positions in 2016-17. However, the result for that year was 333 positions below target.

According to earlier PBS, the unplanned shrinkage of the permanent force reflected several factors, including reduced recruiting targets and higher than anticipated separations. However, this year's PBS said that 'Army's separation rates have decreased since late 2014-15, which is helping Army to retain more people and grow the size of the force. As a result, the permanent force strength has been increasing since January 2014 and is gradually closing towards the workforce strength approved by Government'.

Figure 2.5.2 Permanent ADF personnel: 1996-97 to 2020-21 (average funded strength)



Source: DAR, 2001-02 Defence Budget Brief, 2017-18 PBS

Recruitment and retention

The annual change in ADF strength is the difference between the numbers of people recruited into and separated from the force (historically around 5,000 in each case). Since the planned change in strength is usually no more than 1,000, the outcome is finely balanced. We turn now to examine ADF recruitment and separations.

Recruitment

Table 2.5.2 shows the percentages of recruitment targets that have been met over the last fifteen years. Following solid improvements earlier this decade, which saw the rate grow from 76% to 93% in 2001-02, performance dropped back to the mid-80% level in 2002-03 and 2003-04 before deteriorating to 80% in 2004-05 and then recovering to 84% for the next two years. In 2007-08 and 2008-09 the result fell to around a 15-year low before recovering strongly in 2009-10 and 2010-11. Results for the past four years have been close to or above the historical average of 86%.

Table 2.5.2: Percentage of recruitment targets met (per cent)

	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Navy	98	92	98	76	57	74	85	84	86	73	72	78	73	72	91	87	88	88	92	92	94
Army	99	98	94	78.5	83	79	100	79	84	81	89	86	76	76	90	90	87	85	94	85	89
Air Force	86	93	101	90.5	83	88	87	94	90	92	88	86	85	86	92	93	86	81	88	92	91
ADF	**96**	**94**	**97**	**80**	**76**	**80**	**93**	**84**	**86**	**80**	**84**	**84**	**77**	**76**	**91**	**89**	**87**	**85**	**92**	**88**	**90**

Source: Various DAR and Defence submission to the FAD&T Committee inquiry into ADF recruitment and retention, May 2001

It is important to note that recruitment results vary from Service to Service, and that within each Service skilled personnel (like technicians and tradespeople) have proven particularly hard to recruit in recent times. As the data shows, Navy has tended to have the most trouble until recently.

Retention

Table 2.5.3 shows the percentages of ADF personnel who separated from full-time military service over the last fifteen years. Some care must be taken with this data because figures for earlier years were impacted by the deliberate reduction in the size of the ADF between 1997 and 2001 under the Defence Reform Program. Still, separation rates from 2001-02 to 2004-05 were better than in 1995-96 before the cuts to personnel commenced.

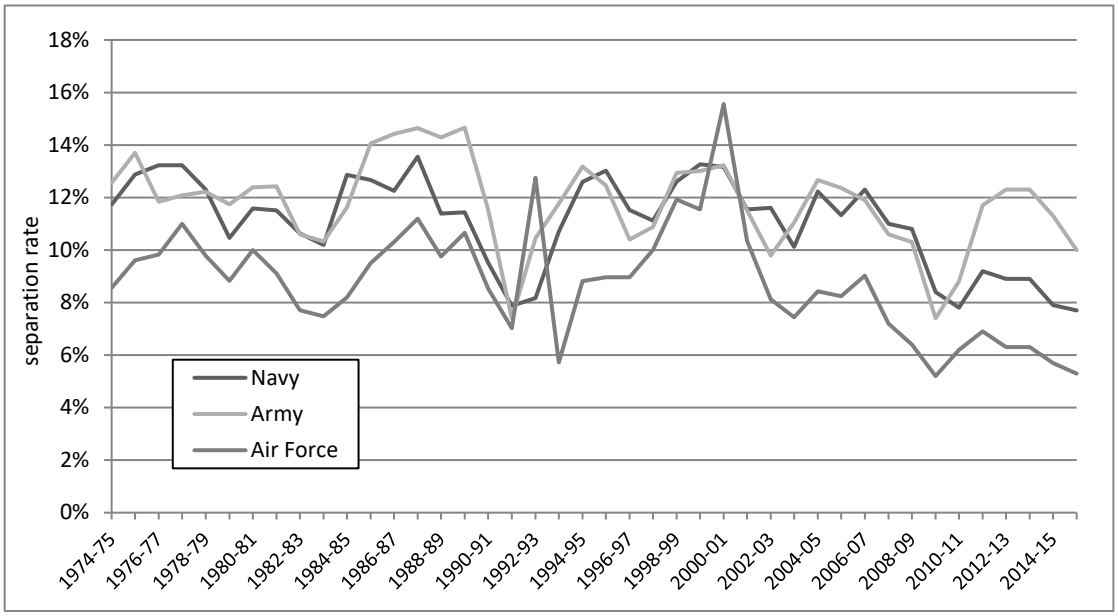
Figure 2.5.3 plots the separation rate over the past thirty years. Notice that recent separation rates are commensurate with or better than rates achieved over the past three decades. Given that several factors have arisen in that time to make long-term ADF service more difficult—growing numbers of employed spouses, greater geographical dispersal of the ADF and the trend in society to shorter term employment—the fact that the ADF had been able to keep people on average for longer than in the 1970s is a real achievement.

Table 2.5.3: ADF separation rates %

	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
RAN	13.0	11.5	11.1	12.6	13.3	13.2	11.5	11.6	10.1	12.2	11.3	12.3	11.0	10.8	8.4	7.8	9.2	8.9	8.9	7.9	7.7
Army	12.5	10.4	10.9	12.9	13.0	13.2	11.5	9.8	11.0	12.7	12.4	11.9	10.6	10.3	7.4	8.8	11.7	12.3	12.3	11.3	10.0
RAAF	9.0	9.0	10.0	11.9	11.6	15.6	10.4	8.1	7.4	8.4	8.5	9.0	7.2	6.4	5.2	6.2	6.9	6.3	6.3	5.7	5.3
ADF	**11.6**	**10.3**	**10.7**	**12.6**	**12.0**	**13.8**	**11.2**	**9.8**	**9.9**	**11.5**	**10.7**	**11.2**	**9.8**	**9.4**	**7.1**	**7.9**	**9.9**	**9.9**	**10.0**	**9.1**	**8.3**

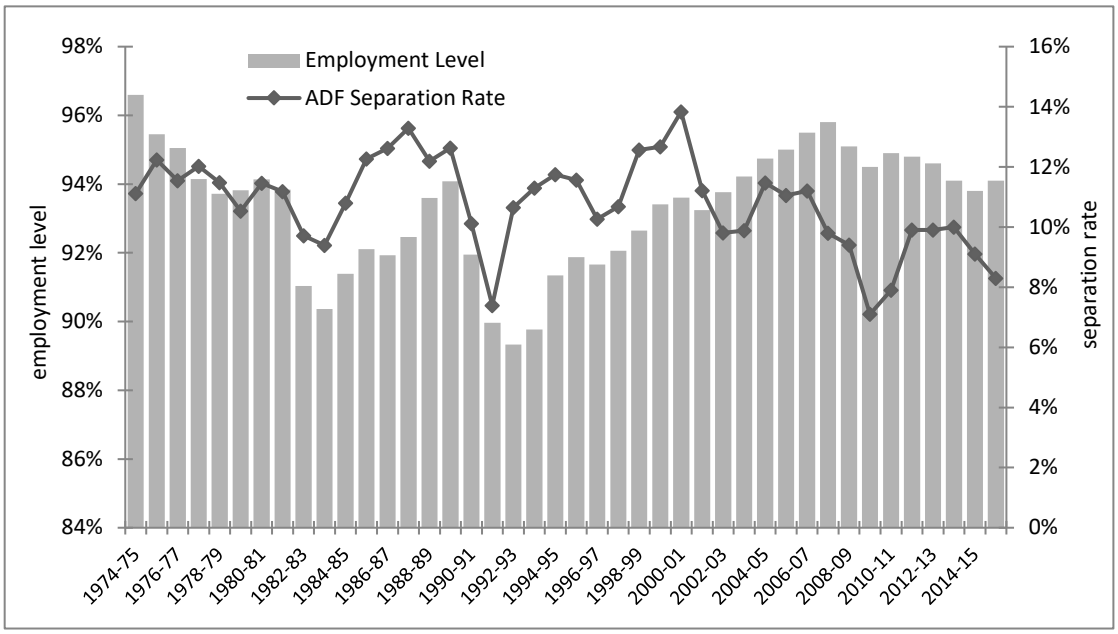
Source: DAR and FAD&T Committee inquiry into ADF recruitment and retention, May 2001, and advice from Defence

Figure 2.5.3: Permanent ADF separation rate: 1974-75 to 2015-16



Source: DAR 1974-75 to 2014-15 and advice from Defence

Figure 2.5.4: Employment and ADF separation rates: 1974-75 to 2015-16



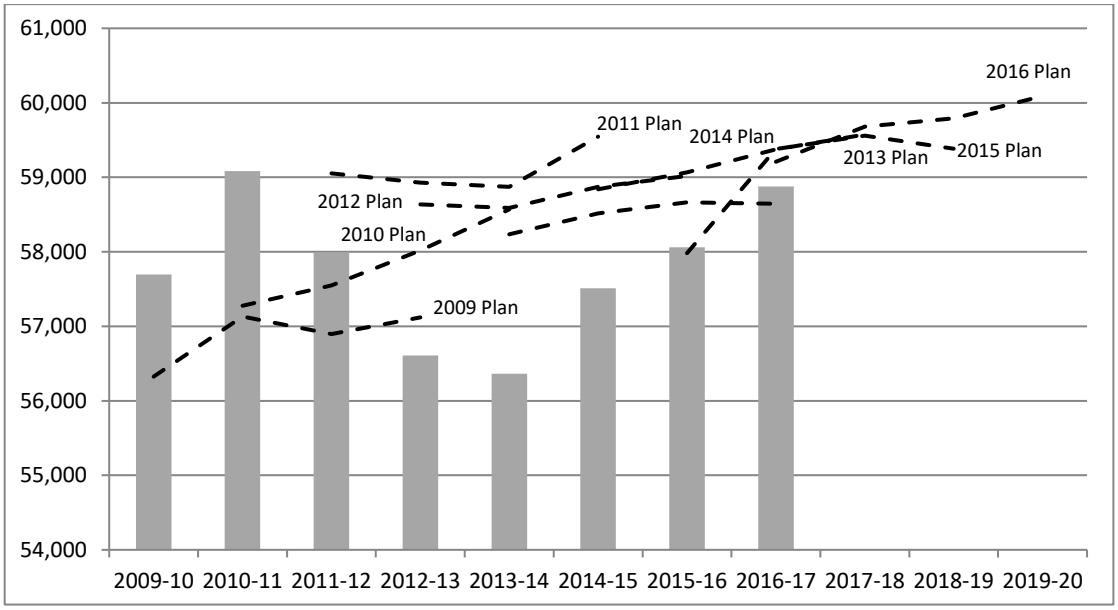
Source: DAR 1974-75 to 2015-16 and advice from Defence

As Figure 2.5.4 shows, separation rates reduced to historical lows in 2009-10 and 2010-11; this coincided with the Global Financial Crisis and focussed retention programs. Since then, separations have increased but remain below long-term average levels. Note that the correlation between unemployment in the wider Australian economy and separations has been less than clear in recent years.

What's going on?

It's unsurprising that ADF numbers grew faster than planned after the GFC as people decided to remain in the military rather than face an uncertain labour market. After that, however, permanent ADF numbers fell substantially below target for four years in a row, see Figure 2.5.5. The problem was likely that recruitment targets were set too conservatively at a time when separation rates were increasing from historic low levels. In any case, 2015-16 and 2016-17 saw planned and actual numbers converge.

Figure 2.5.5: Planned and actual permanent ADF numbers

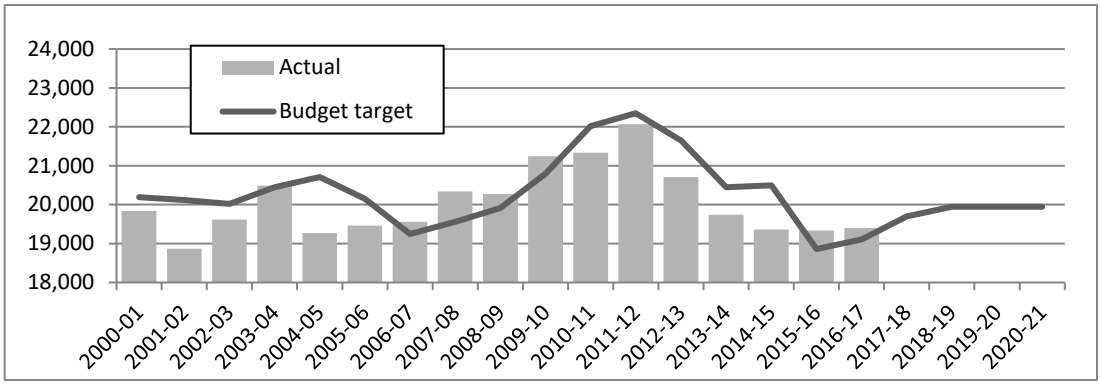


Source: DAR and PBS

Reserve numbers

Reserve numbers overachieved in 2015-16 and 2016-17 after falling short for five years in a row, most especially in 2012-13, see Figure 2.5.6.

Figure 2.5.6: Active Reserve personnel: 2000-01 to 2020-21

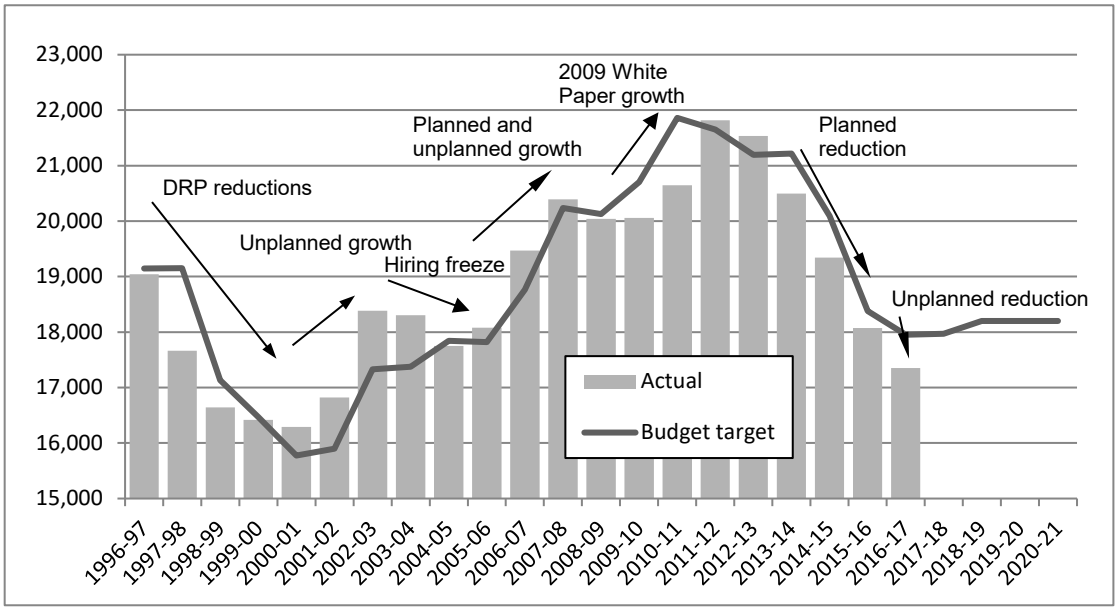


Source: DAR and PBS

Civilian Numbers

Figure 2.5.7 plots budgeted and actual civilian numbers from 1996-97 onwards. Although civilian numbers fell quickly under the Defence Reform Program, they grew back rapidly in the first two years after the 2000 White Paper. The growth was largely unplanned, with the size of the civilian workforce in 2001-02 exceeding budget estimates by 5.8% and similarly in 2002-03. In January 2003, a civilian hiring freeze was imposed. In April 2003, the freeze was lifted but direction was given to maintain civilian numbers at current levels. In the 2003-04 Budget, a programmed reduction plan was set in place to reduce civilian numbers by 1,008, from 18,385 to 17,377. However, the actual result for 2003-04 was only 82 positions below the previous year's figure due, mainly, to a series of government initiatives but also because of the creation of 349 additional but unplanned positions.

Figure 2.5.7: Civilian personnel: 1996-97 to 2020-21



Source: DAR and PBS

In 2004-05 and 2005-06, budgeted and actual figures were closely aligned. In 2006-07, civilian personnel numbers were set to rise by 950 due to government initiatives and workforce restructuring. However, the actual result for 2006-07 was more than 450 above estimate. Then, in 2007-08, civilian numbers grew by another 1,468, fully 155 above the initial budget estimate.

The plan for 2008-09 was for civilian numbers to fall to around 20,000 and then remain largely static across the forward estimates. However, following the 2009 White Paper, civilian personnel numbers were set a target of around 21,900 which was subsequently revised upwards to around 23,000 after Defence abandoned many of the efficiency savings originally planned from the civilian workforce. In 2009-10 and 2010-11 civilian numbers failed to grow to planned levels. Specifically, in 2009-10 the number of civilians grew by only 17, fully 645 below the updated budget estimate. Attempts to regain lost progress in 2010-11 largely failed, with civilian numbers falling 1,213 below target (though still 590 above the level for the previous year).

Then the cuts began. A reduction of 1,000 positions in 2011 and 2012, and another 1,200 in 2013. Despite a notional reduction of 3,200 positions, some of the cuts were hypothecated against planned growth. APS personnel numbers were slated to fall from 20,496 in 2013-14 to 20,092 in 2014-15, but wound up at 19,342, fully 750 below target. Planned reductions towards a long-term target of 17,900 commenced in 2015-16; the result of 18,100 was 309 below target. Then, consistent with the revised target in the 2016 White Paper, civilian numbers were set on a path to 18,200 in 2016-17, but the projected result of 17,350 is 600 positions below target. Once again, civilian numbers are moving of their own accord.

What are the long-term targets for the Defence workforce?

The evolution of personnel targets is contained in Tables 2.5.4 and 2.5.5. We cannot properly account for the changes in 2014 and 2015.

Table 2.5.4: Long-term targets for the Defence civilians & contractors

	Civilian	Contractors	Total
Estimated pre-2009 White Paper Target	**20,000**	**-**	**-**
Baseline (May 2009)			**21,672**
Extra White Paper Positions			2,290
SRP impact			-2,015
2018-19 target strength (May 2009)			**21,937**
Baseline (April 2010)			**21,620**
Extra White Paper Positions			2,290
SRP impact			-1,191
2018-19 target strength (April 2010)			**22,719**
Baseline (April 2011) *			**22,397**
Reduction of 1,000 positions			-1,000
2018-19 target strength (May 2011)			**21,397**
Baseline (July 2011)			**21,397**
Reduction of 1,000 positions			-1,000
2018-19 target strength (May 2012)			**20,397**
2013 Defence White Paper			
Baseline (April 2013)			**21,700**
Reduction of 'around 1,000 positions'			-700
Target strength (May 2013)			**20,000**
Baseline (unknown)			**-**
Reduction of 1,200			-1,200
Target strength (May 2014)			**18,100**
Target strength (May 2015)			**17,800**
2016 Defence White Paper			
Baseline (May 2015)			**17,800**
Additional 400 personnel			400
Target strength (February 2016)			**18,200**

*Source: Budget Papers and the May 2009 and April 2010 SRP Booklets, 2015-16 PBS. *Advice from Defence May 2011. Defence White Papers*

Table 2.5.5: Long-term target for the permanent ADF

	Navy	Army	Air Force	Total
Post-Defence Reform Program Baseline	**13,800**	**23,000**	**13,000**	**50,000**
East Timor Boost 1999		+3,000	+555	+3,555
2000 White Paper Target	**13,800**	**26,000**	**13,555**	**53,555**
Changes made 2000 to 2009	-311	+4,538	+500	+4,721
Estimated pre-2009 White Paper Target	**13,689**	**30,538**	**14,055**	**58,282**
Baseline (May 2009)				**58,648**
Extra White Paper Positions				1,979
SRP impact				-2,813
2018-19 target strength (May 2009)				**57,812**
Baseline (April 2010)				**58,276**
Extra White Paper Positions				1,979
SRP impact				-1,376
2018-19 target strength (April 2010)				**58,879**
Baseline (July 2011)				**58,277**
Extra White Paper Positions				1,979
SRP impact				-1,629
2018-19 target strength (July 2011)				**58,627**
2013 Defence White Paper				**59,000**
Target for 2017-18 (May 2014)				**59,570**
Target for 2018-19 (May 2015)				**59,380**
2016 Defence White Paper				**62,400**

Source: 2010-11 DAR, Budget Papers and the May 2009 and April 2010 SRP Booklets, 2016-17 PBS, Defence White Papers

How much do personnel cost?

The per-capita cost of civilian and military personnel appears in Tables 2.5.6 to 2.5.7, the PBS does not provide enough information to calculate budgeted per-capita costs.

Table 2.5.6: Per-capita permanent ADF personnel expenses

	Military Numbers	Expense $ 000's	Permanent Force Per Capita	Nominal Growth
00-01	50,355	4,151,801	$82,451	
01-02	50,932	4,377,827	$85,954	4.2%
02-03	52,080	4,568,493	$87,721	2.1%
03-04	52,034	4,890,100	$93,979	7.1%
04-05	51,813	4,757,900	$91,828	-2.3%
05-06	51,151	5,093,100	$99,570	8.4%
06-07	51,504	5,515,651	$107,092	7.6%
07-08	53,109	6,062,882	$114,159	6.6%
08-09	54,748	6,751,456	$123,319	8.0%
09-10	57,697	7,456,595	$129,237	4.8%
10-11	59,084	7,834,680	$132,602	2.6%
11-12	57,994	7,989,786	$137,769	3.9%
12-13	56,607	8,054,390	$142,286	3.3%
13-14	56,364	8,246,043	$146,300	2.8%
14-15	57,512	8,531,437	$148,342	1.4%
15-16	58,061	9,284,662	$159,912	7.8%
			Average	**4.6%**

Source: Defence Annual Reports, expenses adjusted to take account of Reserve component.

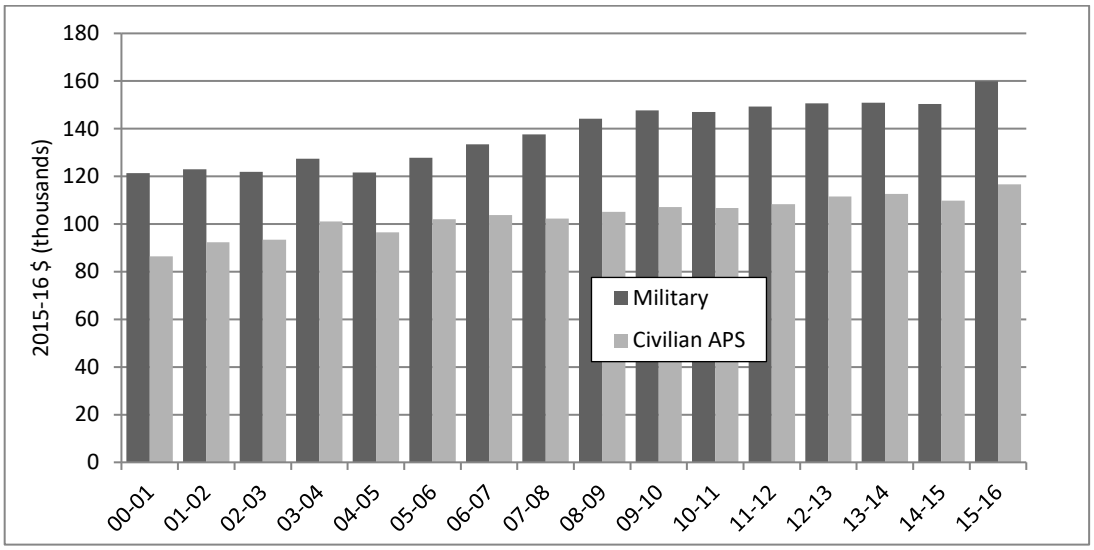
Table 2.5.7: Per-capita Defence civilian personnel expenses

	Civilian Numbers	Expense $ 000's	Per Capita	Nominal Growth
00-01	16,292	$956,661	$58,720	
01-02	16,819	$1,086,116	$64,577	10.0%
02-03	18,385	$1,235,752	$67,215	4.1%
03-04	18,303	$1,363,205	$74,480	10.8%
04-05	17,753	$1,293,100	$72,838	-2.2%
05-06	18,079	$1,438,274	$79,555	9.2%
06-07	19,467	$1,621,655	$83,303	4.7%
07-08	20,391	$1,730,215	$84,852	1.9%
08-09	20,041	$1,802,056	$89,918	6.0%
09-10	20,058	$1,881,294	$93,793	4.3%
10-11	20,648	$1,988,898	$96,324	2.7%
11-12	21,818	$2,180,654	$99,947	3.8%
12-13	21,534	$2,268,744	$105,356	5.4%
13-14	20,496	$2,238,988	$109,240	3.7%
14-15	19,371	$2,095,906	$108,198	-1.0%
15-16	18,071	$2,108,696	$116,690	7.7%
			Average	**4.7%**

Source: Defence Annual Reports.

The per-capita expenses include salaries, allowances, superannuation, health, redundancies, housing, removals, and fringe benefits tax. We've done our best (based on incomplete information) to account for the cost of Reserve personnel in the estimate for the permanent ADF. In addition, the transfer of military compensation to Veterans Affairs in 2004-05 has been adjusted for. Historical per capita costs are depicted graphically in Figure 2.5.8.

Figure 2.5.8: Historical per-capita personnel costs



Source: Defence Annual Reports.

The 7.7% jump in civilian per capita may reflect prior incomplete capture of DMO personnel expenses being rectified following the reincorporation of DMO into Defence. No obvious explanation can be found for the growth in ADF per capita.

Personnel structures

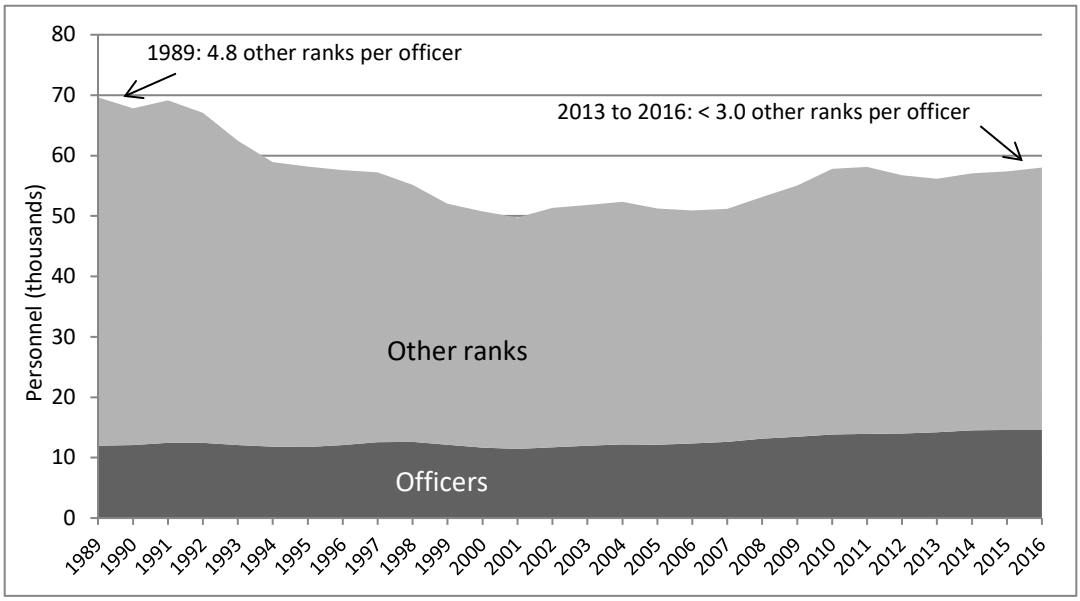
To facilitate understanding of the structure of the Defence workforce, it is useful to understand the nominal equivalence between various levels in the APS and ADF and between the three Services. For a comparison of relative ranks/levels, see Table 2.5.8.

Table 2.5.8: Rank/level comparison:

Civilian	Navy	Army	Air Force	
APS-4	Sub-Lieutenant	Lieutenant	Flying Officer	Officers
APS-5	Lieutenant	Captain	Flight Lieutenant	
APS-6	Lt-Commander	Major	Squadron Leader	
EL-1	Commander	Lt-Colonel	Wing Commander	Senior Officers
EL-2	Captain	Colonel	Group Captain	
SES-1	Commodore	Brigadier	Air Commodore	Star-ranked and Senior Executive Service
SES-2	Rear Admiral	Major General	Air Vice-Marshal	
SES-3	Vice Admiral	Lt General	Air Marshal	

The breakdown of ADF personnel by rank, and civilians by level, appears in Table 10 on page 38 of the PBS. As the ADF contracted during the 1990s, the number of officers remained largely constant. Then, as the size as the ADF increased over the past few years, the number of officers grew more quickly (see Figure 2.5.9). As a result, the percentage of officers in the ADF has grown from 17.2% in 1989 to 25.5% in 2010. This means that there are now less than three enlisted personnel for every officer. To a considerable extent, the rising proportion of officers probably reflects the outsourcing of activities during the 1990s, which saw more enlisted personnel than officers discharged. However, the recent expansion of the army has started to reverse the trend.

Figure 2.5.9: Permanent ADF Numbers 1989 – 2016 as at 30 June



Source: Defence Annual Reports.

Generals and Mandarins

The trends in star rank, senior executive, and senior officer numbers are shown in Table 2.5.9; the most recent data is taken from the 2017-18 PBS. Changes in reporting account for the gaps and lack of earlier data. Over the long term, the number of managers and executives has increased at a rate well above the growth in the size of the overall workforce.

However, after steady increases from the late 1990s onwards, the number of civilian executives and senior officers has declined significantly—presumably due to implementation of the First Principles Review. Over the same period, the reduction in the number of military star-rank and senior officers has been much less than observed in the civilian workforce.

Table 2.5.9: Numbers of Senior Ranks and Executive Levels; average funded strength

	Civilian						Military	
	Defence Executives	DMO Executives	Total Executives	Defence Senior Officers	DMO Senior Officers	Total Senior Officers	Star Rank Officers	Senior Military Officers
1998-99	100		100	0	0	0	110	1,360
1999-00	106		106	0	0	0	0	0
2000-01	103		103	3,317	0	3,317	120	1,415
2001-02	117		117	3,844	0	3,844	119	1,467
2002-03	130		130	3,824	0	3,824	120	1,507
2003-04	123		123	3,889	0	3,889	119	1,528
2004-05	96	30	126	3,081	995	4,076	125	1,551
2005-06	102	29	131	3,385	1064	4,449	135	1,594
2006-07	108	29	137	3,656	1225	4,881	149	1,684
2007-08	121	32	153	3,911	1388	5,299	176	1,768
2008-09	126	35	161	3,970	1502	5,472	169	1,852
2009-10	128	36	164	4,192	1579	5,771	173	1,937
2010-11	undisclosed	undisclosed	172	undisclosed	undisclosed	6,250	181	1,941
2011-12	undisclosed	undisclosed	175	undisclosed	undisclosed	6,796	184	1,850
2012-13	133	35	168	5,010	1,757	6,767	188	1,983
2013-14	133	35	168	4,934	1,590	6,524	189	2,101
2014-15			160			6,243	189	2,124
2015-16			163			5,726	190	2,146
2016-17			159			5,445	189	2,158
2017-18			154			5,670	190	2,186

Source: Defence Annual Reports and advice from Defence, 2016-17 estimated actual from PBS, 2017-18 planned.

The changing number of Deputy Secretary and 3-star military officers is given in Table 2.5.10, where the impact of the First Principles Review is abundantly clear. From a pool of only 22 positions, there are now eight fewer band-three civilian senior executives and one less military 3-star officer than before.

Table 2.5.10: Band 3 and 3-Star officers (equiv. Chief of Service - Deputy Secretary)

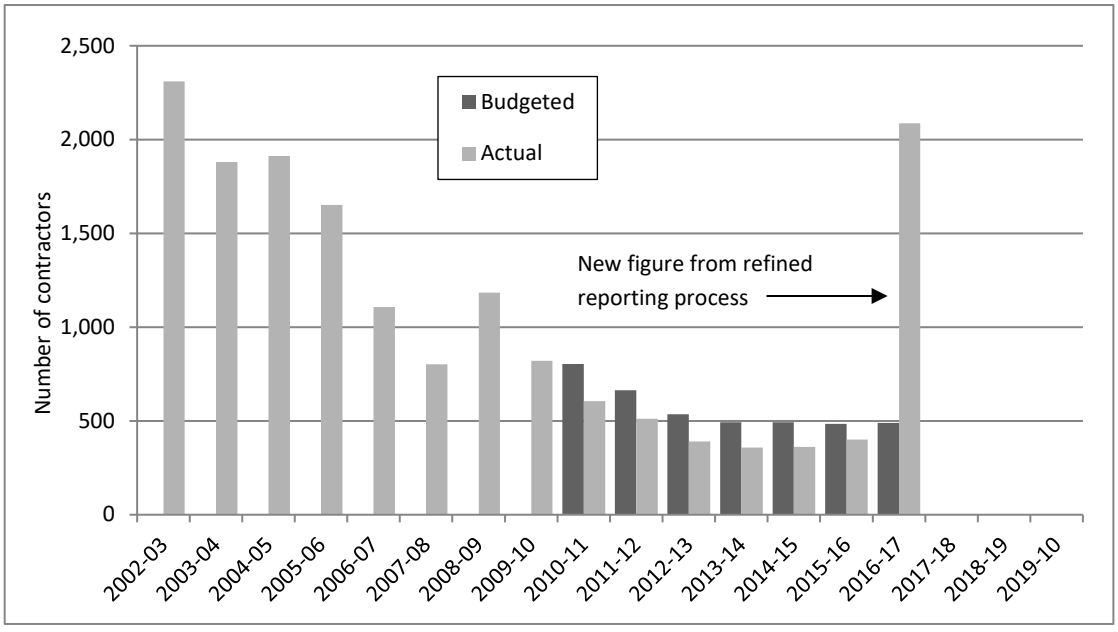
	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Assoc. Sec														1	1	1	1	1	1	1
Band-3 Defence	3	4	7	5	5	5	5	5	5	7	8	8	8	8	8	7	7	7	6	6
Band 3 (DMO/ CASG	1	1	1	1	1	1	1	1	1	4	4	5	5	5	5	5	5	5	1	1
Band-3 (DSTO)	2	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	0
subtotal	**6**	**8**	**10**	**9**	**9**	**9**	**9**	**9**	**9**	**14**	**15**	**16**	**16**	**17**	**17**	**16**	**16**	**16**	**8**	**8**
3-Star	4	4	4	4	4	5	5	5	5	6	6	6	6	6	6	6	6	6	5	5
Total	**10**	**12**	**14**	**13**	**13**	**14**	**14**	**14**	**14**	**20**	**21**	**22**	**22**	**23**	**23**	**22**	**22**	**22**	**13**	**13**

Source: DAR and 2017-18 PBS. Includes Chief of Division Grade 3 in DSTO. CEO of DMO counted as a Deputy Secretary.

Contractors (previously referred to as Professional Service Providers)

The Defence workforce employs around 2,087 contractors in line positions within the organisation. That's an increase of around 1,600 on recently reported figures because, we are told, 'Defence has refined its reporting process'. Over the past 16 years there have been periodic efforts to reduce the number of contractors in Defence. In fact, Defence has claimed successive reductions in the number of contractors as an internal efficiency. This year, Defence lost $304 million over four years in anticipation of efficiencies from, *inter alia*, reduced use of contractors.

Figure 2.5.10: Contractors



Source: Defence Annual Reports and 2017-18 PBS.

Prior to this year, the *reported* number of contractors fell three years in a row and more quickly than budgeted for. At the time, we warned that those reductions should be viewed with caution because of Defence's use of 'capability partners' to augment its workforce. Because of the contractual arrangements under which capability partnerships are managed, the personnel supplied have not, at least until recently, been counted as contractors under

Defence's definition. We cannot say what the new figure of 2,087 positions includes, excludes, or fails to count, including capability partners.

Defence Remuneration

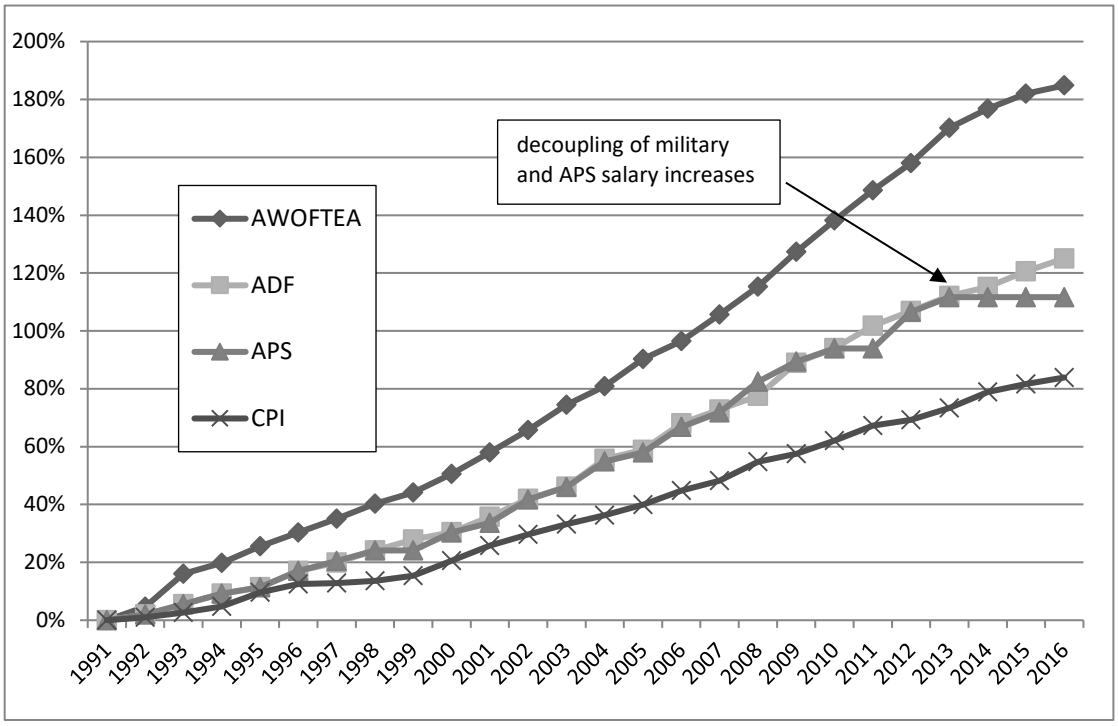
The PBS doesn't deal with Defence remuneration. But, because the largest single slice of the Defence budget goes towards civilian and military salaries, we've included a concise summary of the key data. Figure 2.5.11 shows Defence military and civilian salaries circa late 2015, benchmarked against the latest available Average Weekly Ordinary-Time Earnings for Full-Time Earning Adults (AWOFTEA) from November 2016. (SES civilian and military two/three-star data are for 2015-16.)

Note that the military figures in Figure 2.5.11 include both salary and the service allowance of $13,717 per annum received by all service personnel below the rank of Colonel. No account has been taken of the ancillary benefits received by military personnel like housing, medical, rations and specific allowances for skill, hardships, and deployments. Note that the three graphs do not use the same scale.

The comparison of defence salaries with AWOFTE in Figure 2.5.12 represents only a snapshot in time. The relative dynamics of average earnings, defence salaries and the cost of living, is quite another issue. Indeed, as Figure 2.5.11 shows, defence salaries have tended to grow more slowly than average earnings but more quickly than the Consumer Price Index (CPI)—until the recent stagnation in civilian salaries that is.

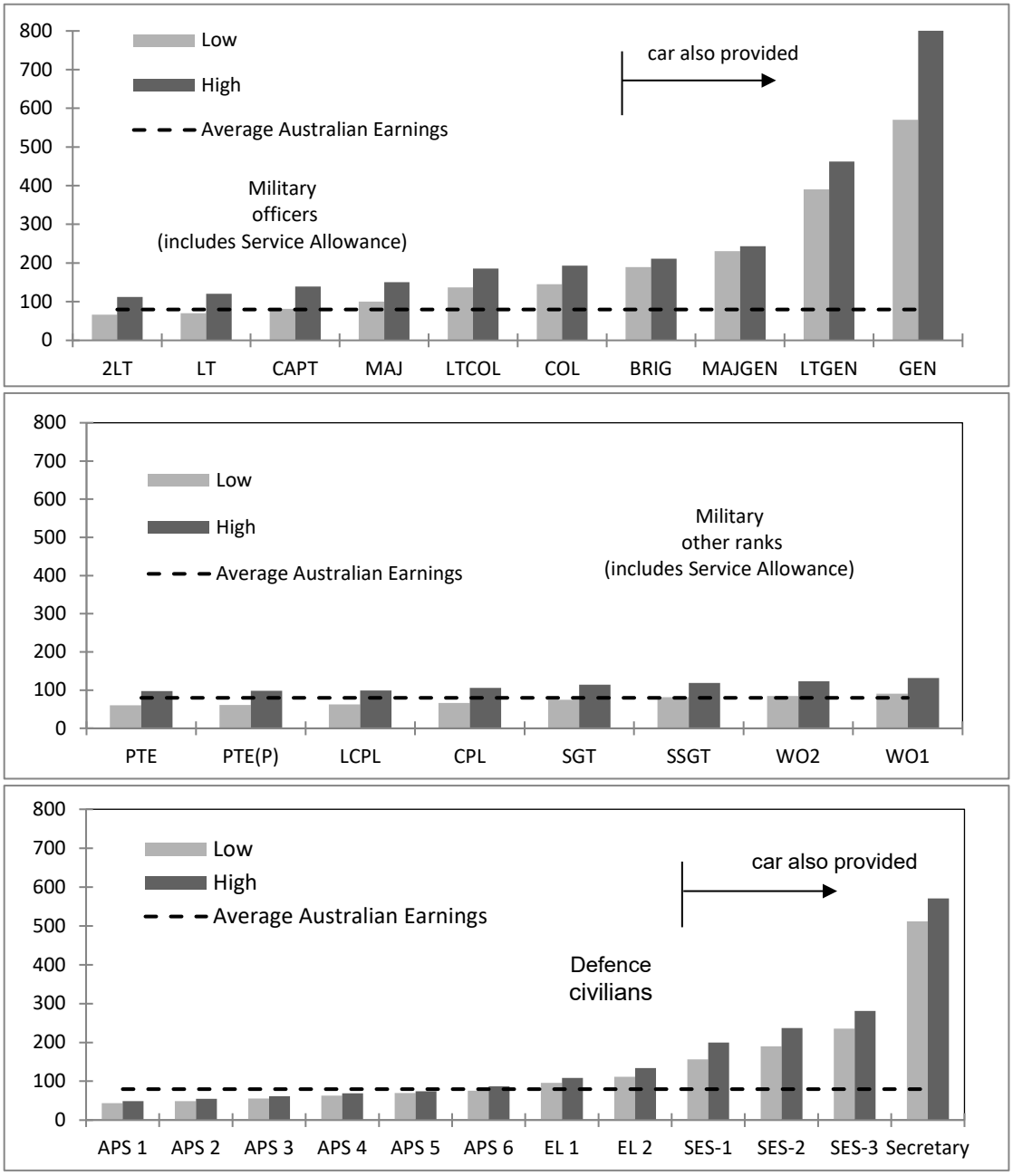
Care is needed in interpreting the relative growth in average earnings, defence salaries and consumer prices. Structural changes to the Australian economy over the period will have altered the type and value of employment relative to that performed within the ADF.

Figure 2.5.11: Defence civilian and military salaries – rate of increase



Source: ABS weekly ordinary full time earnings data and Defence pay rates.

Figure 2.5.12: Defence salaries, circa November 2016 ($ thousands)



Source: ABS; Military and APS pay rates as at November 2016, SES, Gen as at June 2016.

Finally, it is important to note that Defence executive remuneration isn't limited by the salary increases granted to the rank and file. Over the past nine years, the Defence annual report disclosed salary ranges for various levels of employee. As Table 2.5.11 shows, it has been a particularly happy time for senior executives and star-ranked officers. The range of increases corresponds to changes to the upper and lower levels of the salary range in each case.

Table 2.5.11: Senior executive salary increases 2006 to 2016

	Increase in minimum salary	Increase in maximum salary
Civilian level		
Deputy Secretary (SES-3)	48.7%	37.3%
First Assistant Secretary (SES-2)	48.0%	39.5%
Assistant Secretary (SES-1)	48.6%	55.5%
APS 1 - lowest increment	31.4%	
Military level		
General (CDF)	98.9%	184.2%
Lieutenant General (3-star)	88.2%	160.7%
Major General (2-star)	65.6%	74.5%
Brigadier (1-star)	40.8%	66.0%
Private - lowest increment	34.1%	

Source: 2005-06 and 2015-16 DAR.

Demographics of the ADF

The Defence workforce is disproportionately drawn from the Anglo-Celtic part of the Australian population. The extent of over-representation is difficult to fully assess because the only available data concerns country of birth and not family background. Even so, as Figure 2.5.12 shows, there are significant differences between the Defence workforce and the community. Note that the demographic skewing extends to the Defence's civilian workforce.

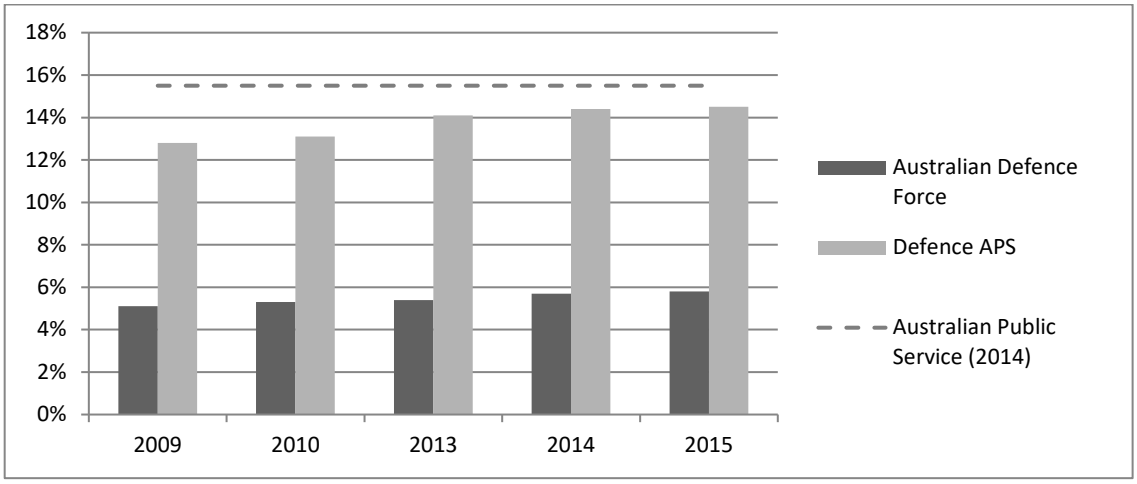
Table 2.5.12: Composition of the ADF, Defence APS and Australian workforce by birth

	2011 Defence Census	2015 Defence Census	2011 ABS Census
Defence APS			
Australia	78.0%	78.9%	71.9%
Asia	6.2%	5.8%	8.5%
UK / Ireland	7.0%	4%	6.4%
Europe	1.1%	1.5%	3.1%
Other	3.3%	1.6%	2.6%
No response		5.7%	7.5%
Australian Defence Force			
Australia	86.0%	86.8%	71.9%
Asia	1.9%	1.9%	8.5%
UK / Ireland	5.0%	5.1%	6.4%
Europe	1.8%	1.3%	3.1%
Other	1.1%	0.6%	2.6%
No response	4.2%	3.4%	7.5%

Sources: Defence military and civilian figures from the 2011 Defence Census; all other figures from Census 2011 conducted by the Australian Bureau of Statistics. ABS Census 2016 results not yet available.

Another perspective on Defence's cultural diversity can be gained by looking at the proportion of persons from non-English speaking background in comparison with those in the broader APS, Figure 2.5.13. Note that slow but steady progress is being made.

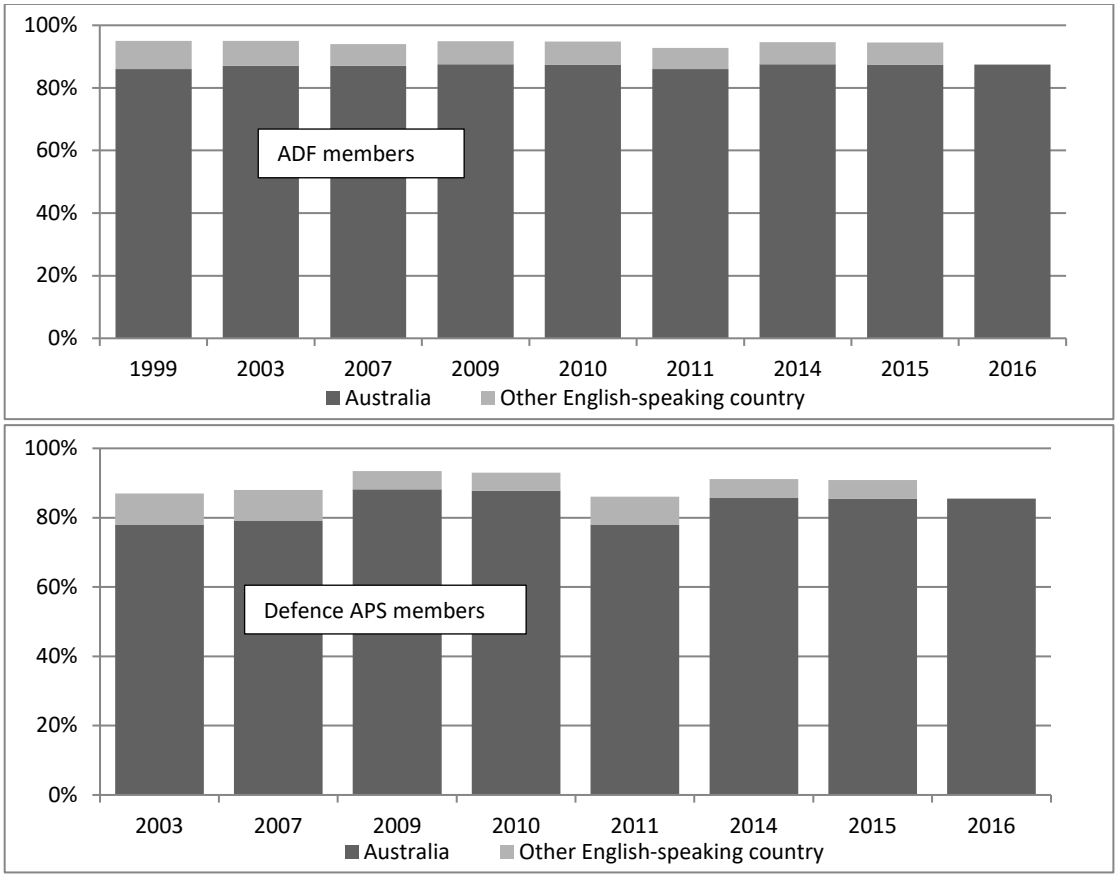
Figure 2.5.13: Percentage non-English speaking background



Sources: Various DAR; Australian Public Service Commission 2014

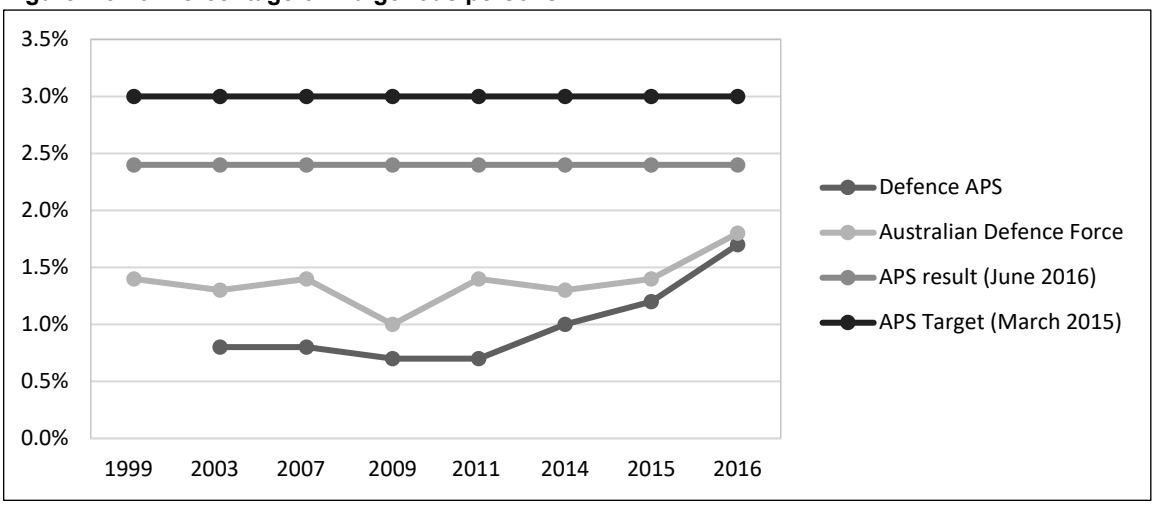
The difference between the ADF/Defence APS and broader Australian society is not a new issue, as Figure 2.5.14 demonstrates. And, as Figure 2.5.15 shows, the ADF and Defence APS have a smaller share of Indigenous Australians than the broader APS.

Figure 2.5.14: ADF and APS members by country of birth 1999-2015



Sources: Defence Census 2003, 2007, 2011; Various DAR; Other English speaking country = UK, NZ, Ireland in Defence Census; Other English speaking country = UK, NZ, US, Canada in Defence HR System. Other English speaking not available in 2016.

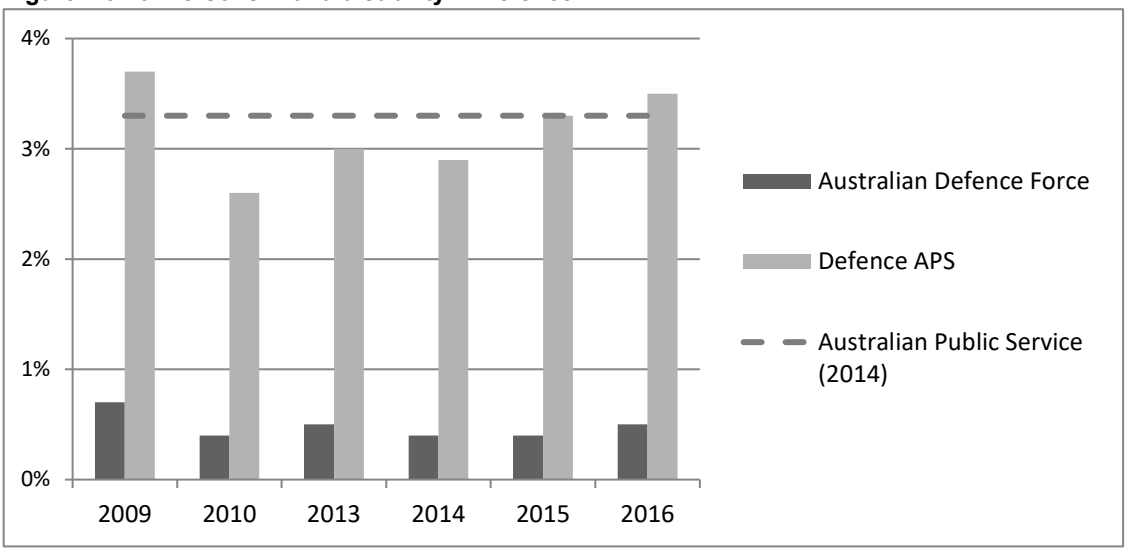
Figure 2.5.15: Percentage of Indigenous persons



Sources: Defence Census 1999, 2003, 2007, 2011; Defence HR 2009, various DAR

Defence employment of people with a disability is compared with the broader APS in Figure 2.5.16. The relatively low proportion of disabled persons in the ADF is unsurprising, and the result for the Defence APS is only slightly below the APS comparator.

Figure 2.5.16: Persons with a disability in Defence



Source: Defence HR 2009, 2013, 2013-14 & 2014-15 DAR, and advice from Defence.

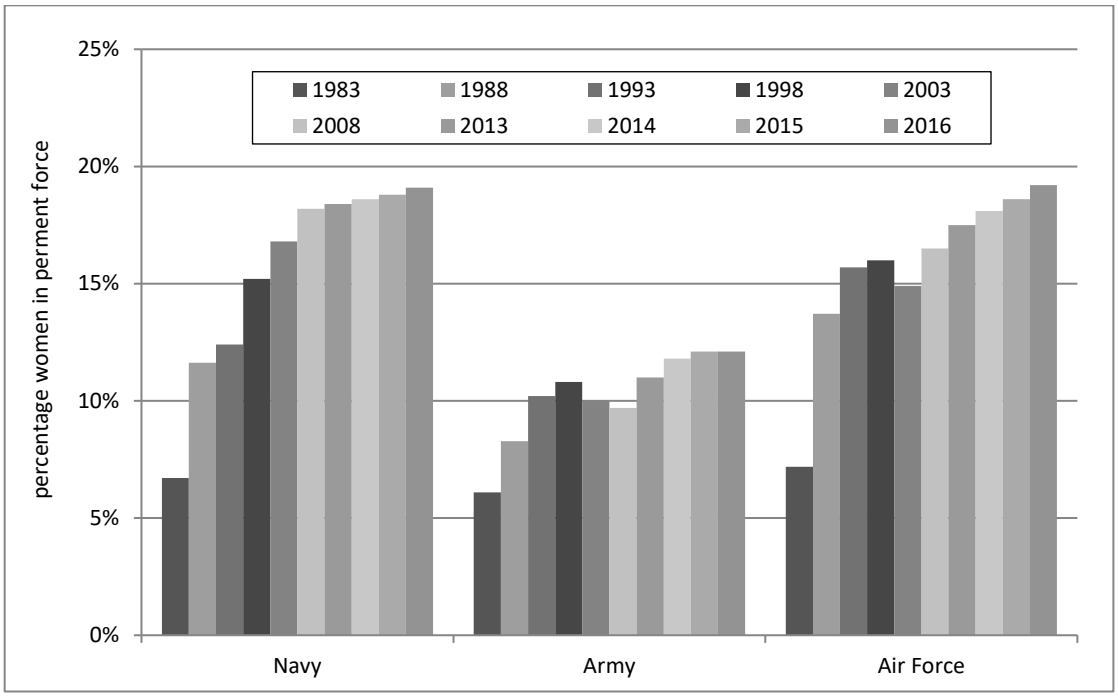
Another area where the demographics of the Australian Defence Force and the society differ is gender.

It's not that the ADF has ignored the issue in the past. Over the past fifteen years, a considerable effort has been made to recruit and retain women in the force. A zero-tolerance policy towards sexual harassment is now in place across the entire force. Recruiting advertisements depict women as integral members of the defence force and highlight the opportunities available to them (and the same has more recently become true for persons from diverse ethnic backgrounds). All combatant positions being opened to women across the three Services and an increasing number of women are reaching the higher ranks. Finally, more flexible arrangements are now in place to help all ADF members

manage the dual demands of career and family, and childcare facilities have been established in and around most military bases.

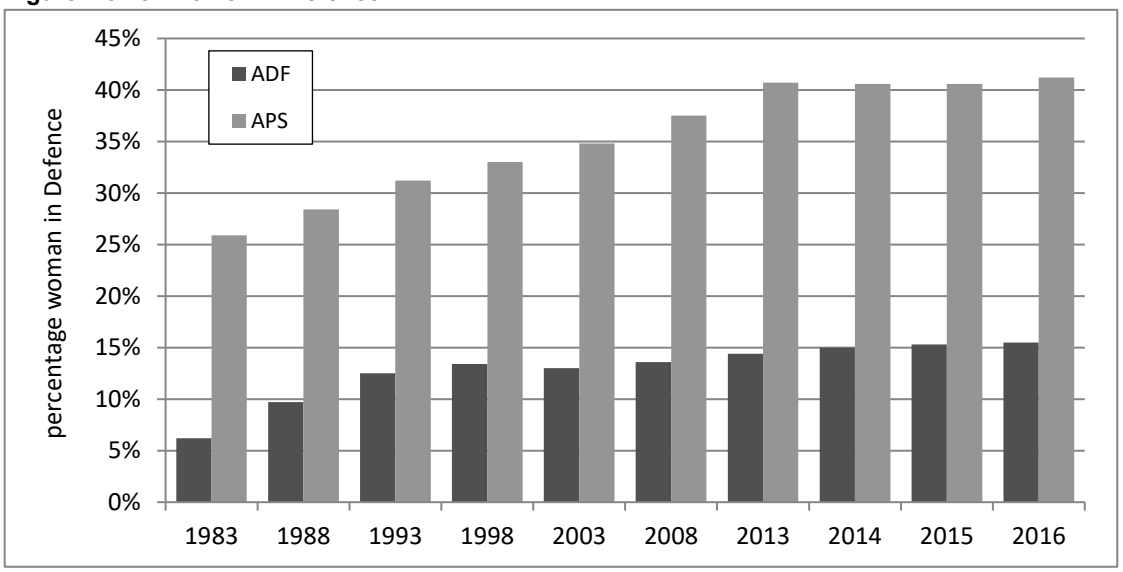
Yet the proportion of women in the ADF has grown from only 13.4% to 15.5% since 2003, see Figures 2.5.17 and 2.5.18. Although the proportion of women in allied forces is similarly low, that doesn't mean that the ADF should relax its effort to attract women to serve. The defence force needs the best people it can find and women represent the largest under-utilised pool of potential recruits in the community.

Figure 2.5.17: Women in the ADF



Source: 1982-82 to 2015-16 DAR

Figure 2.5.18: Women in Defence



Source: 1982-83 to 2015-16 DAR

Defence Attitude Surveys

Several recent Defence attitude surveys were released under FOI; all contain interesting information. The first dealt with individual and workplace morale for the period 2013 to 2016. Unfortunately, variations in how the information was presented inhibit a comprehensive comparison over time. The most recent and comprehensive results are for February 2015, see Table 2.5.12. Clearly, ADF members enjoy higher morale than their APS colleagues.

Table 2.5.12: Defence morale, February 2015.

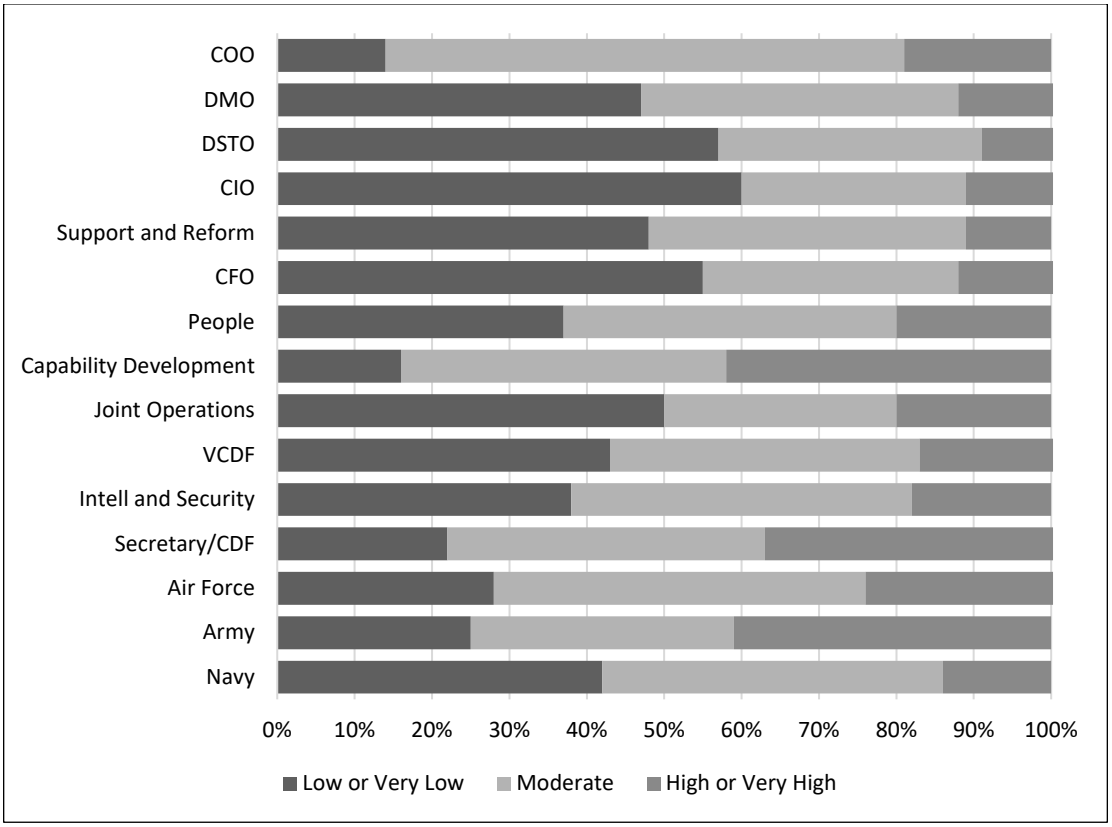
What is your current individual morale? / What is the current level of morale in your workplace?

	Low or Very Low	Moderate	High or Very High
ADF individual	21%	35%	44%
ADF workplace	16%	42%	42%
APS individual	36%	38%	26%
APS workplace	44%	40%	16%

Source: Your Say Defence APS morale, June 2015.

A follow-on survey in February 2016 (for which only partial results are available) found that 41% of Defence APS reported 'low' or 'very low' workplace morale compared with between only 16% and 18% of ADF respondents. The corresponding figures for individual morale were 34% for Defence APS and between 19% and 24% for ADF respondents. An interesting snapshot of workplace moral as reported by APS personnel is reproduced in Figure 2.5.20. The variation by group is substantial to say the least.

Figure 2.5.20: Defence APS workplace morale, February 2015.



Source: Your Say Defence APS morale, June 2015.

The second survey made public was a general attitude survey from 2015. A selection of results is displayed in Table 2.5.13, including the corresponding responses to a 2008 survey. Except for the last results (which were too alarming to leave out), the selection was based on there being a partner question in the earlier survey. As it turned out, the resulting selection covers a broad range of categories.

What's most surprising, is how little has changed over the seven-year period. Those areas where a five or greater percentage change occurred are shaded. Of the nine questions directed to the APS, all moved in an unfavourable direction, including six that deteriorated by five or more percentage points. Among the ten questions directed to the three services, among the (3 x 10 =) 30 responses, there were three improvements by more than five percentage points—all to do with satisfaction with salary. There were also four shifts in an unfavourable direction by more than five percentage points, one in Navy, to do with operational tempo, and three in Army across different areas.

Table 2.5.13: Defence attitude survey 2008/2015—percent 'agree'/'strongly agree'

		Navy	Army	Air Force	APS
I have confidence in Defence Senior Leadership.	2008	45%	53%	56%	34%
	2015	44%	47%	56%	32%
I have confidence in my immediate supervisor. / I am satisfied with the leadership provide by my supervisor.	2008	78%	72%	76%	74%
	2015	73%	73%	74%	69%
My workplace encourages a healthy balance between work, home and family life.	2008	49%	50%	62%	70%
	2015	51%	52%	63%	68%
My career development has generally been good.	2008	64%	63%	62%	53%
	2015	60%	58%	59%	43%
I am proud to tell others that I am a member of Defence.	2008	75%	83%	84%	70%
	2015	76%	80%	82%	63%
The contribution I make to the Service is valued by my leaders. / Defence values the work I accomplish.	2008	45%	52%	48%	45%
	2015	41%	41%	45%	32%
I am satisfied with my current salary.	2008	34%	41%	37%	51%
	2015	55%	60%	61%	48%
I am actively looking at leaving the Defence/Service.	2008	29%	24%	23%	16%
	2015	30%	27%	19%	27%
My unit's current operational commitments are too high.	2008	24%	16%	25%	
	2015	18%	13%	23%	
I have sufficient access to learning and development opportunities to improve my skills.	2008	57%	59%	60%	64%
	2015	55%	60%	58%	56%
People are promoted on merit.	2015	23%	21%	28%	25%

Source: Ministerial Brief dated December 2015 released under FOI.

It is disappointing that Defence attitude surveys are not more easily available for public scrutiny (as they were until around 2008). The fact alone that ADF and APS personnel have so little confidence in merit based promotion points to an issue of importance and public interest.

2.6 Outcomes and planned performance

The Cost of Outcomes and Programs

Under the framework explained in Chapter 1.3 of this Brief, the government funds Defence to achieve designated outcomes via a series of programs. The core of the Defence Budget is a statement of the costs and planned performance of outcomes and programs on p.29–98 of the PBS. This year's PBS changed the outcomes and once again re-enumerated the programs. Program expenses appear in Table 2.6.1.

Table 2.6.1: Departmental outcome and program expenses ($m)

Outcome 1: 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.	**Net Cost 09-10 actual**	**Net Cost 10-11 actual**	**Net Cost 11-12 actual**	**Net Cost 12-13 actual**	**Net Cost 13-14 actual**	**Net Cost 14-15 actual**	**Net Cost 15-16 actual**	**Net Cost 16-17 est.**	**Net Cost 17-18 budget**
Program 1.1: Immediate neighbourhood	161	182	176	133	21	7	6	1	7
Program 1.2: Wider interests	892	889	783	798	598	511	721	773	920
Program 1.3: Defence Contribution to National Support Tasks in Australia	11	11	118	15	29	42	32	22	90
Total net cost Outcome 1	**1,064**	**1,082**	**1,077**	**946**	**648**	**560**	**759**	**812**	**1,033**
Outcome 2: 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									
Program 2.1: *Strategic Policy & Intel.	196	146	180	150	162	178	219	909	1,031
Program x: Intelligence Capabilities	562	572	544	539	550	655	610		
Program 2.2: Defence Executive Support							209	205	213
Program 2.3: Chief Finance Officer	317	402	465	458	541	312	184	287	244
Program 2.4: VCDF	1,012	1,103	1,383	1,337	1,403	1,470	1,571	1,344	1,434
Program 2.5: Navy Capabilities	3,745	4,045	3,991	4,187	4,401	4,883	5,030	6,144	6,414
Program 2.6: Army Capabilities	5,093	5,306	5,290	5,196	5,685	6,697	6,664	7,876	7,326
Program 2.7: Air Force Capabilities	3,699	3,908	4,223	4,278	4,384	4,797	5,211	6,271	6,821
Program 2.8: Joint Operations Comd.	103	37	38	32	45	38	55	45	51
Program 2.9: CASG							573	614	654
Program 2.10: Estate and Infrastructure	3,319	3,429	3,844	3,660	3,624	3,957	4,432	4,149	4,547
Program 2.11: Chief Information Officer	806	842	1,076	908	970	1,239	1,406	1,247	1,501
Program 2.12: Defence People	286	269	305	351	427	438	488	481	386
Program 2.13: Science & Technology	403	418	450	434	426	440	503	447	486
Program x: Capability Development	365	482	258	-50	444	614	790		
Outcome 2	**19,906**	**20,959**	**22,047**	**21,480**	**23,063**	**25,718**	**27,945**	**30,019**	**31,108**
Total net cost (non-administered)	**20,970**	**22,041**	**23,124**	**22,426**	**23,711**	**26,278**	**28,704**	**30,831**	**32,141**

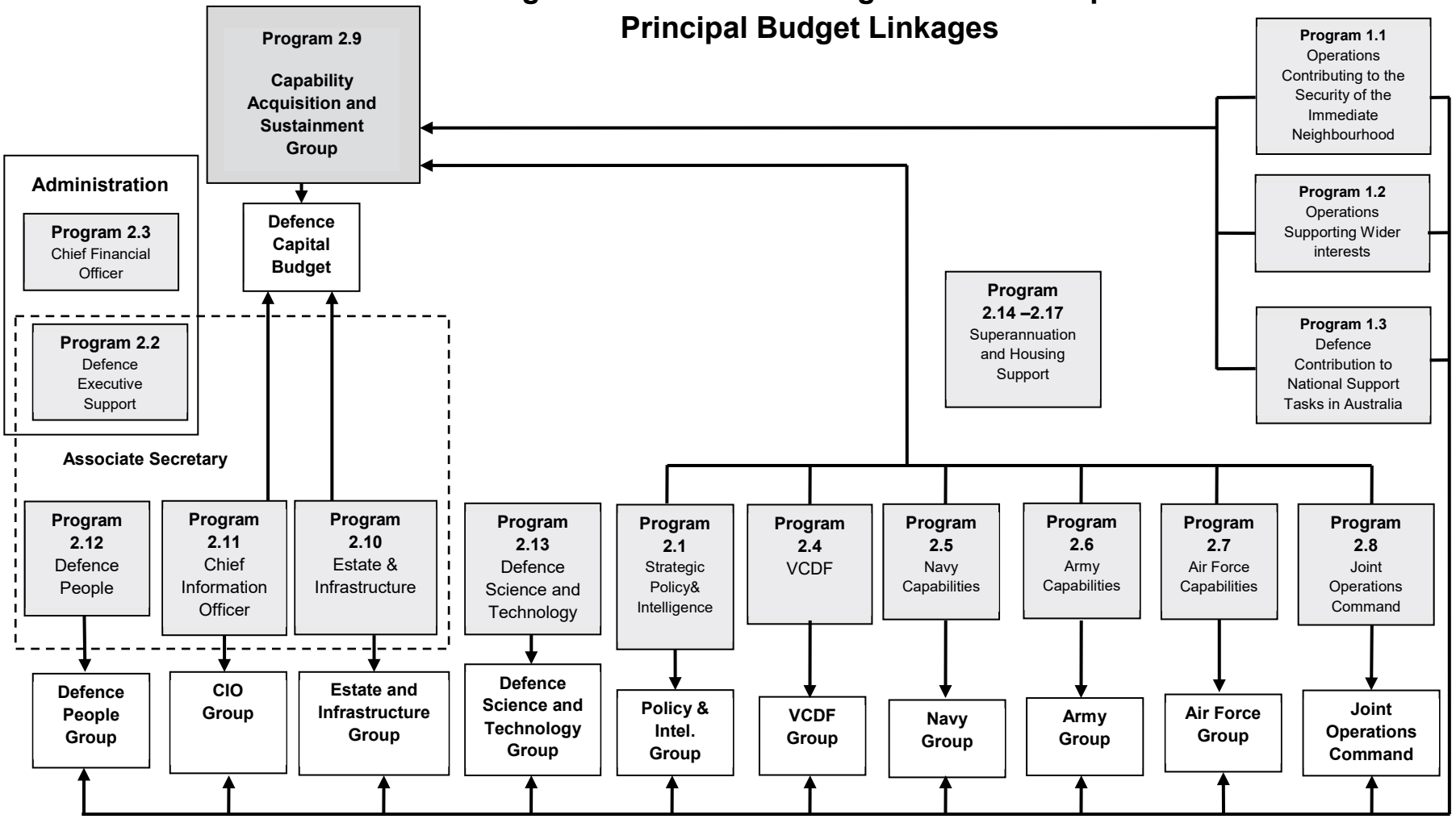
*Source: 2017-18 PBS and various DAR (Note: Programs were re-enumerated in the 2013-14, 2015-16, 2016-17 and 2017-18 PBS, we've done our best to retain consistency.) *Previously designated 'Strategy' until 2016-17.*

Note that, to capture the overall cost of delivering programs, non-cash expenses due to the depreciation of equipment are included in the net cost in Table 2.6.1. Also, funds appropriated for administered programs (which are not controlled by Defence) for home-loan assistance and military superannuation and retirement benefits have been omitted.

To the extent that operational supplementation does not have a large capital investment component, Outcome 1 represents the net additional cost of operations undertaken by the ADF.

As mentioned in Chapter 1, the present outcomes and programs are much more closely aligned with the actual organisation of Defence than were those employed from 1999-00 to 2007-08. Nonetheless, there are significant linkages between certain elements. We've tried to capture the situation in Figure 2.6.1. The essential points are as follows. The programs under Outcome 2 and 3 don't align with any single organisational entity. Instead, they capture the net additional expense of operations apportioned to those groups that support and deliver the operations, including CASG. At the same time, the CASG sustainment budget is reflected in the costs attributed to the various programs, principally Navy, Army and Air Force.

Figure 2.6.1: Defence Programs and Groups Principal Budget Linkages



Program Statements

For each of the programs, the PBS contains an entry detailing the objectives, deliverables, and key performance criteria and a cost summary. In many cases, the information reads like entries in a corporate plan. For example, Strategic Policy and Intelligence has the objective:

> *To deliver high-quality policy advice to Government, the Secretary and Chief of the Defence Force to protect and advance Australia's strategic interests.*

The same program lists four dot-points under the heading 'Delivery', including;

> *The Minister receives policy advice that is clear, accurate and timely to support effective decision-making*

Its dual performance criteria are:

- *Government has confidence in the relevance and quality of Defence advice.*
- *Defence intelligence outputs align with Government intelligence priorities.*

Little would be gained by repeating the very large number of equally sensible key performance indicators that appear in the PBS. Of more interest are the concrete performance measures and targets set out for the military capability outputs.

Capability Performance

There are three overarching key performance measures for the capability related programs; preparedness, core skills and quantity. These same performance measures have been employed in Defence Annual Reports and PBS in one way or another since 1999. We explore these three measures below. In doing so, it's important to remember that many capability programs have additional specific performance measures.

Preparedness refers to the readiness and sustainability of the ADF to undertake operations, be it national support tasks, peacekeeping or war. The process by which preparedness targets are set is worth recounting.

To begin with, the government's White Paper sets out the broad strategic tasks that the ADF needs to be prepared to undertake—for example 'contributing to the security of our immediate neighbourhood'. Using this as a basis, Defence develops what is called *Australia's Military Strategy,* which includes a series of *Military Response Options* for each strategic task which define the broad operational objectives without specifying how they are to be accomplished—for example 'maintain sea lines of communication to the north of Australia'. These Military Response Options then form the basis of the annual *Chief of the Defence Force's Preparedness Directive*. The result is a series of specific targets for each output. They are classified. But, as a purely illustrative example, the Army might be required to 'be prepared to deploy a battalion at 90 days' notice to assist in a regional peacekeeping operation and to maintain the deployment for 12 months'.

Core Skills: Preparedness targets are driven by Military Response Options with an anticipated warning time of less than 12 months. To take account of possible longer term tasks and the requirement to retain broad expertise in the three Services, an enduring performance target for the capability programs is to 'achieve a level of training that

maintains core skills and professional standards across all warfare areas'. The assessment of what's to be achieved, and whether it has been achieved, is ultimately based on the professional military judgement of the Service Chiefs.

Quantity: All the capability programs include one or more 'quantity' measures that try to capture some aspect of how much capability will be delivered. Each of the three Services uses a different type of measure.

Army: Except for Army Aviation, the quantity measure used by Army is the presence of adequate quantities of trained personnel and equipment within an Output. No quantified targets are released publicly.

Navy: The basic measure of quantity used by Navy relates to the availability of ships and their crew to undertake a mission. Unit Ready Days (URD) are the number of days that a force element is available for tasking by the Maritime Commander, within planned readiness requirements. Unit Availability Days (UAD) are the number of day when a unit is materially ready and its personnel state and level of competence enables the unit to immediately and safely perform tasks in the unit's normal operating environment.

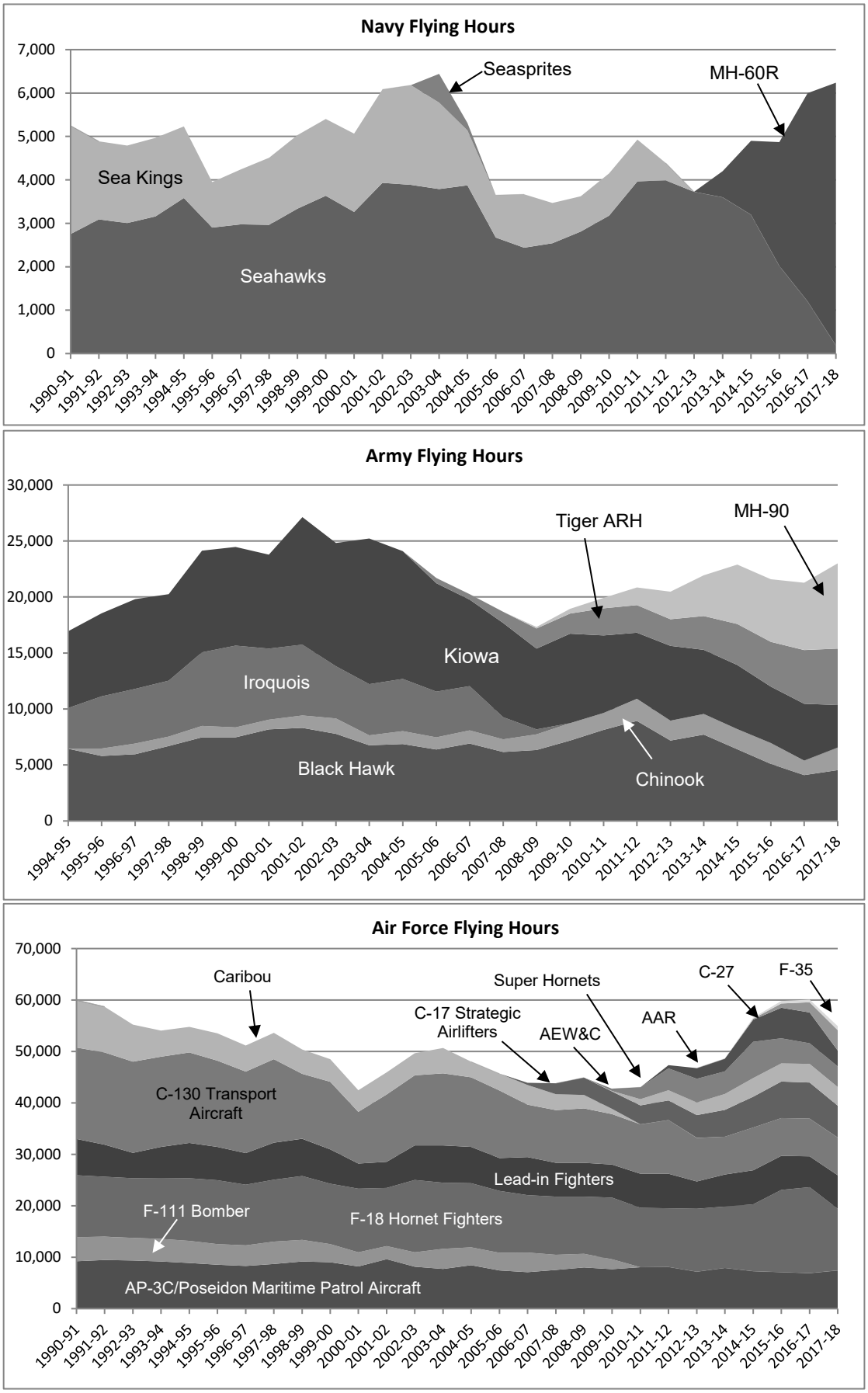
Air Force: The quantity measure used by Air Force and Naval and Army Aviation is the number of flying hours undertaken by the Program. These measures have been applied consistently for over a decade and constitute a useful diagnostic tool, given the established baseline. (It would be useful if Navy's steaming-days and Army's track-miles were disclosed as they were in the past). Short- and long-term trends in ADF flying hours can be found in Table 2.6.2 and Figure 2.6.2.

Table 2.6.2: Planned (budgeted) ADF flying hours 2016-17 and 2017-18

Platform	2016-17	2017-18	Change	Remarks
F/A-18 fighter	12,000	12,000	0	To be replaced at decade's end
F/A-18 Super Hornet	4,000	4,000	0	
C-130 transport	7,350	7,350	0	
AP-3C Orion	6,465	4,660	-1,805	To be replaced at decade's end
C-17 transport	6,200	6,200	0	
Hawk Lead-in fighter	7,000	6,500	0	
AEW&C	3,600	3,600	0	
Chinook helicopter	1,700	2,000	+300	Expanding fleet
Black Hawk helicopter	4,552	3,800	-752	Transitioning out of service
Kiowa helicopter	5,500	3,800	-1,700	Transitioning out of service
Armed recon helicopter	6,227	5,050	-1,177	
MH-60 Romeo	4,800	6,050	+1,250	Fleet entering service
MRH-90 helicopter	7,000	7,600	+600	Fleet entering service
S-70B-2 Seahawk helicopter	1,200	190	-1,010	Transitioning out of service

Source: 2016-17 and 2017-18 PBS

Figure 2.6.2: Long-term trends in ADF flying hours



Recent Performance

Table 2.6.3 summarises the non-quantitative key performance indicators from the 2015-16 Annual Report. Defence used to employ a four-point performance scale of 'not met', partially met', 'substantially met' and 'met'. However, consistent with the long-term decline in disclosure, a two-point scheme of 'achieved' and 'partially achieved' was introduced in 2015-16. The 'overall' assessment in Table 2.6.3 is the fraction of 'achieved' outcomes for across all performance indicators and deliverables.

Table 2.6.3: Output Performance/Deliverables from the 2015-16 Defence Annual Report

Output	Advice/ guidance	Preparedness	Core Skills	Overall
1.1 Strategy	achieved			4/4
1.2 Navy	partial	partial	achieved	2/5
1.3 Army	achieved	achieved	achieved	5/5
1.4 Air Force	achieved	achieved	achieved	5/5
1.5 Joint Operations	achieved			3/3
1.6 Intelligence				4/7
1.7 VCDF	achieved			13/14
1.8 Defence Executive Support				8/8
1.9 Defence Support and Reform	achieved			4/4
1.10 Chief Information Officer				4/5
1.11 Defence People	achieved			12/14
1.12 Science & Technology	achieved			6/6
1.13 Capability Development	achieved			4/4
1.14 Chief Finance Officer	achieved			3/3
2.1 Operations - neighbourhood				3/3
2.2 Operations - wider interests				3/3
3.1 National Tasks				3/3

Source: 2015-16 DAR

Table 2.6.4 shows the planned and actual key performance indicators for quantity (URD and flying hours) for the major platforms operated by the three services. Note that Navy drastically reduced the information it discloses in 2009-10.

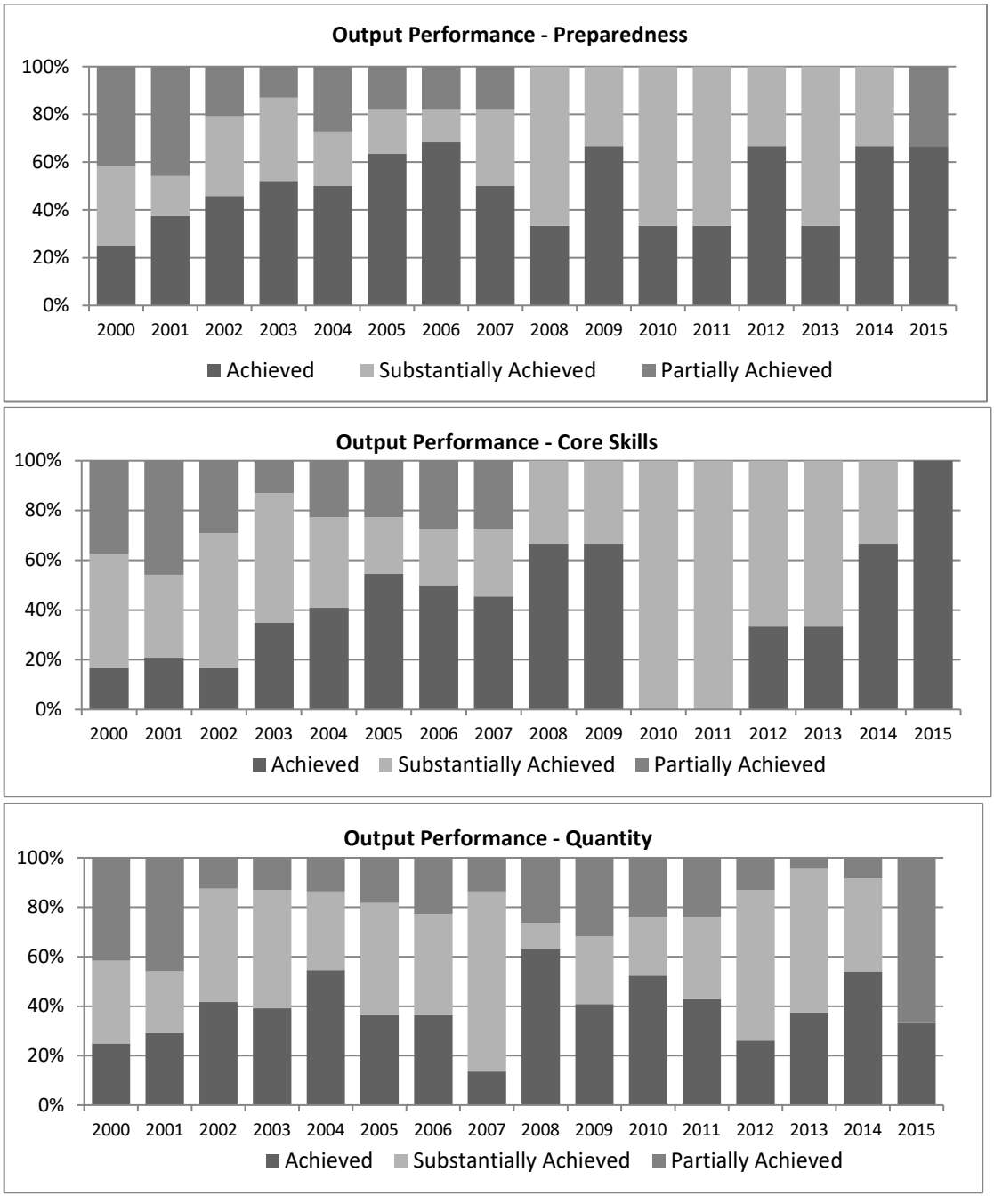
Table 2.6.4: Capability quantity planned (PBS) and delivered (Annual Report) 2015-16

Output	Planned	Reported	Percent	Notes
Navy fleets				
Frigates (FFG)	3,280 days	3,206 days	98%	
Frigates (FFH)				
Submarines				
Oil Tanker	821 days	859 days	105%	
Replenishment Ship				
Amphibious Ships				
Heavy Landing Ship				
Landing Craft Heavy				
Coastal Mine Hunters	4,186 days	4,054 days	97%	
Auxiliary Mine Sweepers				
Patrol Boats				
Hydrographic Ships	2,437 days	3,060 days	126%	
Survey Motor Launches				
Met Centre/Support				
S-70B-2 Seahawks	2,250 hours	2,021 hours	90%	unserviceability issues
MH-60R Seahawks-Romeo	3,400 hours	2,850 hours	84%	instructor shortfall
AS350BA Squirrels	1,500 hours	1,609 hours	107%	
LADS aircraft	980 hours	946 hours	97%	
Army fleets				
S-70A Black Hawk	4,240 hours	4,090 hours	108%	
CH-47D/F Chinook	1,700 hours	1,871 hours	110%	
Bell 206B-1Kiowa	6,000 hours	5,079 hours	85%	personnel shortfall
Armed Recon Helicopter	5,846 hours	3,995 hours	68%	reliability/availability etc.
MRH-90 Taipan	7,100 hours	5,575 hours	79%	reliability/design issues
Air Force fleets				
F/A-18 Hornets	12,000 hours	15,986 hours	133%	operations
F/A-18 Super Hornet	5,200 hours	4,866 hours	94%	
F-35 Lightning II	500 hours	468 hours	94%	
Hawk 127 Lead-in fighter	7,000 hours	6,627 hours	95%	
KC-30A (refuelling)	3,100 hours	5,924 hours	191%	operations
C-130 transports	7,350 hours	7,300 hours	99%	
E-7A Wedgetail AEW&C	3,600 hours	3,532 hours	98%	
C-27J Spartan	2,500 hours	853 hours	34%	undisclosed
C-17 Transports	6,200 hours	7,142 hours	115%	
AP-3C Maritime Patrol	6,770 hours	7,110 hours	105%	
B737 BJ VIP Transport	1,600 hours	1,445 hours	90%	
PC-9 aircraft	16,352 hours	15,581 hours	95%	
B300 King Air 350	10,700 hours	9,370 hours	88%	

Source: 2015-16 PBS and Annual Report

Figures 2.6.3 plots the delivery of Defence capability programs (previously outputs) as reported in the Defence annual reports between 2000-01 and 2014-15. Some care needs to be exercised in comparing the results from 2008-09 onwards with that from earlier years due to the substantial reduction in detail that arose in that year. The move from twenty-two capability sub-programs to a mere three (one for each Service) inevitably results in a reporting regime constrained to a smaller number of possible outcomes for preparedness and core skills. Also, from 2015-16 onwards, the three-category ranking was abandoned in favour of a two-tier system of 'partially achieved' and 'achieved'.

Figure 2.6.3: Output performance



Source: 2000-01 to 2015-16 DAR

Program Summaries

To augment the information provided in the PBS, we've prepared short program summaries containing background and historical performance information. In doing so, we've sought to complement, rather than reproduce, the material in the PBS. Given the acute paucity of information provided in the PBS on what is to be delivered at the sub-program level, only a limited picture is possible. Information has been drawn from a variety of sources, including the Defence website.

Because the program structure more or less aligns with the actual organisational structure of Defence, we've sketched out the key elements in each of the programs. However, because of the interim state of Defence's programs and organisational structure, there's not been time to update the organisational diagrams this year. Indeed, in many instances the structure is pending the implementation plan for the recommendations of the First Principles Review. Thus, we've largely retained the presentation from last year, pending the finalisation of the new structure.

For those not familiar with the senior military and civilian levels, Table 2.6.5 details the correspondence of executive levels across the three services and civilian Senior Executive Service (SES).

Table 2.6.5: Executive comparison

Civilian	Navy	Army	Air Force	Star Rank
Assistant Secretary (SES-1)	Commodore	Brigadier	Air Commodore	*
First Assistant Secretary (SES-2)	Rear Admiral	Major General	Air Vice-Marshal	**
Deputy Secretary (SES-3)	Vice Admiral	Lt General	Air Marshal	***
Secretary	Admiral	General	Chief Air Marshal	****

Program 1.1 – Ops in the immediate neighbourhood

Department outputs 2017-18: $0.8 million

- Op *Gateway*: Indian Ocean and South China Sea maritime patrols (since 1981)
- Op *Solania*: Conduct South West Pacific maritime surveillance patrols (since 1988)
- Op *Render Safe*: Provide enduring explosive ordnance disposal support to the nations of the South West Pacific. (since 2011)

Program 1.2 – Ops supporting wider interests

Department outputs 2017-18: $920 million

- Op *Paladin*: Contribute to the UN Truce Supervisory Mission in the Middle East (since 1956)
- Op *Mazurka*: Contribute to Multinational Force and Observers in the Sinai (since 1982)
- Op *Aslan*: Contribute to the United Nations mission to the South Sudan (since 2011)
- Op *Manitou*: Contribute to international maritime security operations in the Middle East Area of Operations (since 2014)
- Op *Accordion*: Provide support to Operations SLIPPER and MANITOU from within the Gulf States (since 2014)
- Op *Okra*: Operations in support of coalition response to the Iraq crisis (since 2014)
- Op *Highroad*: Ongoing contribution to the NATO-led mission in Afghanistan (since 2015).

Program 1.3 – National support tasks

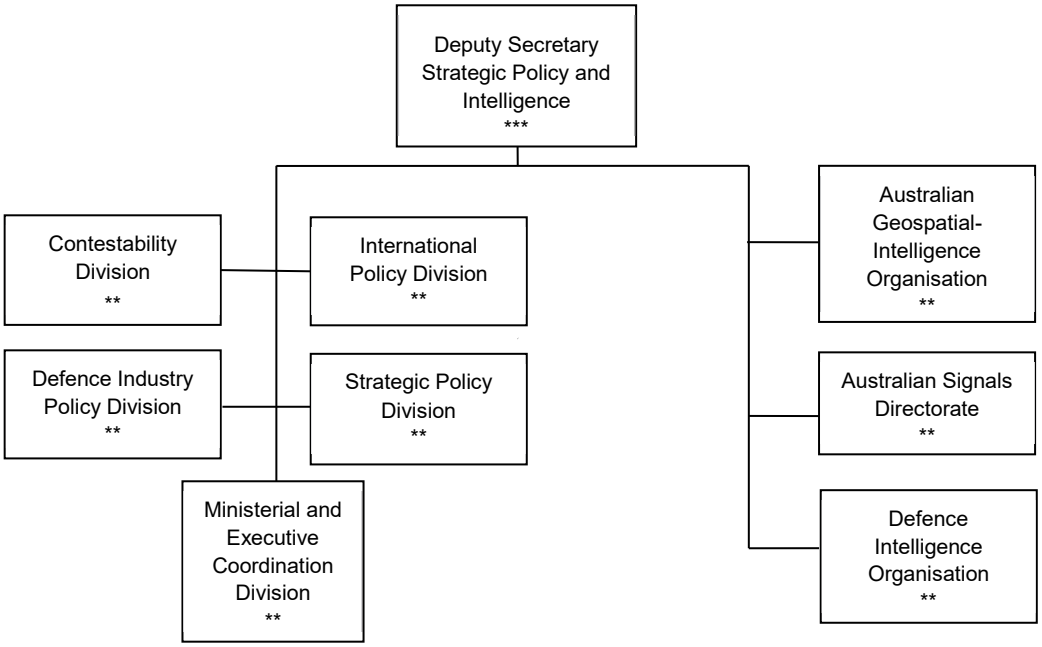
Department outputs 2017-18: $90 million

- Op *Resolute*: Contribute to whole-of-government maritime enforcement effort (since 2006)
- Op *Southern Discovery*: Provide ADF support to the Australian Antarctic Division.
- DACC – Contribute to Commonwealth and State/Territory Governments with emergency and non-emergency tasks as required. On a case-by-case basis, support events of national significance as requested by relevant authorities.

Defence's contribution to national support tasks ranges from the ongoing routine allocation of Patrol Boat and AP-3C Maritime Patrol Aircraft time, to the allocation of specific capabilities at short notice in a national support emergency. National support tasks include security, ceremonial, civil maritime surveillance, search and rescue, bush fire response and support to the Army / ATSIC community assistance program.

Program 2.1 – Strategic Policy and Intelligence

Department outputs 2017-18: $1,031 million



Deputy Secretary Strategy manages five divisions and is responsible for a further three intelligence organisations (see below).

International Policy Division provides policy advice on international issues (including current and prospective operations) and manages Defence's day-to-day international relationships. Responsibilities include the oversight of Defence's overseas representatives in 33 countries around the world (mostly within Australian diplomatic missions), with cross-accreditations to a further 31 countries.

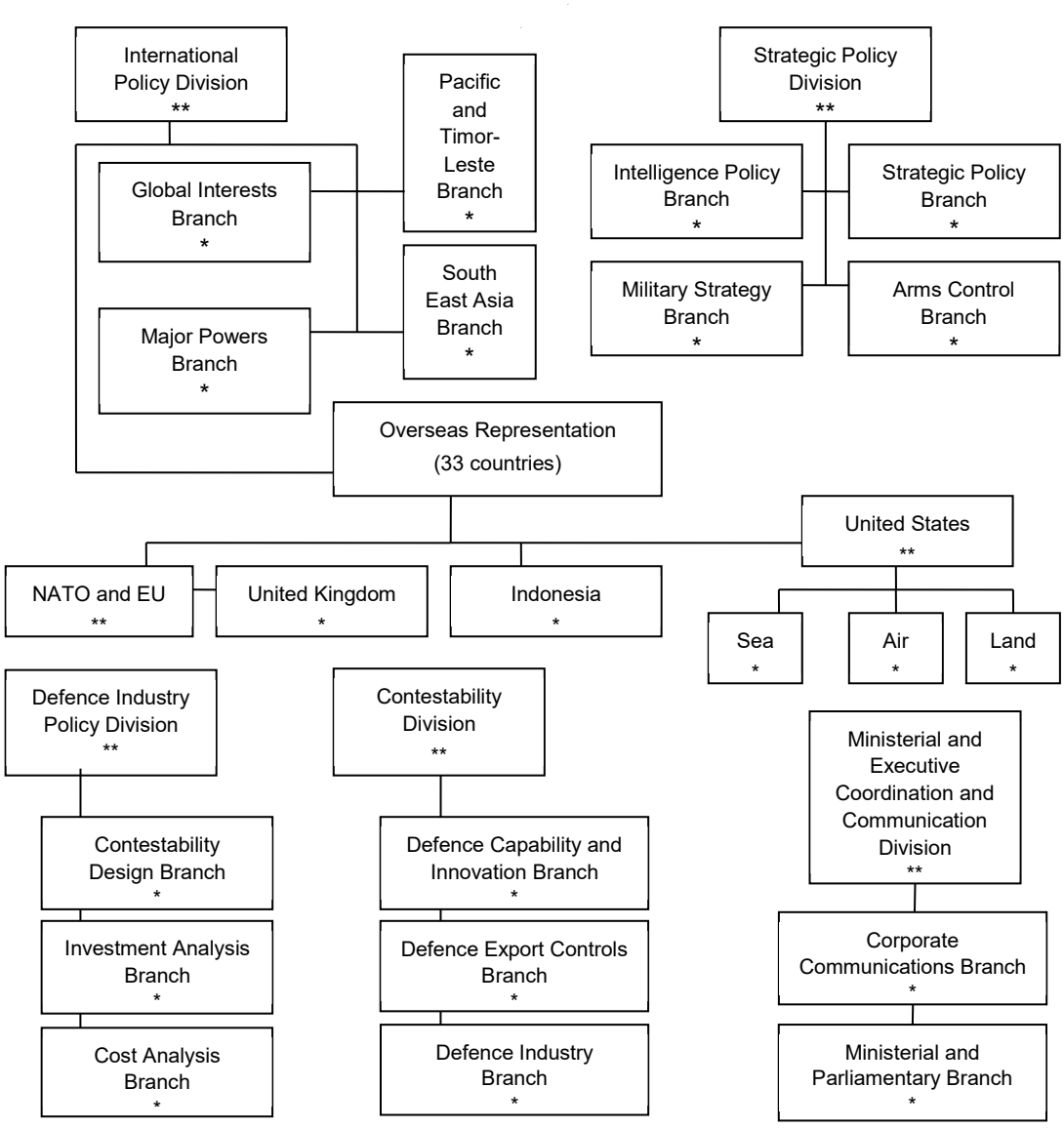
Strategic Policy Division provides strategic policy guidance to support Government decision-making. This guidance supports decisions in relation to Defence International Relationships and Defence's strategic policy, posture and capability development. The Division also manages Australia's arms and export controls. Responsibilities include improved collaboration between intelligence and policy functions across the Department; policy, regulation and compliance for various international conventions and agreements; and managing access by non-Defence-users to the Woomera Prohibited Area.

Ministerial and Executive Coordination and Communication Division supports the Defence organisation and its Ministers, other government agencies, Parliament and the community. MECC is comprised of two branches; Corporate Communication and Ministerial and Parliamentary. The Corporate Communication Branch focuses on day-to-day media operations across Defence; engagement with the media, providing media and public affairs support to ministers, senior Defence leaders and Defence Services and Groups; corporate events; collation and distribution of Defence imagery and video; and producing the Navy, Army and Air Force newspapers and the Defence Magazine. The Ministerial and Parliamentary Branch coordinates and delivers accurate ministerial and parliamentary advice

and products, including: Senate Estimates briefs, responses to Questions on Notice and parliamentary reports, Cabinet submissions, and other parliamentary products, for the Minister, Minister for Defence Materiel, Assistant Minister, Secretary and Chief of the Defence Force and areas within Defence.

Defence Industry Policy Division was established on 14 December 2015. The division was created to inform and improve Defence's approach to industry engagement and innovation. It's responsible for facilitating the implementation of the Government's Defence industry policy, the creation of a strategy-led program of industry engagement and innovation, and managing Defence export controls.

Contestability Division is staffed by civilian and military personnel and provides independent analysis and contestability of capability proposals within the Integrated Investment Program as its core function. The Division is currently divided into three core branches; Contestability Design, Investment Analysis and Cost Analysis.



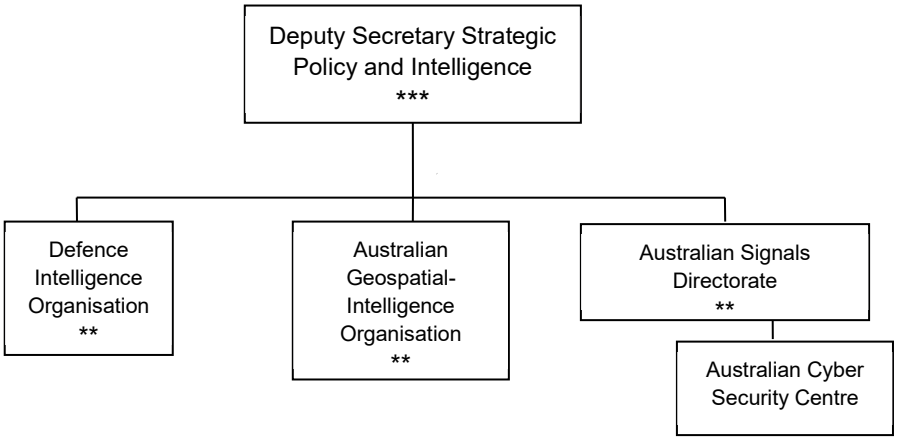
The Strategic Policy and Intelligence Group includes the Defence Intelligence Organisation (DIO), the Australian Geospatial-Intelligence Organisation (AGO) and the Australian Signals Directorate (ASD). The SP&I Group is responsible for the management and administration of the intelligence agencies, which are also part of the Australian Intelligence Community (AIC). The AIC has wider government reporting and oversight mechanisms. The Defence-based agencies (along with the non-Defence agencies ASIS, ASIO and ONA) contribute to the AIC's collection and assessment of intelligence in support of Australia's strategic and national interests, including support to ADF operations.

The Australian Signal Directorate (ASD) provides foreign signals intelligence, to the Australian Government to support military and strategic decision-making.

ASD also provides information security advice and services, predominantly to Commonwealth and state government agencies, as well as working closely with industry to develop and deploy secure cryptographic products. The Australian Cyber Security Centre is a whole-of-government organisation that ASD supports.

Australian Geospatial-Intelligence Organisation (AGO) includes an HQ at Russell Offices in Canberra and the Geospatial Analysis Centre in Bendigo. AGO obtains and produces geospatial intelligence about the capabilities, intentions or activities of people or organisations outside Australia. It supports ADF operations, targeting and training, as well as Commonwealth and state authorities in carrying out national security functions. AGO also sets technical standards for imagery and geospatial products, and provides Commonwealth and state authorities, and other bodies approved by the Minister, with non-intelligence products, technical assistance and support to carry out their emergency response functions.

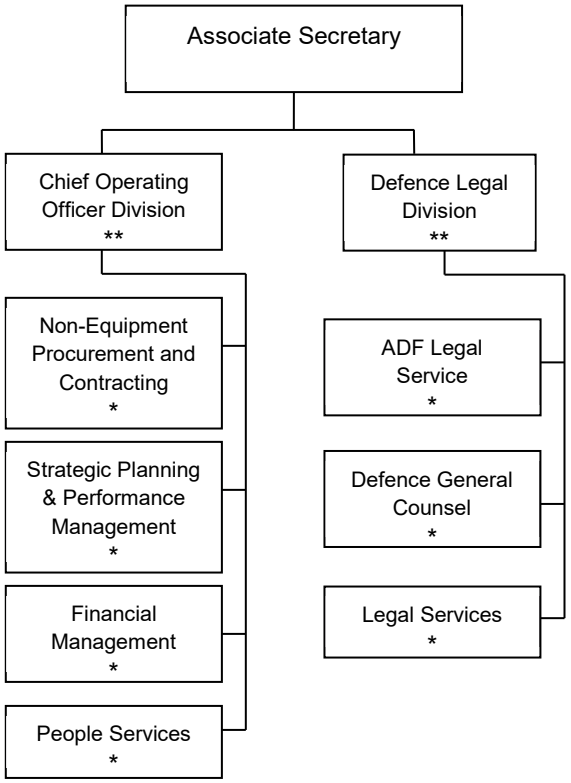
Defence Intelligence Organisation (DIO) at Russell Offices in Canberra provides all-source intelligence assessments focusing on global and regional security trends, foreign military capabilities, transnational terrorism, defence economics, and science and technologies with military applications. DIO produces assessments and advice on current and emerging threats to Australia's security and strategic environment in support of Defence and whole-of-government decision-making—including the planning and conduct of ADF operations.



Program 2.2 – Defence Executive Support

Department outputs 2017-18: $213 million

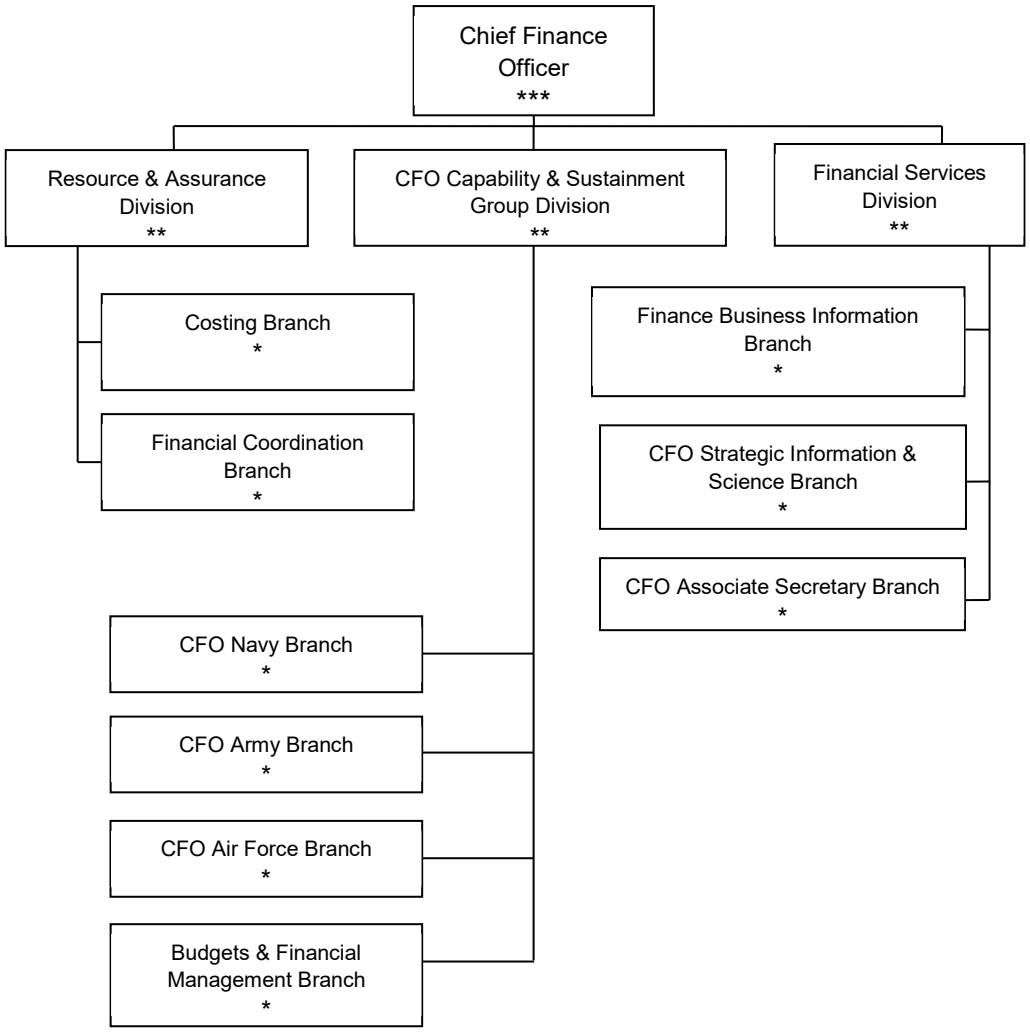
As best we can infer, the Defence Executive Support Group includes two divisions under the Chief Operating Officer; Defence Legal Division and the Chief Operating Officer Division.



Program 2.3 – Chief Finance Officer

Department outputs 2017-18: $244 million

The Chief Finance Officer Group is responsible for Defence's financial planning, budgeting and reporting.



Program 2.4 – Vice Chief of the Defence Force

Department outputs 2017-18: $1,434 million

The Vice Chief of the Defence Force (VCDF) is the Chief of the Defence Force's deputy and is responsible for joint force integration, interoperability and designing the future force. In addition, the VCDF is responsible for preparedness settings, military strategy and is the integrator for all military enabling services. VCDF Group consists of the following:

Joint Enablers Division As an outcome of the FPR, the position of Head Joint Enablers was established to simplify the operational structure reporting to VCDF. Joint Enablers comprises the following Commands and Divisions:

> **Joint Logistics Command** provides logistics support to the Australian Defence Force including management of warehouses, maintenance, and distribution facilities.
>
> **Joint Health Command** is responsible for the delivery of all garrison health care to the ADF and exercises technical control through the Surgeon General Australian Defence Force.
>
> **Australian Defence College** was established to develop the skills and knowledge of Defence's future leaders with an emphasis on joint professional military education and the delivery of joint training programs. Learning is offered through several learning centres providing an education continuum from the Australian Defence Force Academy, to the Australian Command and Staff College and the Centre for Defence and Strategic Studies.
>
> **Cadet, Reserve and Employer Support Division** works to enhance the capacity of Reserves to support ADF capability and provides a governance and accountability framework for the ADF Cadet Scheme.
>
> **Australian Civil-Military Centre** is a whole-of-government initiative to improve Australia's effectiveness in civil-military collaboration for conflict and disaster management overseas.

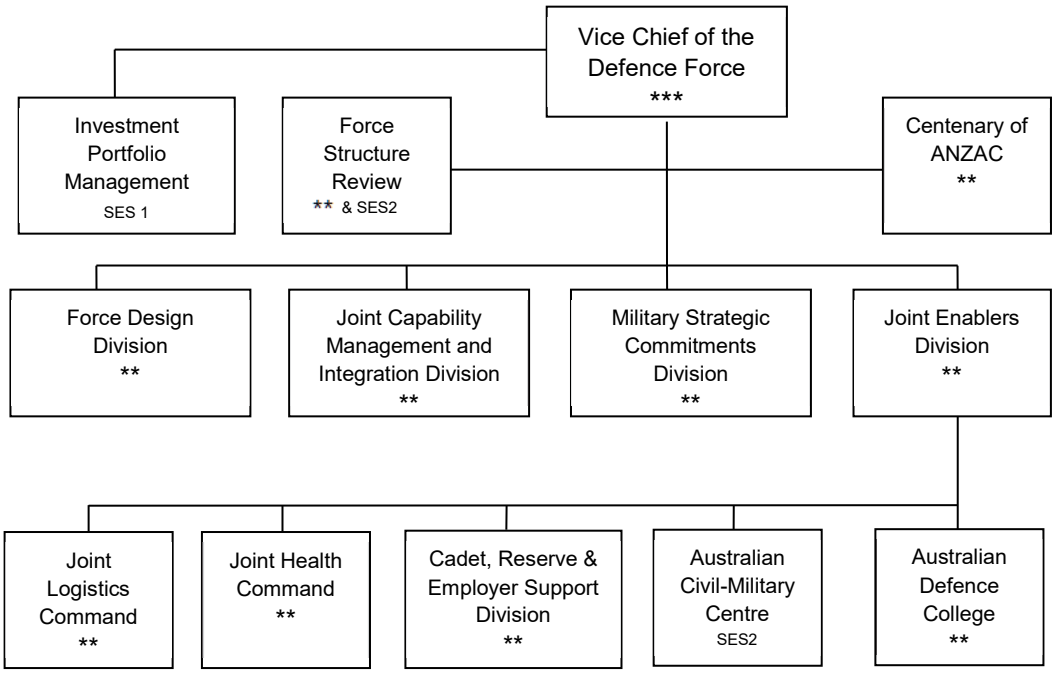
Military Strategic Commitments Division provides strategic level advice and support in the planning and execution of the ADF's current operations and future commitments, in order to enable the government to continuously review its national strategic interests. These responsibilities encompass the strategic coordination of current and future ADF commitments, development and synchronization of strategic communication, and the development and review of the nature of service for ADF commitments.

Force Design Division is a new Division formed as an outcome of the FPR which consolidates elements such as joint concepts, lessons, preparedness and doctrine, along with providing a centralised forum for concept and force structure analysis, and force options testing through experimentation, simulation and modeling. It retains VCDF Group responsibilities for Defence preparedness and reporting.

Joint Capability Management and Integration Division formed out of the Joint Capability Coordination Division as an outcome of the FPR, and executes the Joint Capability Management, C4ISR (command, control, communications and computers, intelligence,

surveillance, reconnaissance) Design Authority, Joint Test and Evaluation, and Integration and Interoperability assurance roles on behalf of VCDF. Existing functions including Counter Improvised Explosive Device Task Force, Special Programs Coordination, Category 1 Training Range Authority, and Joint and Allied Integration and Interoperability lead.

Investment Portfolio Management Branch is a new Branch formed as an outcome of the FPR which works closely with Force Design Division, but reports directly to VCDF. The Branch has key roles in maintaining the integrity of the Integrated Investment Program, supporting Investment Committee Capability Life Cycle work flows and Investment Committee decision-making on prioritisation of investment.



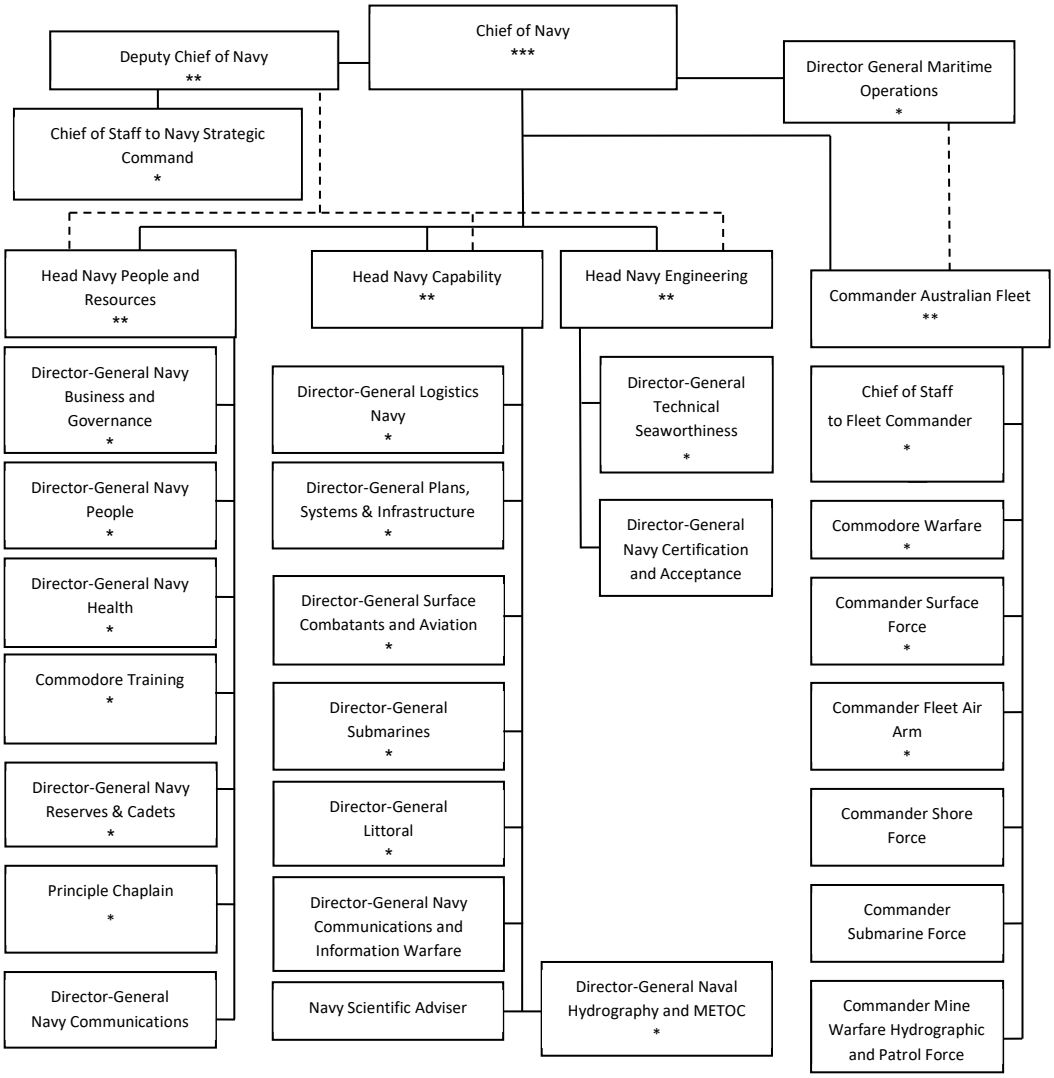
Program 2.5 – Navy Capabilities

Department outputs 2017-18: $6,414 million

The Navy's organisational structure comprises Navy Strategic Command and the subordinate Fleet Command. Strategic Command is responsible for capability development and management, plans, personnel, training, administration and technical regulation, while Fleet Command is responsible for the day-to-day operation of the fleet and the provision of competent forces to support joint operations.

Structure and performance

The structure and performance of the Navy is set out below and overleaf. Because of the reduction in disclosure, it has not been possible to provide as much detail as in the past.



Major combatants

Surface combatants

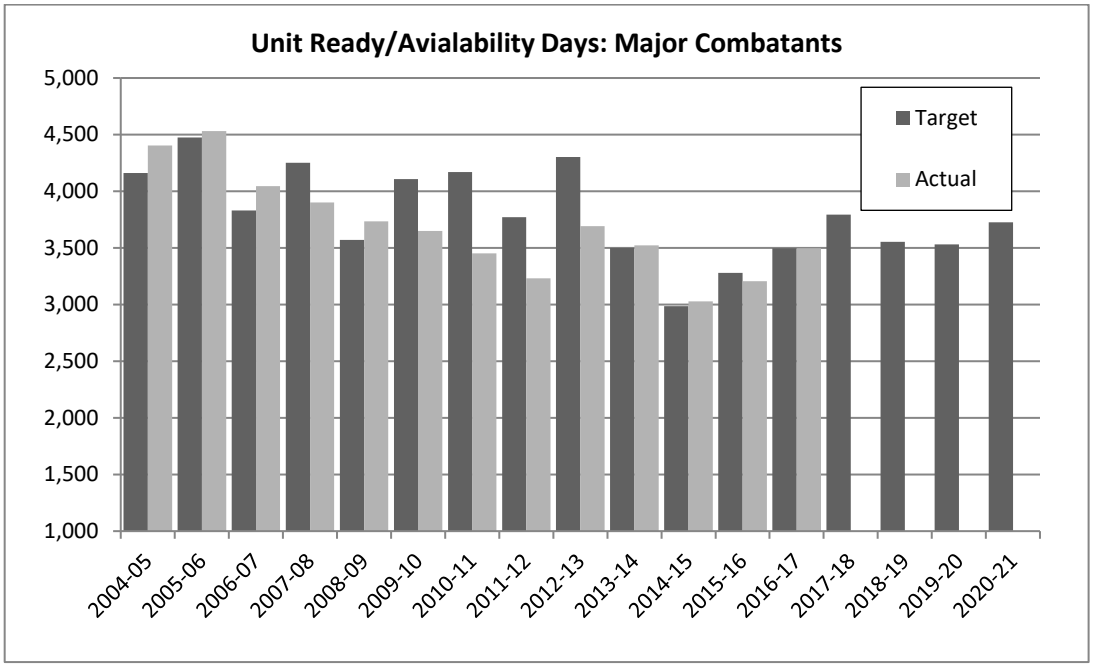
The Navy has three 1980s Adelaide class (US Oliver Hazard Perry class) Guided missile frigates (FFG) plus eight newer German-designed and Australian-built Anzac class frigates (FFH). Both classes carry Harpoon anti-shipping missiles, anti-submarine torpedoes and Evolved Sea Sparrow surface-to-air missiles. Only the FFGs are equipped with the more capable Standard SM-2 surface-to-air missile. Both classes of vessel can embark a Seahawk anti-submarine warfare helicopter.

The FFH are progressively being fitted with a range of new systems including an anti-ship missile defence (ASMD) suite. In addition, three new Air Warfare Destroyers (AWD) are presently under construction and the first vessel has successfully completed initial sea trials. No targets for the soon to arrive AWD are provided in the PBS. The FFG were extended in service to avoid a capability gap due to delays in the AWD program.

Submarines

The RAN has six Collins Class submarines. Their primary roles are to attack enemy shipping and to counter the threat of adversary submarines. In addition, they can collect intelligence and insert and extract Special Forces.

The delay in the introduction of the Collins class into service as the Oberon class left service disrupted both submariner training and the retention of skilled personnel. The resulting shortage of submariners reduced the delivery of capability. Longer than expected maintenance periods coupled with mechanical problems further compromised the availability of boats. Following the Coles review of Collins sustainment, steps have been taken to improve vessel availability with encouraging and sustained success (see Chapter 7). Moreover, Navy has been growing the numbers of trained submariners, though in recent years it became necessary to increase retention incentives for submariners.



Minor combatants

Patrol boats

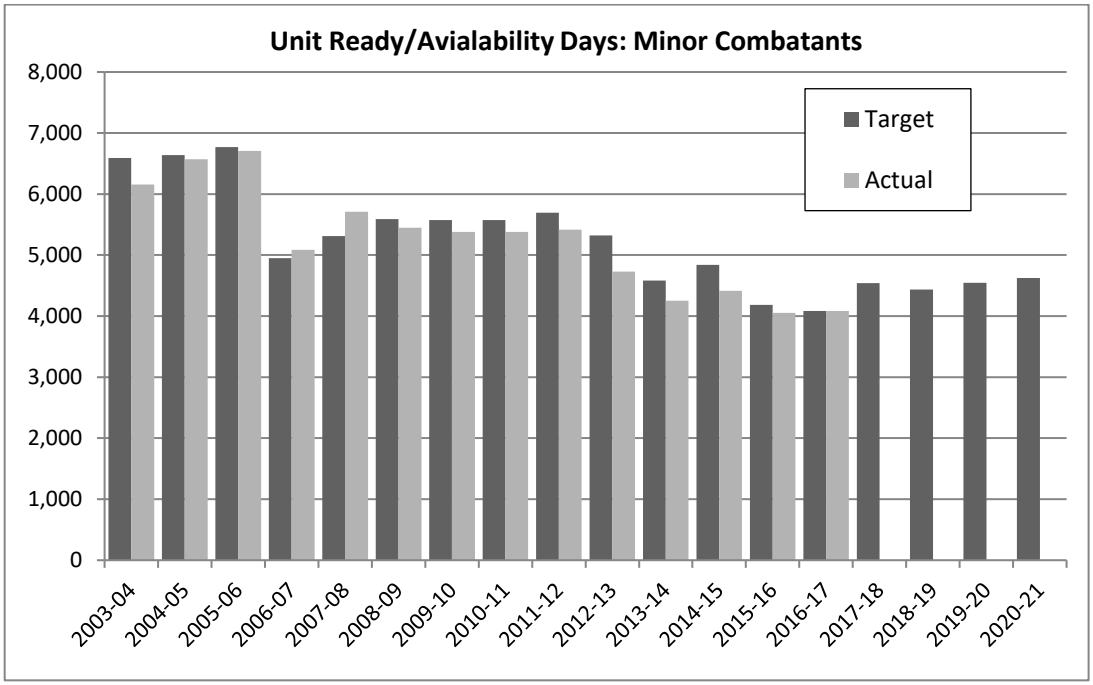
The Navy has thirteen Armidale Class Patrol Boats (ACPB). There were originally fourteen, but one vessel was decommissioned in December 2014. Since mid-2015, Navy has also operated two Cape Class Patrol Boats (CCPB). These vessels are mainly tasked in support of the civil surveillance program through Border Protection Command. They can also be used for the insertion and extraction of army patrols on the coast, including Special Forces.

Through an innovative program, the Navy initially multi-crewed the Armidale class vessels, to reduce the burden on sailors and their families while maintaining a high utilisation of the assets. Under the original scheme, there were 21 crews spread across 14 vessels. In recent times maintenance issues have challenged the fleet. ACPB returned to a single crewing model in August 2015 and the CCPB are operated with a double crewing model (two crews per boat). The remaining ACPB crews were utilised to develop a patrol boat support squadron.

Mine warfare vessels

The Navy has 6 Huon Class Mine Hunter Coastal (MHC) ships. These 720 tonnes displacement vessels have glass-reinforced plastic hulled, and were Italian-designed and built in Australia in the late 1990's. The MHC employ sonar to search for mines, which can then be destroyed using a remote-controlled mine disposal vehicle or by other means. There are also two Clearance Diving Teams, one on each coast, at Sydney and Perth, capable of clearing mines and other ordinance, clandestine survey and obstacle clearance, and battle damage repairs.

Training was interrupted using two of the Huon class vessels for border patrol duties up until 2015. Since 2009 two of the Huon class have been placed in extended readiness. It's been estimated that it would take five years to get the full fleet operational again.



Amphibious and afloat support

Amphibious lift

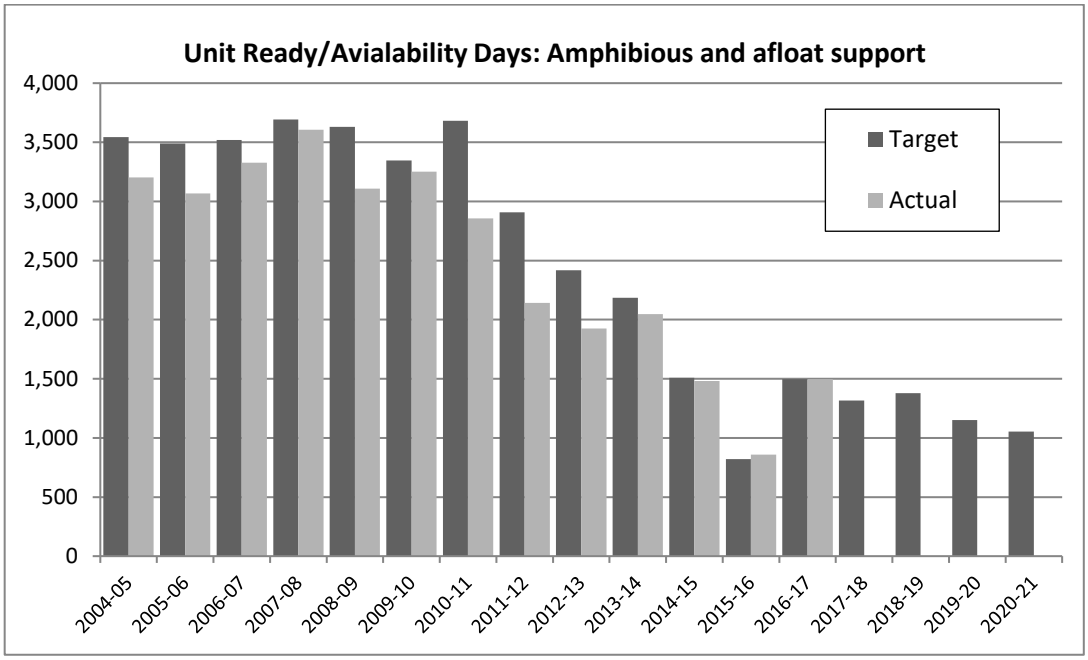
Until 2012, the fleet included two Kanimbla Class Landing Platforms Amphibious (LPA), HMAS *Manoora* and HMAS *Kanimbla,* refurbished in the mid-to-late 1990s from two second-hand 1970s US Newport Class Landing Ship Tank vessels, and one Heavy Landing Ship (HLS), HMAS *Tobruk*, a 1980s UK-designed and Australian-built vessel. In February 2011, the amphibious fleet suffered a critical and unexpected failure of availability and HMAS *Manoora* and HMAS *Kanimbla* were subsequently decommissioned. Amphibious heavy lift was maintained by acquiring a second-hand Landing Ship Dock (LSD) from the United Kingdom, HMAS *Choules*. *Tobruk* was withdrawn from service in June 2015.

Two new large amphibious (Landing Helicopter Dock)—HMAS *Canberra* and HMAS *Adelaide*—are now in commission. These 27,000 tonnes vessels carry 1,000 troops plus helicopters and vehicles. As at April 2015, both vessels were alongside with propulsion problems. The nature and extent of the problem have not been disclosed.

Afloat support

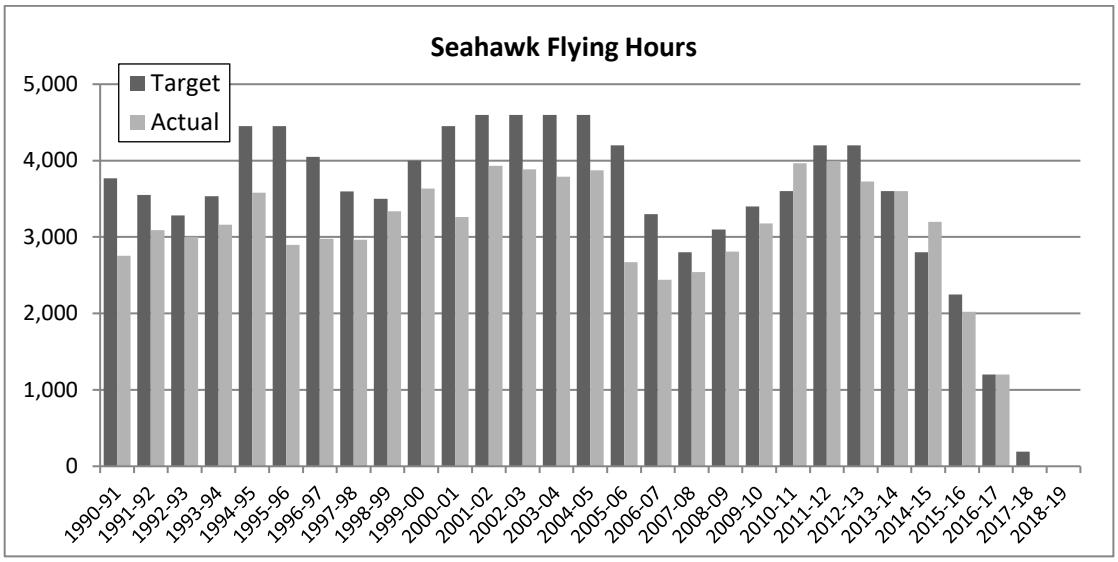
The afloat support force refuels and re-supplies Navy vessels and embarked helicopters at sea and provides logistics support to land operations. The fleet comprises two vessels: HMAS *Sirius* is a South Korean-built 46,017 tonne full displacement commercial vessel which was refitted to Navy specifications as an Auxiliary Tanker (AO) and HMAS *Success* is a 1980s French-designed, Australian-built 17,900 tonnes full displacement Auxiliary Replenishment Tanker (AOR).

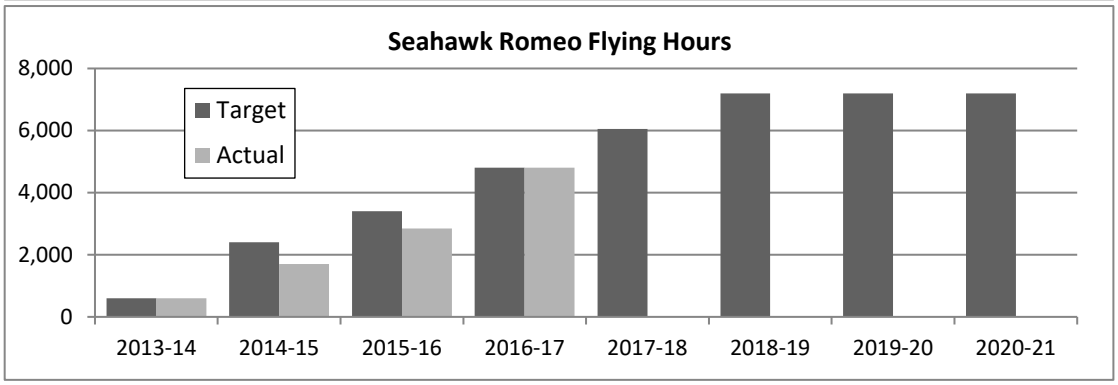
Although HMAS *Sirius* has been touted as an example of how commercial-off-the-shelf equipment can meet ADF requirements quickly and at reduced cost, the ship does not have the full range of capabilities and operational flexibility of a purpose-built ship. Two new replenishment vessels have been ordered from Navantia in Spain.



Naval aviation

The RAN continues to operate 1980s US-designed S-70B-2 Seahawk helicopters from its FFH and FFG frigates. They are configured for anti-submarine and surface search/targeting. However, twenty-four new Seahawk MH-60R aircraft are in the process of entering service to replace both the B-model Seahawk and the capability sought from the cancelled Super-Seasprite program. Six MRH-90 aircraft (reported under Army outputs) have replaced the retired UK-built Sea King helicopters as fleet utility aircraft. Three Bell 429 and an unspecified number of Squirrel light helicopters are used for training.





Hydrographic, meteorological & oceanographic fleet

The Navy produces maritime military geospatial information for the ADF and undertakes hydrographic surveying and charting for civil use. The hydrographic component is supported by the Australian Hydrographic Office (AHO) in Wollongong, NSW, and comprises two Deployable Geospatial Support Teams (DGST). As recommended to Defence under the First Principles Review, the AHO is in the process of consolidation within the Australian Geospatial Intelligence Organisation. The fleet includes:

2 Leeuwin Class Hydrographic Ships (AGS): 2,250 tonne Australian-built hydrographic ships.

4 Paluma Class Survey Motor Launches (SGSC)*:* 320 tonne Australian-built survey launches.

1 Laser Airborne Depth Sounder (LADS) aircraft: an airborne depth sounder capability used in shallow water.

Program 2.6 – Army Capabilities

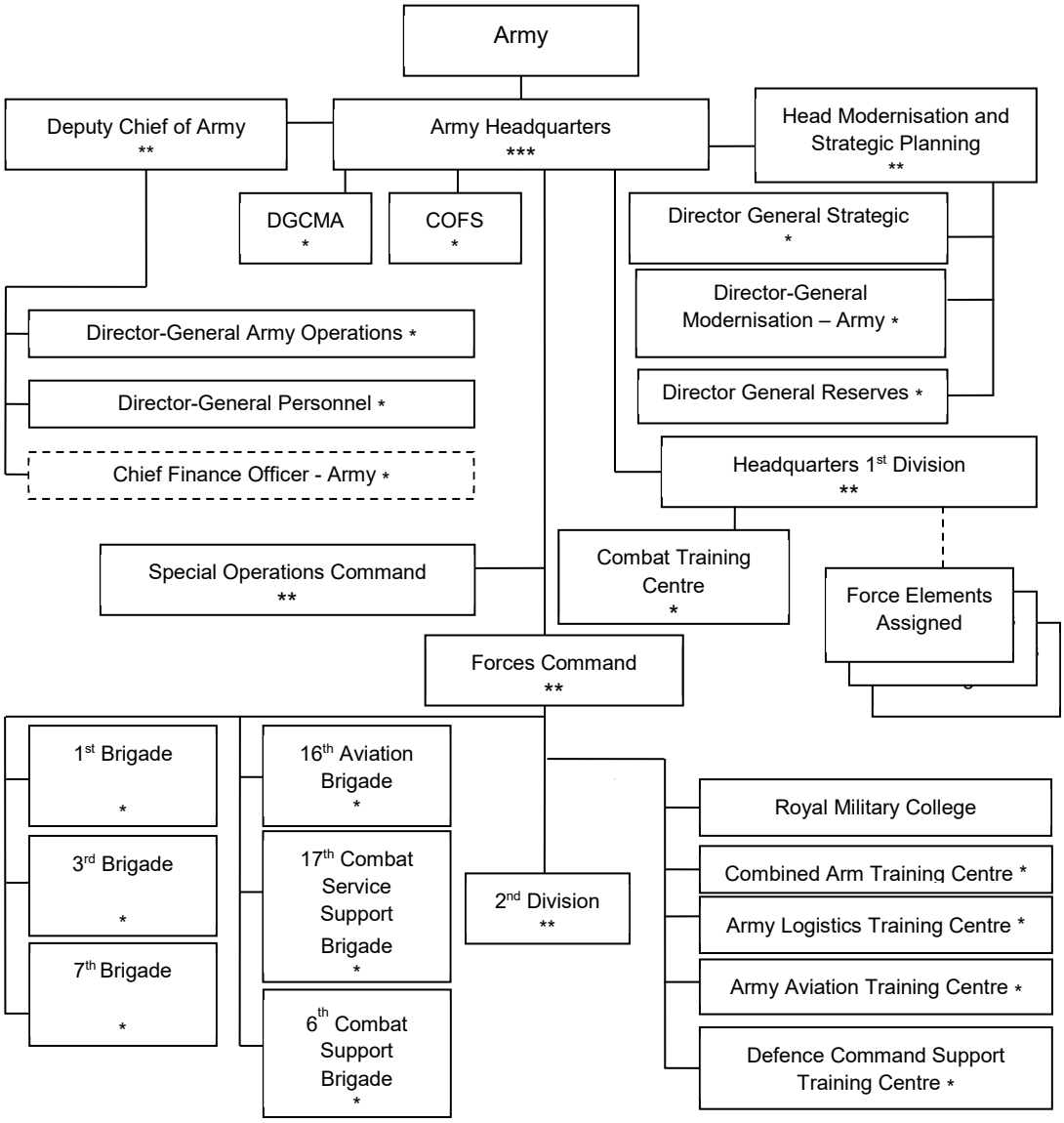
Department outputs 2017-18: $7,326 million

The Army is structured around three functional commands. The three functional commands and their roles are as follows:

Special Operations Command is responsible to force generate and command Army's Special Operations Forces.

Forces Command is responsible for the force generation of Army individual and collective conventional capabilities based on Foundation Warfighting skills.

1st Division focuses on the force preparation of conventional Army force elements for specified operations and contingencies. It also forms the basis of the Deployable Joint Force Headquarters, capable of providing Command and Control to Australian and coalition forces at short notice.



Headquarters 1st Division

Headquarters 1st Division is based in Brisbane, and prepares and certifies Army conventional force elements, as assigned by Chief of Army, to meet the specific operational and contingency requirements directed by Chief Joint Operations.

Headquarters 1st Division prepares and certifies forces for operations and commands several supporting specialist units. These are the 1st Signals Regiment (Brisbane), the Combat Training Centre (Townsville), the 39th Operational Support Battalion (Randwick, Sydney) and the 2nd/30th Training Group (Butterworth, Malaysia).

Special Operations Command

The Special Air Services Regiment (SASR) in Western Australia provides special recovery (including domestic and overseas counter-terrorism by the west coast Tactical Assault Group (TAG)), long-range reconnaissance and offensive operations. The 2nd Commando Regiment (2 Cdo Regt) in Sydney (including east coast TAG) and the 1st Commando Regiment (a reserve unit split between Sydney and Melbourne) are the Army's two commando regiments. Commando roles include special recovery and land, sea- and air-borne offensive raids. There is also a Special Operations Engineer Regiment based in Sydney, a Special Forces Logistics Squadron in Sydney, a Special Forces Training Centre in Sydney and Parachute Training School in Nowra.

Forces Command

1st, 3rd and 7th Brigades Forces Command includes three combat brigades. Each Brigade contains two Infantry Battalions of the Royal Australian Regiment (RAR) and an armoured cavalry regiment equipped with M113AS4 armoured personnel carriers and Australian modified ASLAV light armoured vehicles. Two of the three armoured cavalry regiments also include the reconditioned US-made M1A1 Abrams tank. Each Brigade also contains an Artillery Regiment equipped with towed M777 155mm Lightweight Towed Howitzers. In addition, each Brigade includes command and control, combat support and combat service support elements based in a Brigade Headquarters, Signals Regiment, Combat Engineer Regiment and Combat Service Support Battalion.

1st Brigade The 1st Brigade is headquartered in Darwin and has units located in both Darwin and Adelaide. The 1st Armoured Regiment is the Brigade's armoured cavalry regiment. The 5th Battalion, The Royal Australian Regiment is based in Darwin while the 7th Battalion, The Royal Australian Regiment is based in Adelaide.

3rd Brigade The 3rd Brigade is headquartered in Townsville. The 2nd Cavalry Regiment is the Brigade's armoured cavalry regiment. In addition to its two standard infantry battalions (1st and 3rd Battalions, The Royal Australian Regiment), 3rd Brigade also commands the 2nd Battalion, which is Army's dedicated unit supporting the ADF amphibious capability development.

7th Brigade The 7th Brigade is headquartered in Brisbane. The 2nd/14th Light Horse Regiment (Queensland Mounted Infantry) is the Brigade's armoured cavalry regiment. Its two standard infantry battalions are 6th and 8th/9th Battalion, The Royal Australian Regiment.

6th Combat Support Brigade
Headquartered at Victoria Barracks in Sydney, the 6th Combat Support Brigade commands a diverse collection of units including:

- 1st Intelligence Battalion (Brisbane)
- 16th Air Land Regiment (Woodside SA) equipped with the Swedish RBS 70 shoulder launched, optically guided, surface-to-air missiles, as well as Giraffe sense and warn Agile Multi-Beam (GAMB) radars.
- 20th Surveillance and Target Acquisition Regiment (Brisbane)
- 7th Signals Regiment - Electronic Warfare (Carbalah, Queensland)
- 19th Chief Engineer Works (Randwick Barracks)
- 6th Engineer Support Regiment (Brisbane) comprising:
    - 17th Construction Squadron (Sydney)
    - 21st Construction Squadron (Brisbane)
    - 20th Explosive Ordnance Disposal Squadron (Enoggera, Queensland).

17th Combat Support Brigade
The 17th Brigade, headquartered at Randwick Barracks in Sydney, is a brigade-sized grouping of reserve, integrated and permanent Army units which provide supply, fuel, communications, transport (surface vehicle and small watercraft), repair, and health and psychology capabilities. The Brigade comprises of the following units:

- 9th Force Support Battalion (Amberley, Queensland)
- 10th Force Support Battalion (Townsville)
- 2nd Force Support Battalion (reserve - Glenorchy, Tasmania)
- 1st Close Health Battalion (headquartered in Sydney)
- 2nd General Health Battalion (Brisbane)
- 3rd Health Support Battalion (reserve - headquartered in Adelaide)
- 1st Psychology Unit (Sydney).
- 1st Military Police Battalion (Brisbane)

2nd Division
The 2nd Division commands all those Reserve units not integrated into other formations. It is structured around six infantry brigades, each of which has a HQ, two/three infantry battalions, a cavalry unit in some cases, and combat and combat service support units. These brigades are:

- 4th Brigade (Melbourne and Victoria)
- 5th Brigades (Sydney and southern New South Wales)
- 8th Brigade (Sydney and northern New South Wales)

- 9th Brigade (South Australia and Tasmania)
- 11th Brigade (Queensland, south of Cairns)
- 13th Brigade (southern Western Australia and Perth).

The Division also includes three regional surveillance units predominately manned by Reserve personnel. These are:

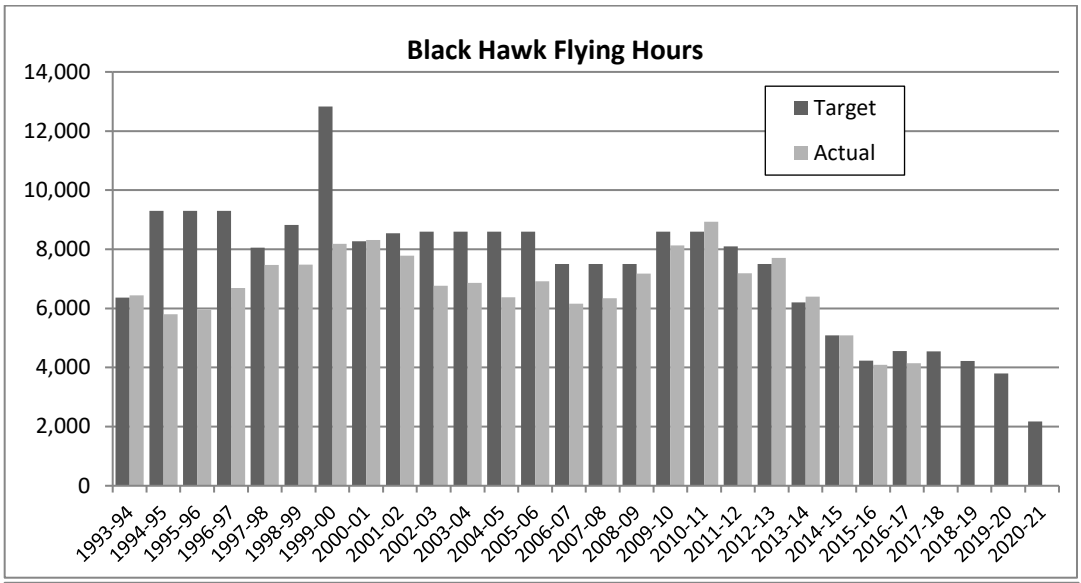
- 51st Battalion Far North Queensland Regiment responsible for conducting reconnaissance and surveillance over 640,000 square km in Far North Queensland and the Gulf country.
- The Pilbara Regiment, with 1.3 million square km to cover from the Kimberley boundary in the north, to Shark Bay in the south, then east to the NT/SA/WA border.
- North West Mobile Force (NORFORCE), which covers the Northern Territory and the Kimberly region of northern Western Australia, an area of operations covering nearly one quarter of Australia's land mass—1.8 million square kilometres.

16th Aviation Brigade

Army aviation support is generated by 16th Aviation Brigade, headquartered in Brisbane. The Brigade commands the 1st Aviation Regiment (Tiger) in Darwin, the 5th Aviation Regiment (MRH-90 Taipan and CH-47F Chinook) in Townsville, and the 6th Aviation Regiment (Black Hawk, MRH-90 Taipan and CH-47F Chinook) in Sydney. 16th Aviation Brigade provides the following capability in support of Joint Land Combat and Amphibious Operations: Reconnaissance, Escort, Attack, Airmobile Operations, Aero Medical Evacuation, Combat Service Support, and support to Special Operations.

Current assets include: 34 Black Hawk troop-lift helicopters, 29 Kiowa light observation and training helicopters, 9 Chinook medium-lift helicopters. All these helicopters are of US design.

In addition, Army's 22 European-designed Tiger Armed Reconnaissance Helicopters achieved Full Operational Capability in May 2016, and 47 European-designed MRH-90 Taipan Troop-Lift Helicopters (40 for Army and 7 for Navy) are being introduced into service with Full Operational Capability expected in 2021. The Black Hawk fleet will be retired commensurate with MRH-90 introduction. The CH-47D Medium-Lift Helicopter fleet is being replaced by ten CH-47F Chinooks over the period 2015-2019 under project AIR 9000 Phase 5C and LAND 4502 Phase 1.


Black Hawk Flying Hours
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Target
Actual
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
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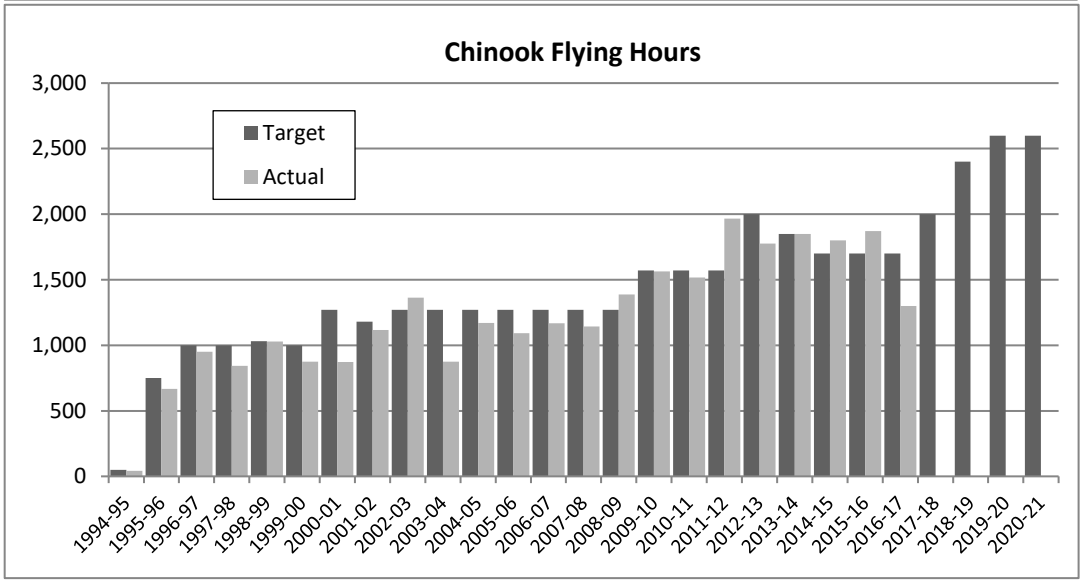
2014-15
2015-16
2016-17
2017-18
2018-19
2019-20
2020-21


Chinook Flying Hours
3,000
2,500
2,000
1,500
1,000
500
0
Target
Actual
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
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2015-16
2016-17
2017-18
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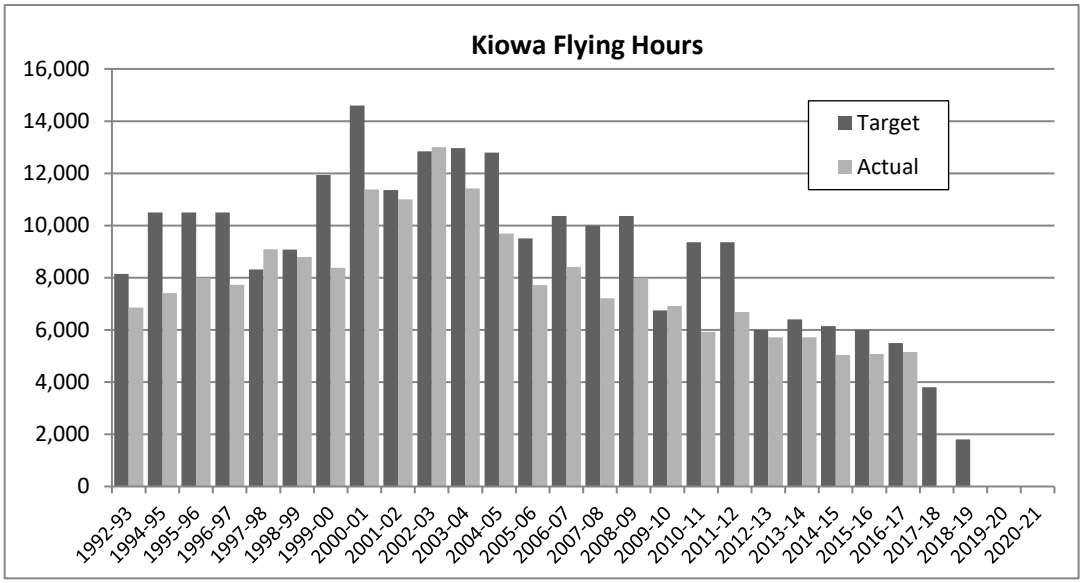
2019-20
2020-21


Kiowa Flying Hours
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Target
Actual
1992-93
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
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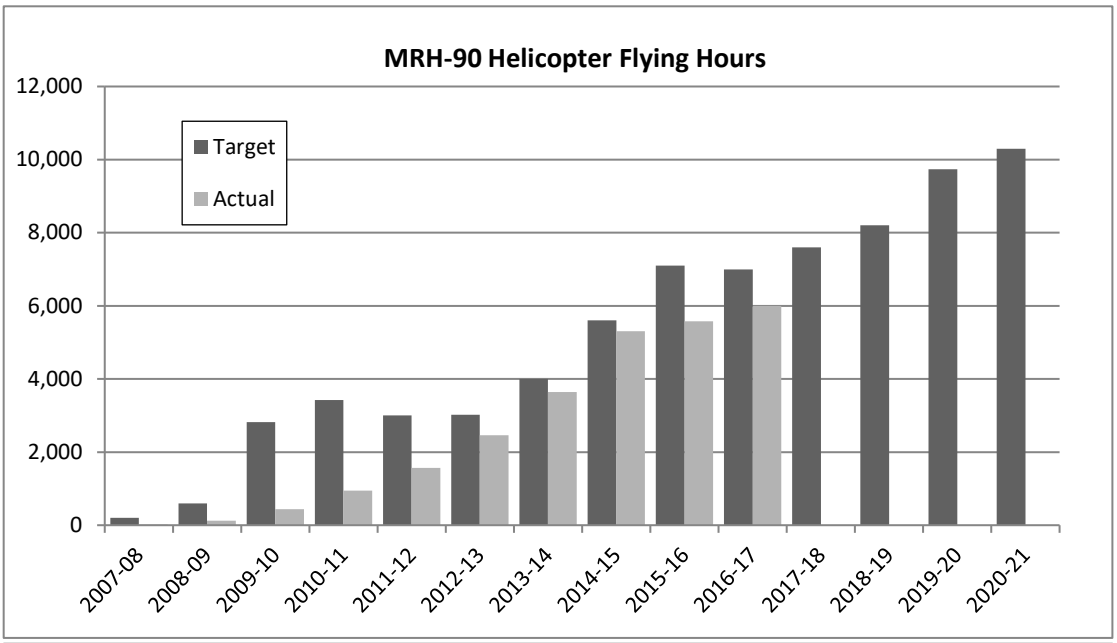
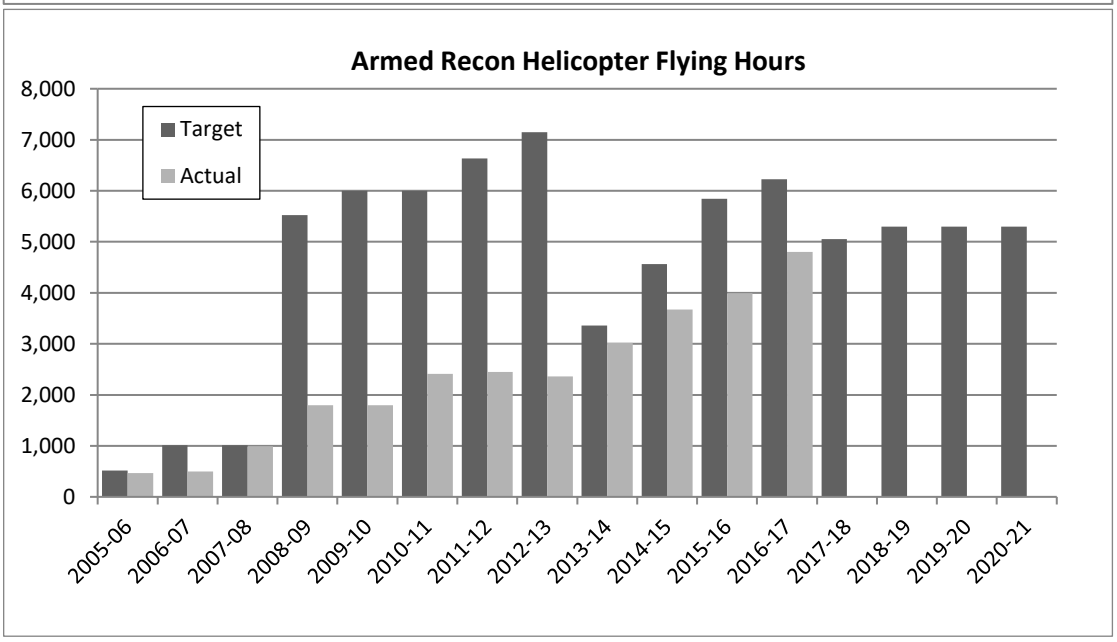
2018-19
2019-20
2020-21





Royal Military College of Australia (RMC-A)

The Royal Military College of Australia is headquartered in Canberra and is responsible for the delivery of individual foundation training for Officers and Soldiers, including the first Appointment Course, Recruit Training and Promotion courses. RMC-A includes the Royal Military College – Duntroon (in Canberra), 1st Recruit Training Battalion (Wagga Wagga) and other schools with presence in all states and territories.

Army Logistic Training Centre (ALTC)

The Army Logistic Training Centre (ALTC) is principally centred in Albury-Wodonga, however, conducts training in Darwin, Townsville, Brisbane, Sydney and Puckapunyal through two training wings and four On-the-Job Training cells. ALTC delivers training in logistics, ordnance, road and maritime transport, medical, health and electrical and mechanical engineering. ALTC consists of the following schools:

- Army School of Logistics Operations (Albury-Wodonga)
- Army School of Ordnance (Albury-Wodonga)
- Army School of Transport (Townsville and Puckapunyal)
- Army School of Health (Albury-Wodonga)
- Army School of Electrical and Mechanical Engineers (Albury-Wodonga).

Combined Arms Training Centre (CATC)
The Combined Arms Training Centre is headquartered at Puckapunyal and is the Australian Army's centre of excellence for individual combined arms training. The force structure includes:

- School of Armour (Puckapunyal)
- School of Artillery (Puckapunyal)
- School of Infantry (Singleton)
- School of Military Engineering (Sydney).

Army Aviation Training Centre (AAVNTC)
The Army Aviation Training Centre is located in Oakey and is responsible for the effective instruction of Pilot, Aircrewmen and Groundcrewmen courses as well as the training of Aircraft Technicians for employment within Army Aviation. AAVNTC also contributes to the development of doctrine and materiel plans for Army Aviation. The training centre includes:

- Army Helicopter School
- RAEME Aircraft Maintenance School
- School of Army Aviation.

Defence Command Support Training Centre (DCSTC)
The Defence Command Support Training Centre is headquartered at Simpson Barracks in Melbourne and is responsible for the conduct of Intelligence, Signals, Police and Music training, training design and trade management for members of the Australian Defence Force. The training centre also provides training for selected members of the Australian Public Service and nominated students from Defence forces of other nations. DCSTC comprises the following Units:

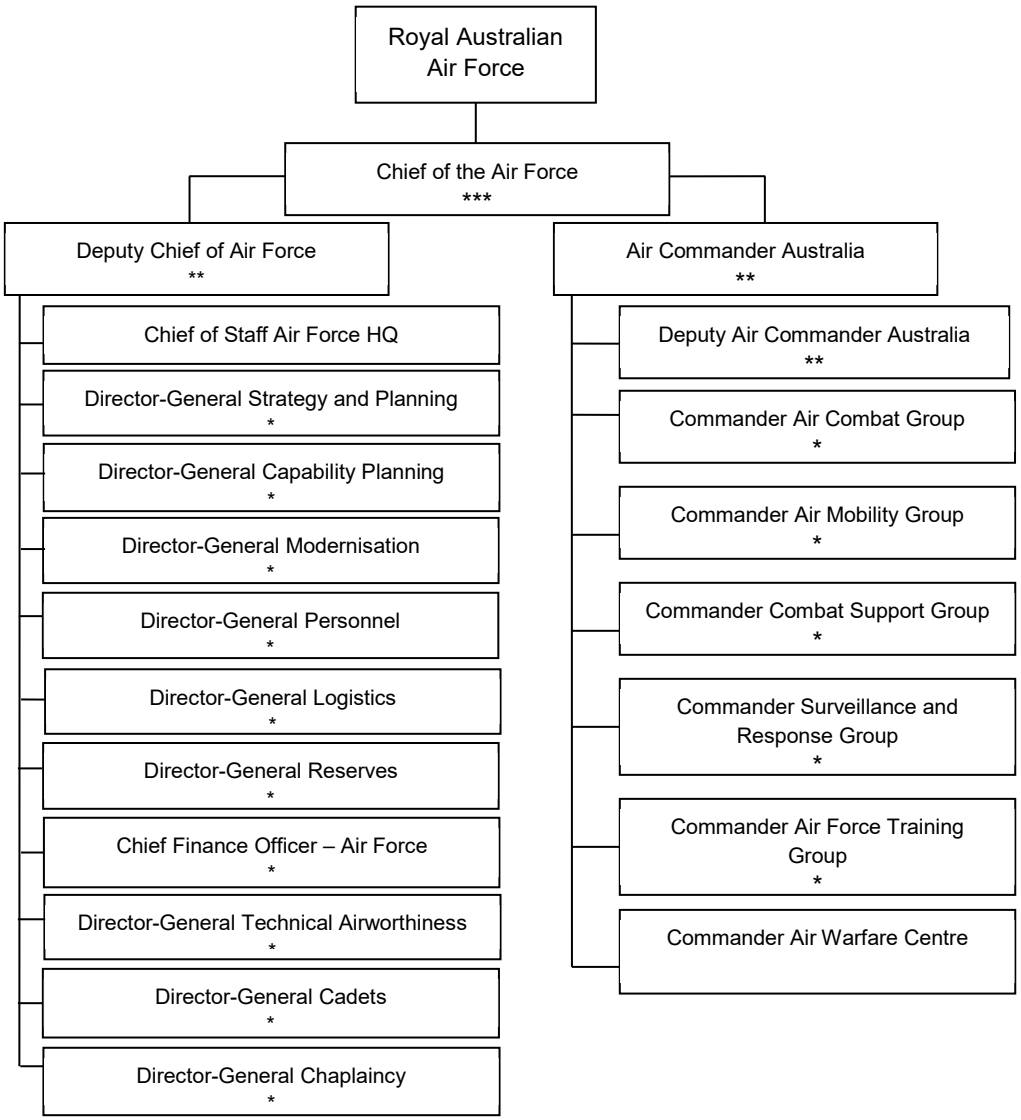
- Defence Force School of Intelligence (Canungra)
- Defence Force School of Music (Melbourne)
- Defence Force School of Signals (Melbourne)
- Defence Force School of Police (Sydney).

Program 2.7 – Air Force Capabilities

Department outputs 2017-18: $6,822 million

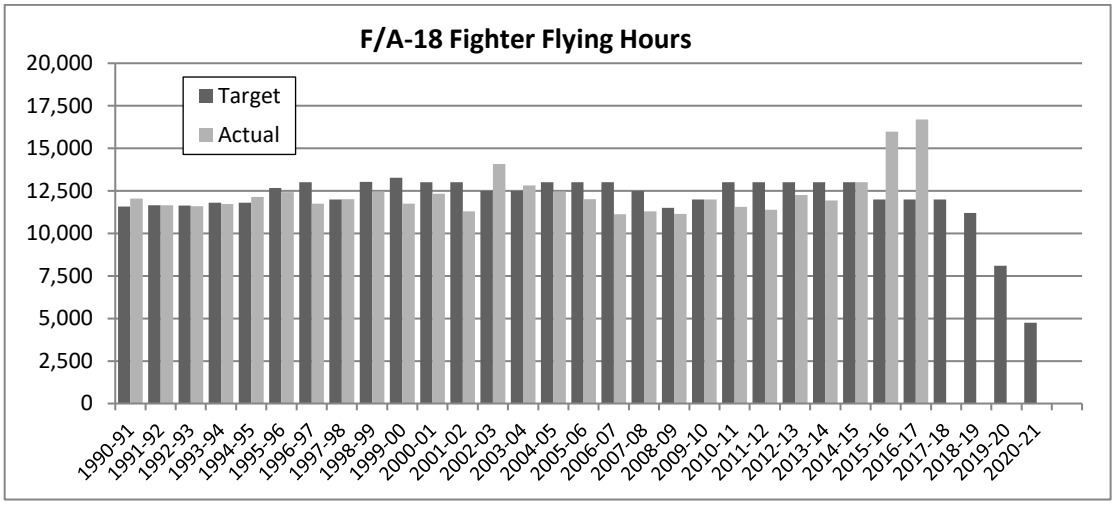
Of the three military services, the Air Force has the leanest and most streamlined organisational structure. The organisation is split into two parts. Corporate planning and administration occurs under the direction of the Deputy Chief of Air Force within Air Force Headquarters while Air Commander Australia takes care of Headquarters Air Command, the Air and Space Operations Centre and the six training, support and flying groups.

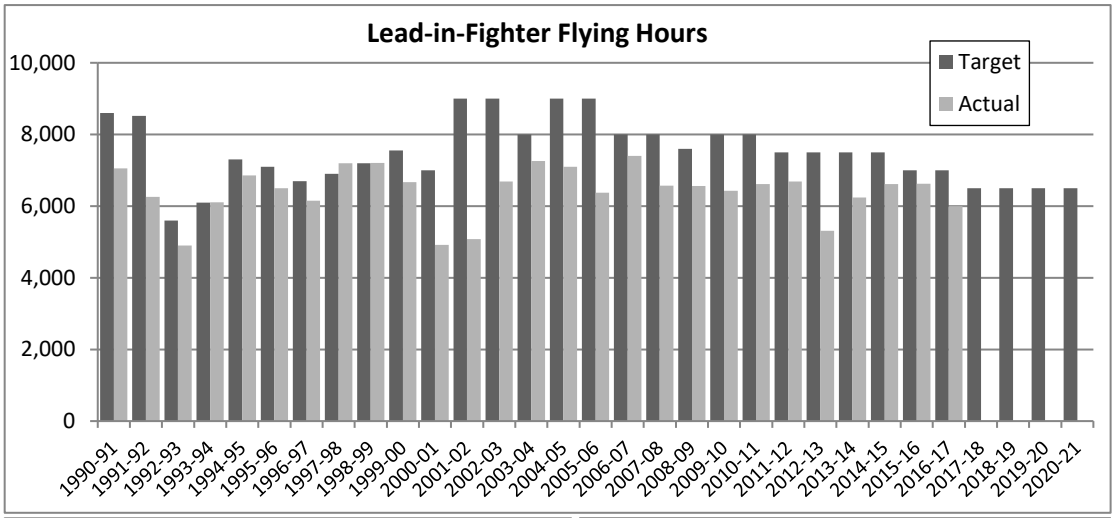
Air Force has recently introduced, or is preparing to introduce, several new fleets of aircraft into service. These include 7 replacement Air-to-Air Refuelling (AAR) aircraft, 24 F/A-18F Super Hornet, 10 C-27J Spartan battlefield airlifters, 8 P-8A Poseidon maritime intelligence, surveillance, reconnaissance and response aircraft and 12 E/A-18G Growler electronic warfare and attack aircraft. An additional two KC-30A MRTT will be acquired in the future. By around 2020, the Air Force plans to be operating F-35A Lightning II Joint Strike Fighter aircraft.

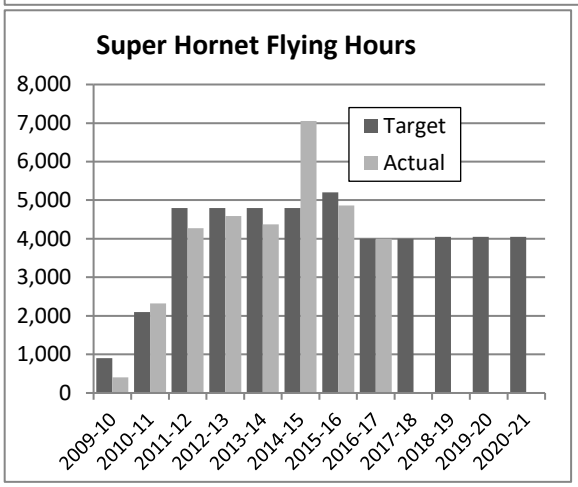


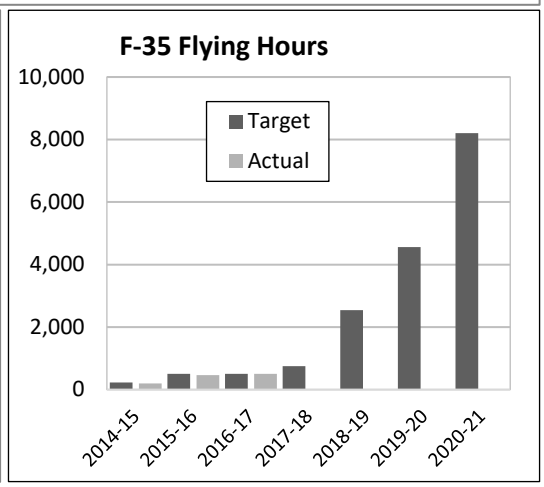
Air Combat Group

Air Combat Group comprises 71 F/A-18 A/B Hornet fighter aircraft and 24 F/A-18F Super Hornets, with 12 E/A-18G Growler expected to be delivered from 2016-17. In addition, 33 Hawk Lead-in Fighters (LIF) provide a training capability while 4 PC-9(F) forward air control aircraft are used to designate ground targets and train Joint Terminal Attack Controllers. Air Combat Group also supports and operates the leased Heron Remotely Piloted Aircraft which were deployed to Afghanistan. The F-35 Joint Strike Fighter is currently being acquired to replace the F/A-18 A/B Hornets.



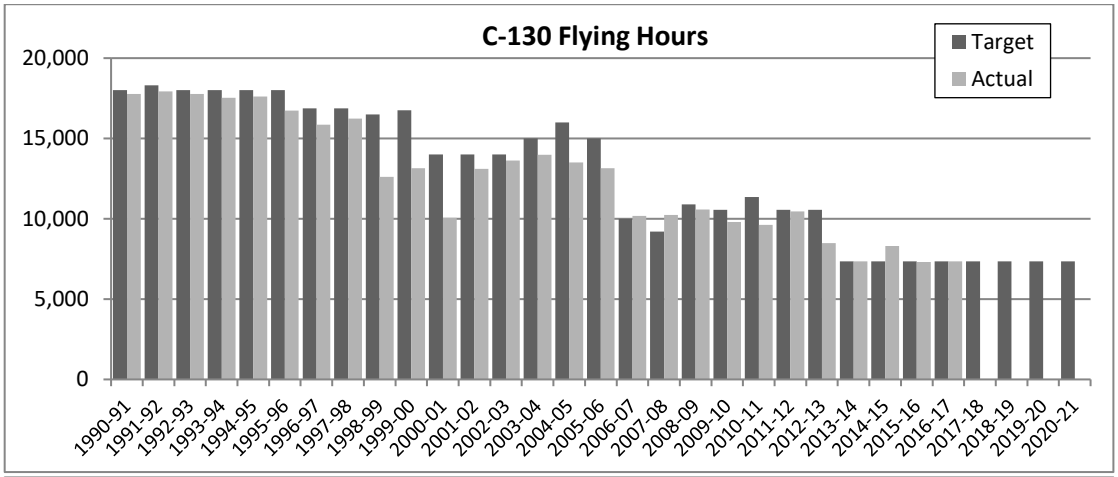


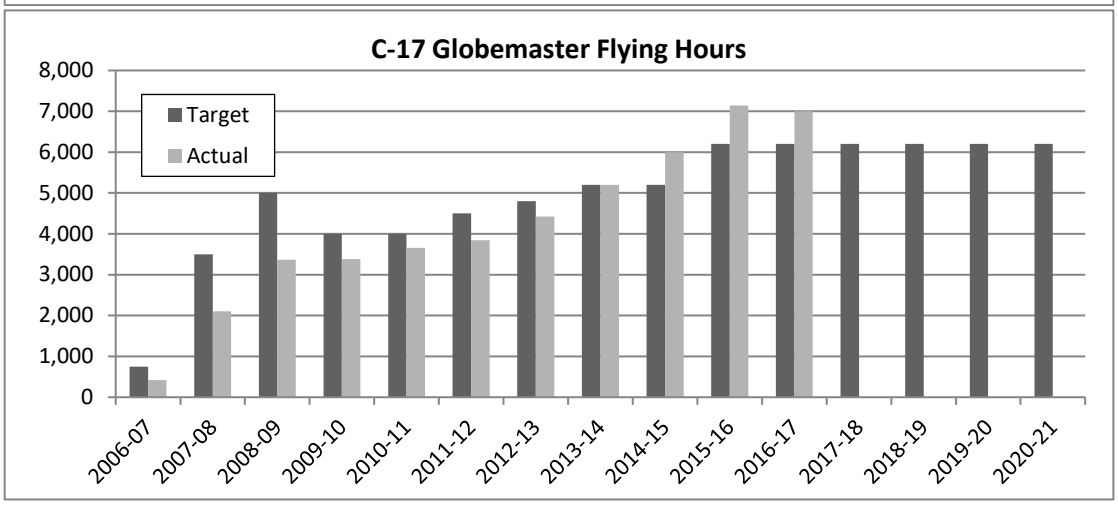


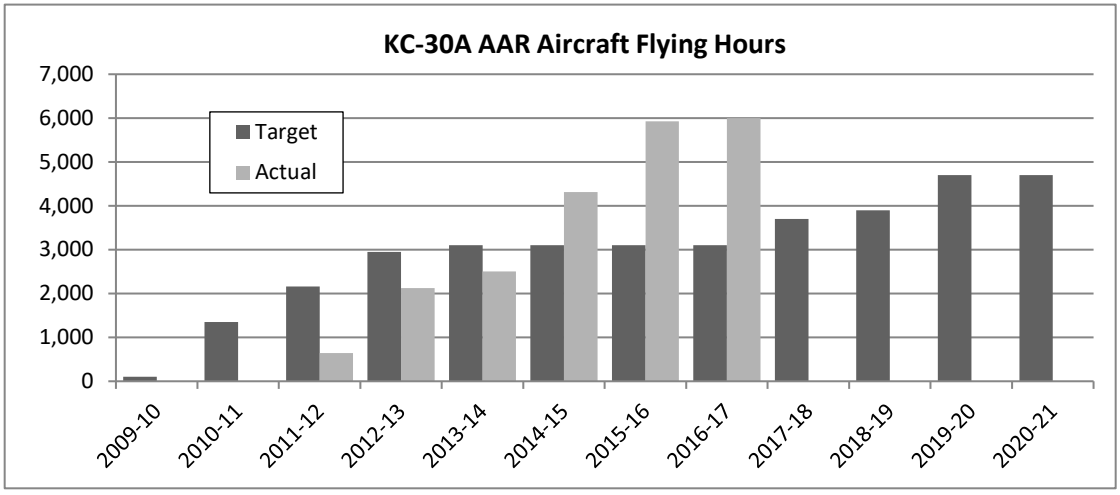


Air Mobility Group

The Air Force has 12 C-130J Hercules transport aircraft which are capable of a wide range of strategic and tactical airborne roles. The acquisition of 8 Boeing C-17A Globemaster IIIs provides the capability to transport large and heavy loads over long ranges whilst retaining tactical capabilities. Two Boeing 737 BBJ and 3 CL604 Challenger aircraft provide VIP transport for the government. Eight KA350 King Air aircraft, provide a light air transport role as an interim capability prior to the full introduction of 10 C-27J Spartan aircraft. Five KC-30A Multi-Role Tanker Transport aircraft currently perform a dual tanker and transport role.





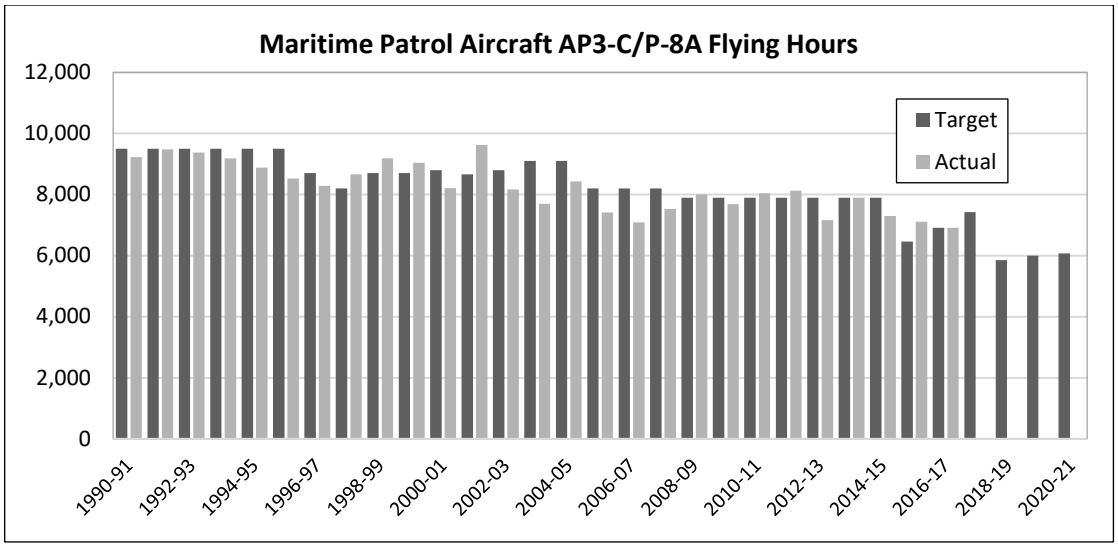


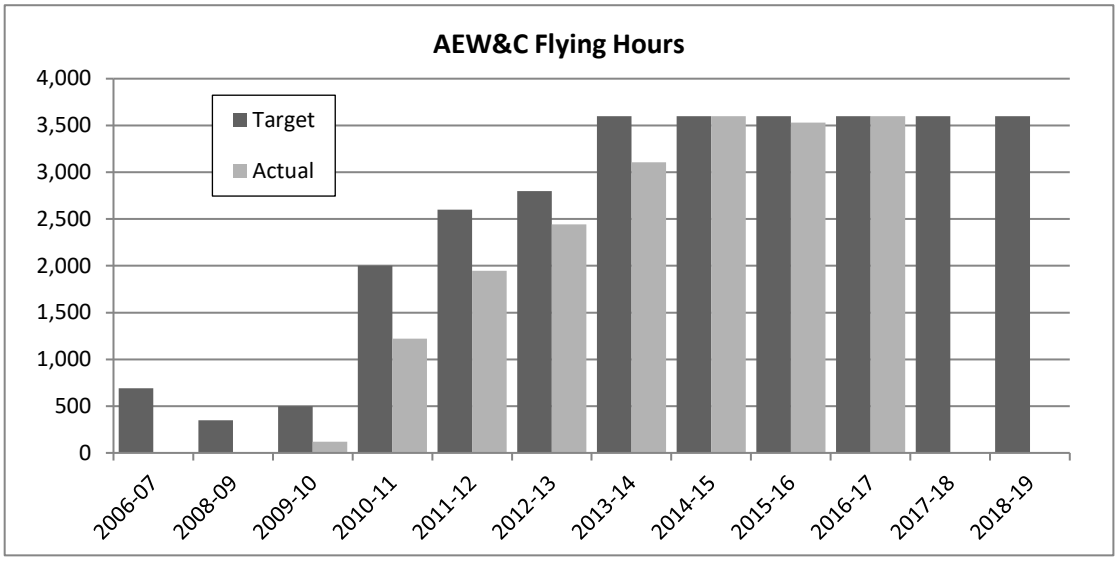
Surveillance and Response Group

The Surveillance and Response Group comprises a diverse range of capabilities including:

Fifteen 1970s vintage AP-3C Orion maritime patrol aircraft which undertake maritime patrol, maritime surveillance, reconnaissance, offensive air support, surface & sub-surface strike, and search and sea survivor resupply. All 15 aircraft were upgraded to AP-3C standard through an Australian-unique upgrade program. They are being progressively replaced by the P-8A Poseidon from 2016-17 onwards and MQ-4C Triton in the early 2020s.

Ten Air Traffic Radars, including 9 fixed radar and 1 mobile for the control of ADF air traffic. Four Tactical Air Defence Radars: ground-based radar to detect hostile and own aircraft. The JORN Over-the-Horizon-Radar network, including radar sites in Laverton WA and Longreach Qld, and 17 coastal beacons in the north of Australia and Christmas Island. The network is run from the Jindalee Operational Radar Network Coordination Centre in Edinburgh, SA, and can detect both sea and air-borne moving objects. The Jindalee facility at Alice Springs serves a research and development function. JORN is operated by No. 1 Remote Sensor Unit. Six Wedgetail AEW&C aircraft based on Boeing 737-700 platform whose entry into service was delayed by more than four years are now fully in service.





Air Warfare Centre

The Air Warfare Centre provides a broad range of operational and technical support services to Defence in general and Air Force in particular. Key components of the Group include:

Information Warfare Directorate which provides electronic warfare, aeronautical information, intelligence and information operation products and services for Air Force air operations and the other Services.

Test and Evaluation Directorate which provides flight test, system engineering and aviation medicine products and services for extant and emerging ADF aviation capability.

Air Force Ranges Directorate provides an instrumented weapons test and evaluation range and Live, Virtual and Constructive simulation capability for Defence.

Combat Support Group

The Combat Support Group is the largest of the Air Force's force element groups. The role of Combat Support Group (CSG) is to provide combat support services to all Air Force operational formations and when applicable ADF and Coalition Aviation formations. CSG maintains the capacity to concurrently establish and maintain an expeditionary major air base in a low threat environment in the immediate region, establish an expeditionary small air base within the immediate region in a high threat level, and open and operate an airhead in a forward location to enable air power operations.

The capability for combat support of air operations provides for deployable tactical air base support. It encompasses Bare Base activation including the provision of engineering infrastructure (facilities, water, power and sewerage systems), aircraft arrestor barriers and airfield services, navigation aid and tactical communications, air movement, airfield defence, health support including AME, combat logistics and personnel support capabilities.

CSG provides deployed combat support, excluding aircraft technical maintenance, to ADF contingency air operations at main operating bases, forward operating bases and point of entry airfields in Areas of Operations (AO) either in Australia or overseas. It also provides command and cadre staff for RAAF fixed bases in northern Australia and management of the prepared Bare Bases at RAAF Learmonth (LMO), Curtin (CIN), and Scherger (SGR). The provision of secure airfields and combat support arrangements for the deployment of air assets will continue to be critical to the support of ADF operations.

CSG comprises of a HQ, a Combat Support Coordination Centre, 95 and 96 Wings and a Health Services Wing.

Air Force Training Group

The Air Force Training Group is made up of a headquarters and Air Training Wing, Ground Training Wing, RAAF College and Reserve Training Wing. The headquarters of the Air Training Group is located at RAAF Base Williams in Laverton, Victoria.

Air Training Wing conducts basic and instructor air training for ADF personnel including pilots, air combat officers and air traffic controllers. Basic pilot training employs PC-9/A aircraft while aircraft and navigator training occurs on B350 aircraft. Air Training Wing also includes the RAAF Roulettes, who provide fly pasts and displays, the RAAF Museum and the RAAF Balloon. The Air Training Wing is also responsible for air crew combat survival training.

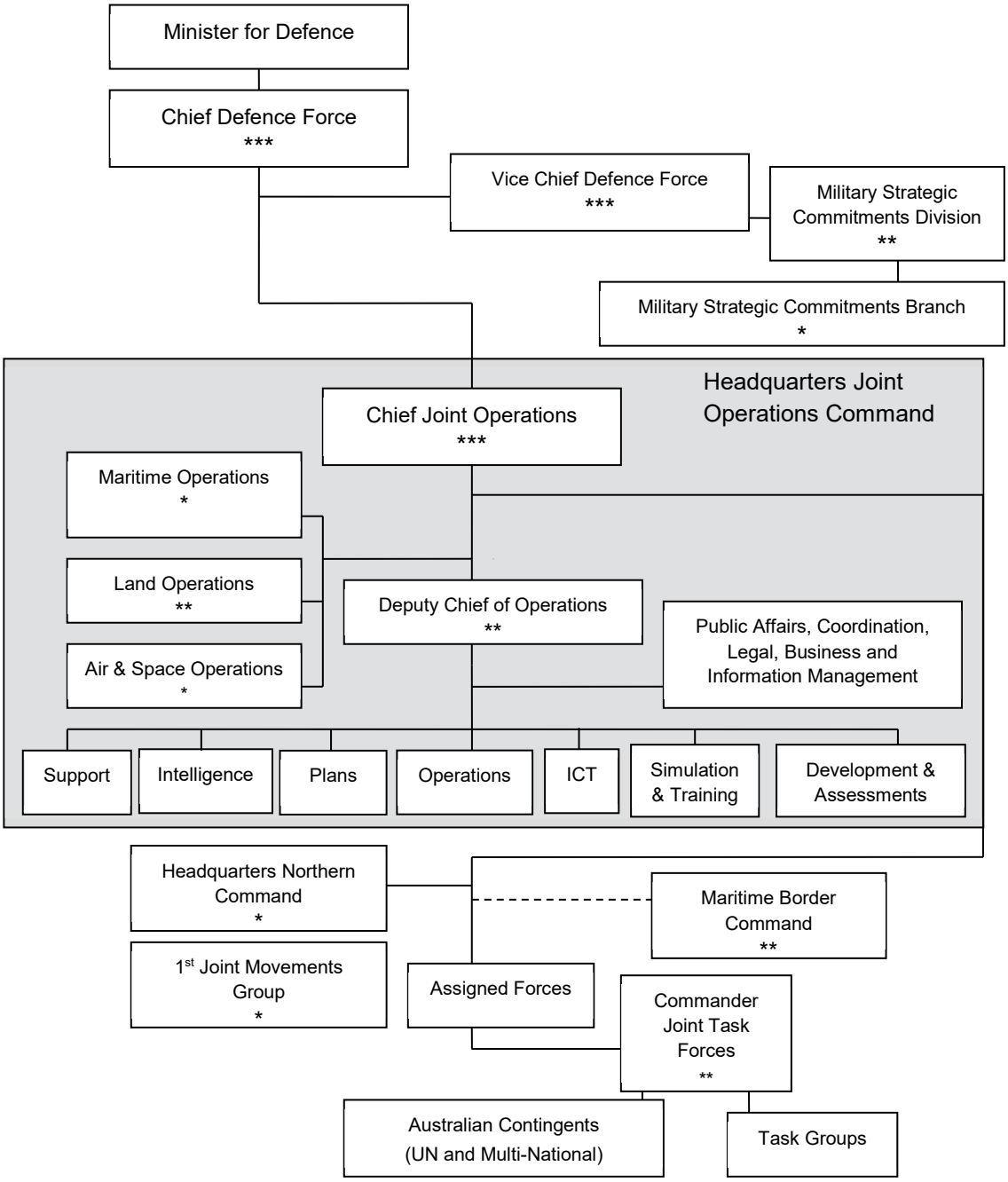
The RAAF College provides induction and professional military training for the Air Force. The RAAF College also maintains the RAAF Band.

Ground Training Wing provides initial and ongoing training for non-aircrew personnel, including security, fire and ground defence, administration and logistics, technical trades, and explosive ordnance.

Program 2.8 – Joint Operations Command

Department outputs 2017-18: $51 million

Joint Operations Command (JOC) is responsible for the planning, conduct and control of all ADF operations and joint exercises and is commanded by the Chief of Joint Operations on behalf of the Chief of the Defence Force. Located in a purpose-built command facility at Bungendore NSW, JOC is assigned forces for operations from the three Services. The ADF command arrangement is outlined below. At present, there are approximately 2,350 ADF personnel currently deployed on operations. Around 800 personnel are involved in planning, advising, commanding and supporting operations across JOC, Maritime, Land, Air and Special Operations staff elements.


Minister for Defence
Chief Defence Force
***
Vice Chief Defence Force
***
Military Strategic Commitments Division
**
Military Strategic Commitments Branch
*
Headquarters Joint Operations Command
Chief Joint Operations
***
Maritime Operations
*
Land Operations
**
Air & Space Operations
*
Deputy Chief of Operations
**
Public Affairs, Coordination, Legal, Business and Information Management
Support
Intelligence
Plans
Operations
ICT
Simulation & Training
Development & Assessments
Headquarters Northern Command
*
1st Joint Movements Group
*
Maritime Border Command
**
Assigned Forces
Commander Joint Task Forces
**
Australian Contingents (UN and Multi-National)
Task Groups

Program 2.9 – Capability Acquisition and Sustainment

Department outputs 2017-18: $654 million

Background

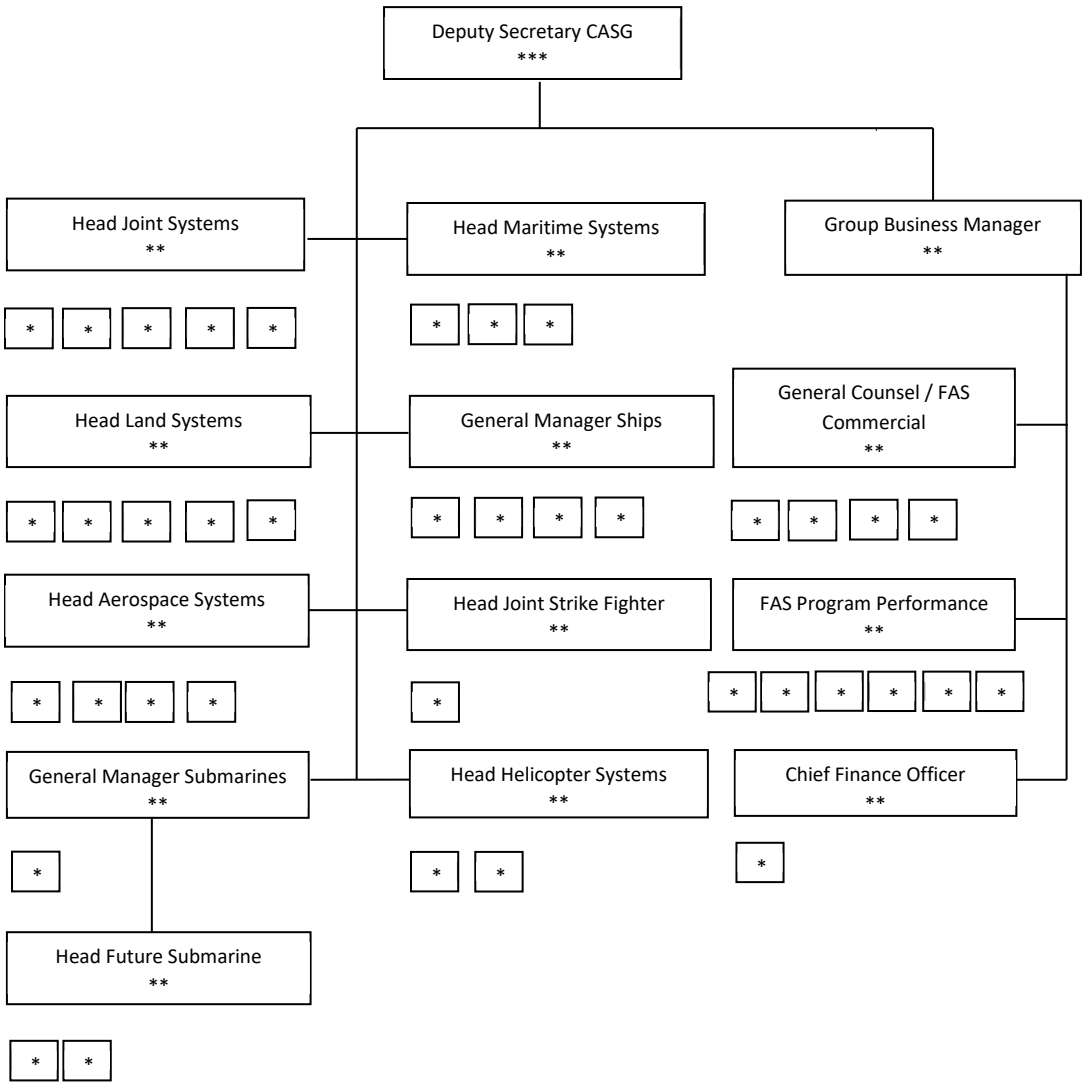
On 1 July 2005, the Defence Materiel Organisation (DMO) was established as a prescribed agency under the *Financial Management and Accountability Act 1997* and henceforth had its own independent part in the Defence portfolio PBS. However, DMO ceased to exist on 1 July 2015 and its functions were reabsorbed into Defence with some functions being placed in other Groups, but most within the new Capability Acquisition and Sustainment Group (CASG).

Organisational structure

CASG contains ten divisions, each headed by a band-2 SES civilian or 2-star military officer.

Three of the divisions are set up on the traditional environmental domains of land, sea, and air, plus five specialist divisions including joint capability and helicopters. They manage and deliver the vast bulk of the approximate 170 major equipment acquisition projects (and 20 minor acquisition projects) that CASG is responsible for, and take care of the materiel support of existing capabilities—some 110 major fleet groupings—across all domains. Some divisions acquire high profile capabilities of strategic significance. That is, if a project is big, important (and politically sensitive) enough it gets its own dedicated division. At the moment there are three such programs: New Air Combat Capability (Joint Strike Fighter), Submarines and Ships.

There are also two 'Commercial' divisions headed by the Group Business Manager (GBM) that provide business support services and take care of specific areas. These are General Counsel and Commercial and Program Performance. The GBM is also indirectly responsible for the other eight Divisions and the CASG Chief Finance Officer (CFO). The CASG CFO is an embedded component of Defence CFO Shared Service and as such directly answerable to the Defence CFO.

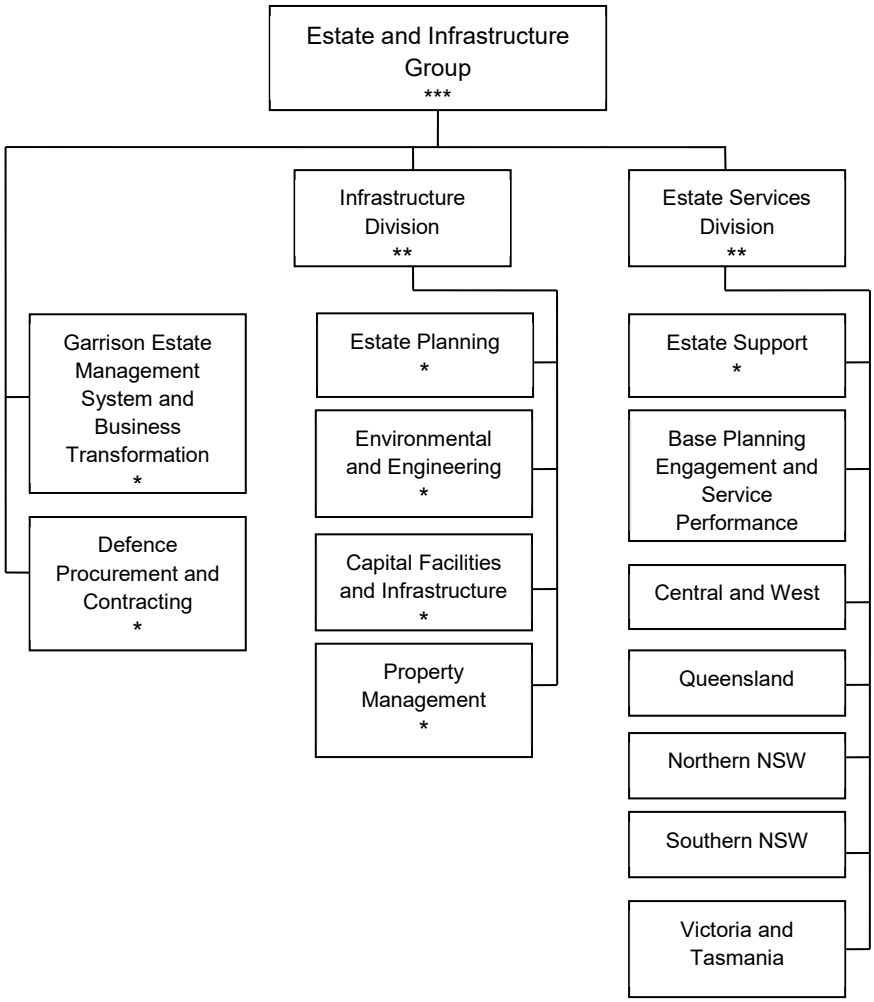


Source: CASG Website and advice from Defence

Program 2.10 – Estate and Infrastructure

Department outputs 2017-18: $4,547 million

Estate and Infrastructure Group provides a range of administrative, garrison, personnel and estate services to Defence. The Group consists of two divisions. Infrastructure Division which plans, builds and upgrades the Defence estate. Estate Services Division provides on-the-ground services and support to Defence personnel throughout Australia. This includes facilities maintenance, and other services, including grounds maintenance, hospitality and catering, training area management, base security, transport, air support and fire-fighting and rescue services. Defence Procurement and Contracting Branch is responsible for the provision of a broad range of services to Defence including publishing, insurance, travel, information and systems management and a range of procurement and contracting activities.



Program 2.11 – Chief Information Officer

Department outputs 2017-18: $1,501 million

The Chief Information Officer Group is responsible for providing Information and Communications Technology (ICT) to Defence. The Group comprises five divisions.

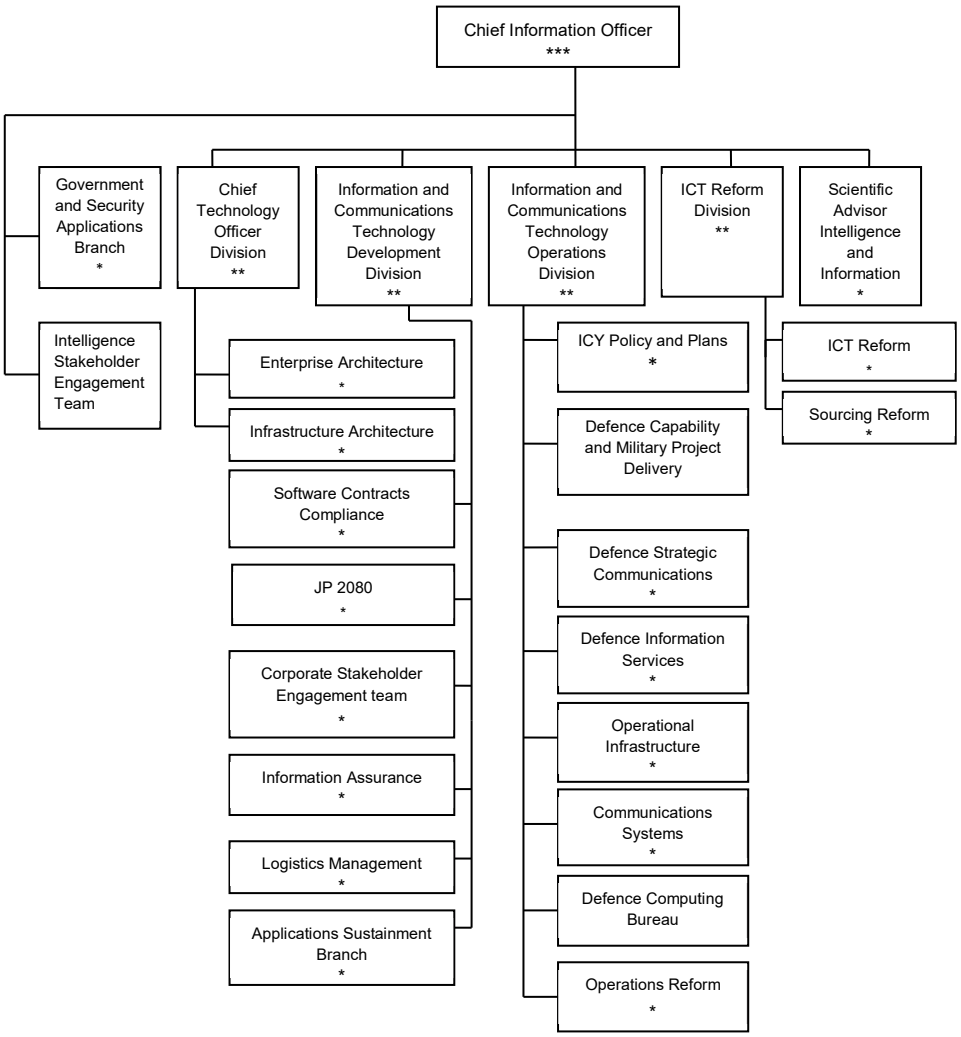
Chief Technology Officer Division develops and documents Defence's ICT architecture, identifies relevant systems and defines ICT standards for Defence.

ICT Delivery Division undertakes program and project delivery including capability acquisition proposals.

ICT Development Division designs and develops Software Systems for the Defence information environment.

Information and Communications Technology Operations Division delivers and supports the Defence Information and Communication infrastructure.

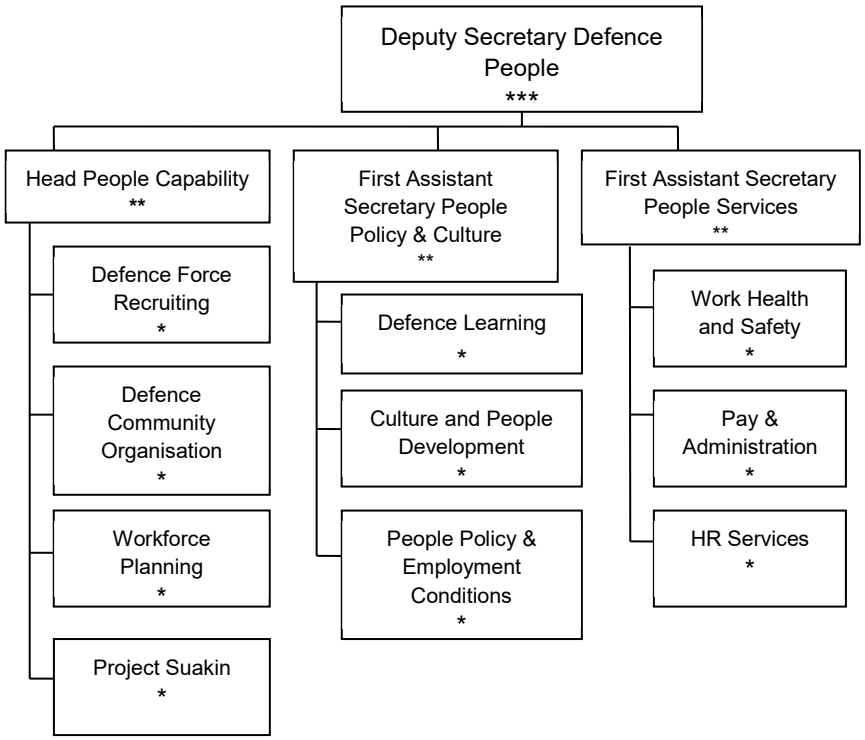
Information and Communications Technology Reform Division delivers ICT reform and associated savings across the Defence Portfolio.



Program 2.12– Defence People

Department outputs 2017-18: $486 million

The Defence People Group contributes to Australia's national security by providing people management, policy, and planning and human resource services to Defence. The Group is also responsible for driving and reinforcing cultural change and contributing to the implementation of the First Principles Review, as well as supporting the integration of enabling services across the Department.

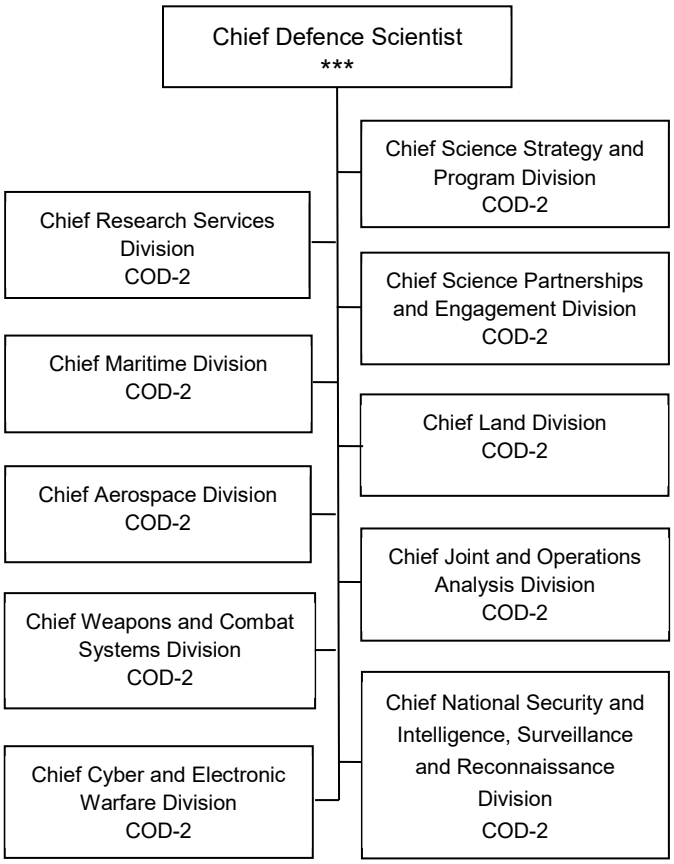


Program 2.13 – Defence Science & Technology

Department outputs 2017-18: $473 million

The Defence Science and Technology Group (DST Group) provides scientific advice and innovative technology solutions to the Government, Defence and Australia's national security agencies. This includes supporting operations, sustaining and enhancing current capability, supporting the development and acquisition of future capability and investigating client-focussed future proofing concepts, contexts and capabilities. DST Group also has whole-of-government responsibility for coordinating scientific and technical support to national security.

The Group is led by the Chief Defence Scientist, who answers to the Secretary. DST Group was restructured in the last two years in accordance with its Strategic Plan 2013-18 and the First Principles Review and is reshaping its science and technology capabilities to meet future challenges. The headquarters is located in Canberra, with most capabilities concentrated in Adelaide and Melbourne. Smaller presences are located in Brisbane, Sydney, HMAS Stirling (Western Australia) and Scottsdale (Tasmania). Thirty-nine Major Science and Technology Capabilities are spread across the following seven divisions and the sites listed above. Scientific Advisers provide embedded science and technology advice and support to the Aerospace, Maritime, Land, Joint and Intelligence programs.



2.7: Budgeted Financial Statements
[PBS Section 3: pp. 88– 112]

The budgeted financial statements for Defence appear in Section 3 of the PBS.

2.8: Appendices
[PBS: pp. 113 – 154]

The PBS includes 8 eight appendices:

- Appendix A: Defence Cooperation Program
- Appendix B: Integrated Investment Program
- Appendix C: Top 30 Acquisition Projects by 2017-18 Forecast Expenditure
- Appendix D: Top 30 Sustainment Products by 2017-18 Forecast Expenditure
- Appendix E: Facilities and Infrastructure Program
- Appendix F: Status of Major Projects Foreshadowed for Government and Parliamentary Standing Committee on Public Works Consideration (PWC) in 2017-18

Two tables previously available in the PBS were omitted this year: Minor Projects and Previously Report Top 30 Acquisition Projects.

Appendix A: Defence Cooperation Program
[PBS: pp. 114 – 116]

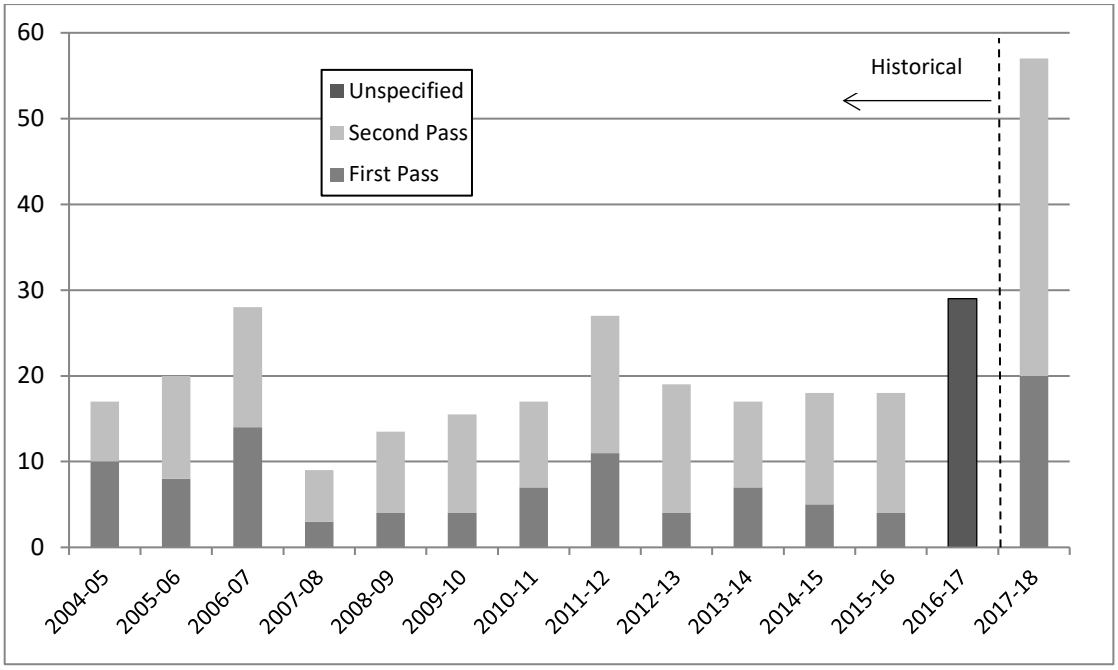
The Defence Cooperation Program (DCP) aims 'to maximise Australia's security through developing close and enduring links with partners that supports their capacity to protect their sovereignty, work effectively with the ADF and contribute to regional security. Activities include education courses, training, personnel exchanges, capacity building, military secondments, strategic dialogues, visits, subject matter expert exchanges, infrastructure support, and exercises and operations'. Further details and historical financial data on the DCP can be found in Chapter 8 of this Brief.

Appendix B: Integrated Investment Program
[PBS: pp. 117 – 119]

The PBS provides three lists of Integrated Investment Program projects [Tables 64–66] planned for government approval in 2017-18. There are 20 projects scheduled for first-pass approval, and 37 projects scheduled for second-pass approval. A further two projects are listed for other consideration. As shown in Figure 2.8.1, the number of approvals scheduled for 2017-18 comfortably exceeds the number approved any prior year back to 2004-05. The final figures for 2015-16 and 2016-17 are pending disclosure from the government. In a departure from past practice, the 2015-16 Defence Annual Report failed to include a list of approvals for that year.

Two factors contributed to the jump in planned approvals in 2017-18. First, the increasing scale of investment requires new projects to be approved more quickly than in the past. Second, facilities and information technology (ICT) projects have been included in large numbers for the first time. Previously, only the larger and more significant projects in those categories would have been listed. Among the 59 projects, there are 9 estate and 8 ICT entries. Subtracting those 17 projects still leaves 42 projects for approval next year. The challenge of approving projects is explored in Chapter 3.

Figure 2.8.1: First- and Second-pass approvals, 2004-05 to 2017-18



Source: DAR, advice from Defence, and information from public sources. 2015-16 likely incomplete.

Appendix C: Top 30 Acquisition Projects by 2017-18 Expenditure [PBS: pp. 120 – 129]

The PBS lists the top 30 major capital investment projects by 2017-18 expenditure [PBS Table 67, page 120] and provides a description of each. We reproduce this year's top 30 approved projects below in Table 2.8.1.

Table 2.8.1: Top 30 Defence Major Capital Investment Projects (million $)

Project	Project Number	Approved Project Expenditure	Spend to 30 June 2018	2017-18 Budget Estimate
Air Domain				
New Air Combat Capability	AIR 6000 Phase 2A/B	16,003	1,544	1,148
Maritime Patrol and Response Aircraft System	AIR 7000 Phase 2	5,261	2,686	853
Future Naval Aviation Combat System (FNACS)	AIR 9000 Phase 8	3,468	2,028	294

Pilot Training System	AIR 5428 Phase 1	1,196	136	239
AEW&C Interoperability Compliance Upgrade	AIR 5077 Phase 5A	1,138	344	226
Growler Airborne Electronic Attack Capability	AIR 5349 Phase 3	3,393	2,125	225
Additional Multi-Role Tanker Transport Aircraft	AIR 7403 Phase 3	853	451	132
Multi-Role Helicopter (MRH)	AIR 9000 Phase 2	3,732	3,054	119
Helicopter Aircrew Training System	AIR 8000 Phase 2	1,406	751	78
Battlefield Airlift - Caribou Replacement	AIR 5428 Phase 1	1,269	27	144
Bridging Air Combat Capability	AIR 5349 Phase 1	3,358	2,828	40
Joint Domain				
Battlefield Command Systems (Land)	JP 2072 Phase 2B	930	180	178
ADF Identification Friend or Foe and Automatic Dependent Surveillance - Broadcast	AIR 90 Phase 1	417	65	79
Civil Military Air Traffic System (CMATS)	AIR 5431 Phase 3	731	64	66
Woomera Test Range Remediation	JP 3024 Phase 1	238	101	60
Enhanced Land Electronic Warfare Systems	DEF 500 Phase 1	178	57	57
Nulka Missile Decoy Enhancements	SEA 1397 Phase 5C	176	99	42
Improved Tactical Electronic Support Capability for ANZAC Class	SEA 1448 Phase 4A	279	177	42
Land Domain				
Overlander - Medium Heavy Capability, Field Vehicles, Modules and Trailers	LAND 121 Phase 3B	3,363	988	710
Overlander – Protected Mobility Vehicle-Light	LAND 121 Phase 4	1,951	303	223
Enhanced F88 Rifle	LAND 125 Phase 3C	459	142	131
Night Fighting Equipment Replacement	LAND 53 Phase 1BR	433	34	72
Enhanced Gap Crossing Capability	LAND 155 Phase 2	210	119	66
Maritime Systems				
Air Warfare Destroyer Program	SEA 4000 Phase 3	9,090	7,219	683

Future Submarine Design and Construction	SEA 1000 Phase 1B	935	127	319
Maritime Operational Support Capability	SEA 1654 Phase 3	995	92	270
Future Frigate – Design and Construction	SEA 5000 Phase 1	335	146	133
Collins Sonar Capability Assurance Program	SEA 1439 Phase 6	123	50	67
Amphibious Ships (LHD)	JP 2048 Phase 4A/B	3,092	2,793	49
Collins Communications and EW Program	SEA 1439 Phase 5B2	251	109	41
TOTAL TOP 30 APPROVED PROJECTS		**64,468**	**29,009**	**6,731**
Other Approved Project Estimate		43,698	35,498	1,153
Total Program		108,166	64,507	7,884
Management Margin				-1,305
Net from existing projects				6,579
Projects Planned for Government Approval*				874
Total Funds Available*				7,426

*Source: 2017-18 PBS, * inferred from Table*

The 'management margin' represents the anticipated slippage of planned payments to suppliers. That is, the amount that the portfolio of projects is anticipated to collectively underspend relative to the individual gross planning figures in the table. Experience has shown that individual projects systematically spend less money than anticipated. Inevitably, delayed payments correspond to delayed delivery of capability. Recent slippage rates for the major capital investment program are given in Table 2.8.2.

Table 2.8.2: Major Capital Investment Slippage Rates

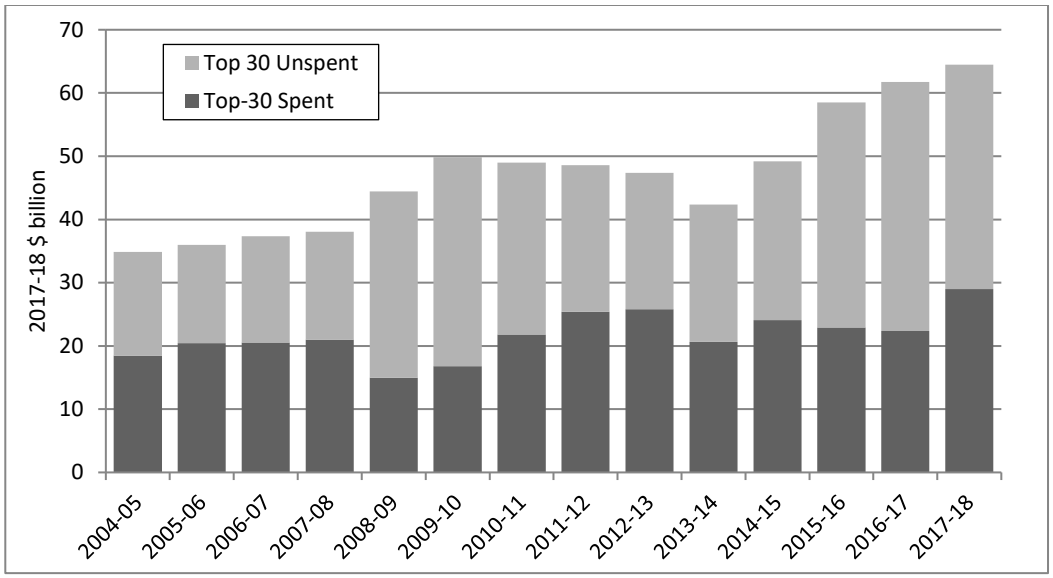
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Gross	5,083	4,793	4,577	7,064	6,573	5,761	3,938	4,118	6,311	7,330	8,009	7,884
Slippage	-426	-543	-338	-1,223	-893	-785	-616	-640	-432	-548	-884	-1,305
Net	4,657	4,295	4,239	5,841	5,680	4,976	3,322	3,478	5,880	6,782	7,125	6,579
%	-8.4%	11.3%	-7.4%	17.3%	13.6%	13.6%	15.6%	15.5%	6.8%	7.5%	11.0%	16.5%

Source: PBS 2006-07 to 2017-18

In practice, slippage comes about for a variety of reasons; suppliers can sometimes fail to deliver, Defence and suppliers can sometimes fail to negotiate contracts in a timely manner, and Defence can impose delays through its own processes. The substantial variation in slippage from one year to the next is difficult to explain, but may reflect the inclusion of low-risk FMS purchases in some years.

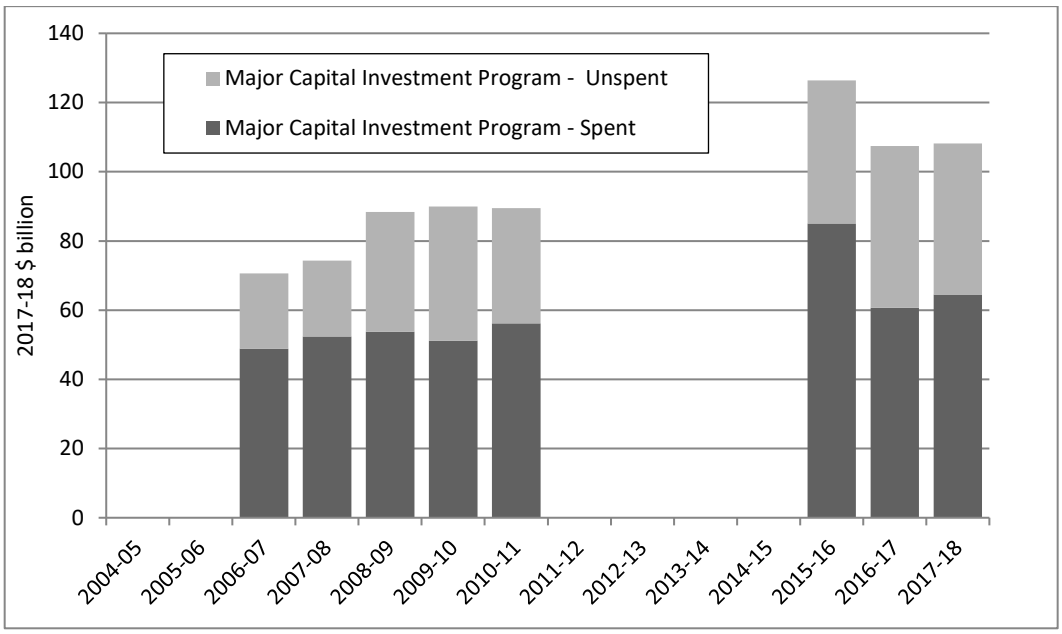
A potential risk to the Major Capital Investment Program—in theory at least—is that the scale of future money owed will grow more quickly than Defence's annual capacity to pay. The proportion of spent and unspent funds in the Major Capital Investment Program is graphed in Figures 2.8.2 and 2.8.3. The ratio of annual investment payments to the outstanding value of approved projects is given in Table 2.8.3, in terms of the Top-30 and, where available, the total Major Capital Investment Program. Compared with a decade ago, annual payments represent a smaller share of the outstanding value of projects.

Figure 2.8.2: Top-30 projects—spent and unspent funds



Source: PBS 2004-05 to 2017-18

Figure 2.8.3: Major Capital Investment Program—spent and unspent funds



Source: PBS 2004-05 to 2017-18

Table 2.8.3: Ratio of annual payments to outstanding value of approved projects (%)

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Top-30 MCIP	22.6	24.2	35.5	31.2	17.3	20.7	23.8	23.9	16.7	16.9	24.4	19.6	18.3	18.6
Total MCIP			27.4	24.2	14.7	17.7	19.4					16.8	15.4	15.1

Source: PBS 2004-05 to 2017-18

Appendix D: Top 30 Sustainment Products by 2017-18 Expenditure [PBS: pp. 130 – 135]

The PBS lists the Top-30 sustainment products by forecast end-of-financial-year outcome for 2017-18 [Table 68]. The figures are reproduced in Tables 2.8.4, 2.8.5 and 2.8.6 along with budgeted figures for prior years. The 2014-15 annual report did not provide the cost of sustainment, so we've used the latest available figures for that year (from the PAES).

Table 2.8.4: Top 30 sustainment products – aerospace ($ million, nominal)

	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Super Hornet			16	75	93	99		152	211	227	266
AP-3C Orion	113	131	117	111	149	121		111	119	89	105
F/A-18 Hornet	112	114	121	129	157	153		194	228	201	189
F-111	145	117	79								
Hawk LIF 127	97	89	87	86	76	56		86	106	119	126
C-130J	81	113	111	69	79	80		100	135	98	129
C-130 H	-	75	-	54	58	-				-	-
C-17	17	39	43	-	40	-		61	71	102	115
MRH-90	27	51	64	80	87	88		153	173	165	137
Seahawk-R								46	94	87	56
Seahawk	72		79	66	78	64		57	56	-	-
Black Hawk	74	101	103	84	91	87		57		-	-
ARH Tiger			83	91	103	89		117	133	131	137
AEW&C				116	159	148		186	202	196	212
KC-30A								66	63	72	72
VIP aircraft								48	51	50	

Source: DAR, 2014-15 PAES, 2015-16PAES, 2017-18 PBS

Table 2.8.5: Top 30 sustainment products – miscellaneous ($ million, nominal)

	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
ADF Clothing and Equipment	117	89	84	70		37	51	51	67	88	89
ADO Commercial Fleet	73	75	59		54		55	69	82	89	78
B Vehicles	117	127	115	83	84	66	66	66	73	57	
Explosive ordnance	357	360	324	251	291	296	241	313	288	302	
Guided Munitions							125	101	150	128	
Army Munitions											178
Navy Munitions											149
Air Force Munitions											116
Wide Area Surveillance	77	79	76	88	87	84	94	101	102	109	91
Battlespace Communications	32	51					26	20	36	54	55
Air Battlespace Comms.											57
Tactical Electronic Warfare								52	30		
Fuels and Lubricants	422	419	318	378	419	388	520	524			
Protected Mobility Fleet				22						64	
Command and Intelligence							76	66	81	68	
Command and Control											54
Air Traffic Control							43				54
Health Systems							44		56		
Naval Communications							39				

Source: DAR, 2014-15 PAES, 2016-17PAES, 2017-18 PBS

Table 2.8.6: Top 30 sustainment products – maritime ($ million, nominal)

	Number	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Collins subs	6	322	324	325	416	479	507	590	560	513	589	575
Anzac frigate	8	219	301	206	151	189	227	263	294	417	363	322
FFG frigate	4	103	115	113	111	127	126	110	134	132	105	96
LHD	2								69	81	106	106
Mine Hunter	6	61	61				60	75	67	60	66	61
Patrol Boats	14							39			74	64
Auxiliary Oiler	1						68		45	89	61	78
Hydrographic												63
Cross-platform												57

Source: DAR, 2014-15 PAES, 2016-17PAES, 2017-18 PBS

The sustainment cost per aircraft and sustainment cost per flying hour are calculated for various ADF platforms in Table 2.8.7**.**

Table 2.8.7: Flying hour costs 2017-18

	Number	Cost ($m)	Hours flown	Annual cost per platform ($ million)	Cost per flying hour ($ '000)
F/A-18 Hornet	71	189	12,000	2.7	16.00
AEW&C	6	212	3,600	35.5	59.17
Super Hornet	24	266	4,000	8.0	48.00
Multi Role Helicopter - MRH90	47	137	7,000	4.4	29.57
C-130J	12	129	7,350	8.7	14.15
AP-3C Orion	15	105	6,465	7.2	16.71
ARH Tiger	22	137	6,227	6.6	23.29
Hawk LIF 127	33	126	7,000	3.5	16.71
C-17	6	115	6,200	15.5	15.00
KC-30A MRTT	5	72	3,100	15.4	24.84

Source: 2017-18 PBS

All the above figures need to be treated with caution. Various fleets enjoy different amounts of contracted support (the cost of which is included) and manpower support from Defence's own workforce (which is not included). More generally, there are usually other costs (like fuel) that are not included separately for each platform. Also, one-off costs can heavily influence the results, including when platforms are first being brought into service.

Appendix E: Facilities and Infrastructure Program [PBS: pp. 140 – 148]

The PBS Table 69 lists $7.5 billion worth of approved Capital Facilities projects. Expenditure on facilities projects in 2017-18 is planned at $1.9 million.

The largest projects are the facilities in support of the New Air Combat Capability at Williamtown and Tindal ($1,477 million), Enhanced Land Force Phase 2 facilities at various locations ($1,458 million), Maritime Patrol Aircraft facilities ($708 million) at Edinburgh, Air Traffic Control Complex at various locations ($410 million), Battlefield Airlifter facilities at Amberley ($370 million), HMAS Stirling Redevelopment ($369 million) and Growler Facilities at Amberley ($349 million).

Appendix F: Status of Major Projects Foreshadowed [PBS: pp. 149 – 154]

The PBS lists 35 major and medium works projects scheduled for consideration and approval in 2017-18, [Table 70].

Chapter 3 – Defence Funding and the White Paper

This chapter deals with defence funding in three parts; (1) a brief survey of Australian defence funding from the mid-1980s through to 2009, (2) an analysis of defence funding from 2009 until 2016, and (3) an examination of the 2016 Defence White Paper. For ease of reference, the successive Defence White Papers are referred to as *Defence 2000, Defence 2009* etc. An obituary for *Defence 2000* can be found in Chapter 3 of the 2009-10 ASPI Budget Brief.

Defence funding from the 1980s to 2009

The late 1980s and 1990s were lean years for Defence. Apart from fluctuations due to foreign exchange movements and operational supplementation, defence spending was kept more-or-less constant in real terms across the period. Because the cost of maintaining military capability exceeds inflation by 2–3%, the Defence budget came under growing pressure as the years went by. To try to close the gap between means and ends, successive governments pursued 'efficiency' programs of one sort or another through the 1990s (see Chapter 4 of the 2009-10 ASPI Budget Brief for further details).

By the end of the 1990s Defence was in a sad state: the permanent force had shrunk by more than 20,000 positions compared with the mid-1980s; a 'train wreck' of block obsolescence was looming with no money in sight for modernisation; the preparedness of the force was poor with many 'fitted-for-but-not-with' platforms and others badly in need of upgrade; and logistics was hollow and underfunded. It was against this background that the then government decided in 1999 to develop a White Paper with the aim of putting Defence planning and funding on a sustainable footing.

The tumultuous events in East Timor in 1999 delayed the White Paper until the end of 2000. In the process, serious shortcomings in equipment, logistics and preparedness were exposed. It's unlikely that the government would have been as generous in 2000 without the experience of the East Timor operation.

The 2000 White Paper

Defence 2000 sought to achieve a coherent package of strategy, capability and funding for Australia's defence for the decade 2001-02 to 2010-11. On the capability side, a *Defence Capability Plan* (DCP) was published that detailed 165 separate phases of 88 capability proposals planned for the forthcoming decade, valued in total at around $50 billion. The entire package, including new and pre-existing capability, was funded through a decade-long funding commitment that included roughly 3% average annual real growth. The largest share of new money went to capital equipment. The 3% funding commitment was subsequently extended out to 2017-18 in the 2006 and 2008 budgets.

It wasn't long before Defence was struggling to deliver the outcomes sought by *Defence 2000* within the funding provided. In 2003, an internal Defence Capability Review recommended cuts to the force structure to contain costs, including the decommissioning of two FFG frigates, the early retirement of the F-111 fleet and the laying up of two mine-hunting vessels. Notwithstanding these steps, from 2005 onwards additional funds (amounting ultimately to around $1 billion a year) were provided for personnel, estate and

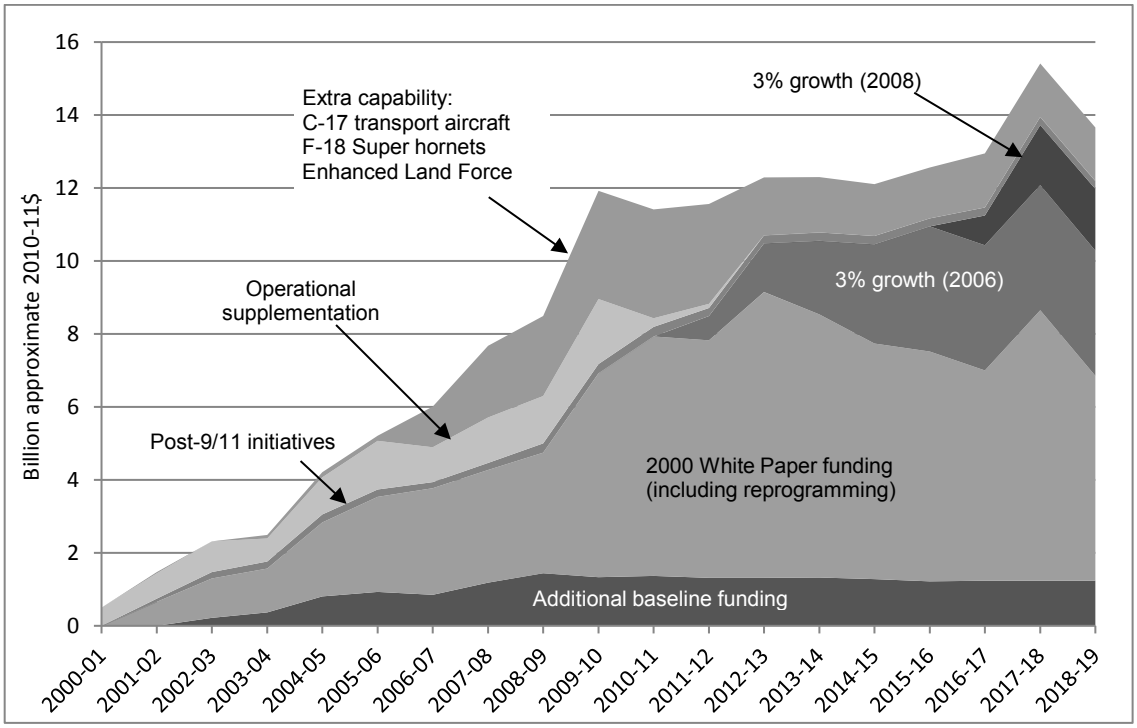
logistics. At the same time, savings measures of $200 million a year were imposed on Defence to redirect money towards combat capability.

Persistent and widespread delays in the approval and execution of defence acquisitions delayed the delivery of many capabilities, with delays of 4-5 years not uncommon. In part, this reflected a systematic underestimation of costs—which caused unapproved projects to be delayed. Further delays arose due to insufficient industry capacity, tardy approval of new acquisitions and all too frequent technical problems with equipment under development. The result was that Defence was unable to spend all the money it had been given to buy new equipment. Over the period covered by *Defence 2000*, around $7.9 billion of planned investment was pushed into the future.

Boom times: 2006-2008

From around 2006, the Howard government provided additional money for a range of new capability initiatives, including four C-17 transport aircraft ($3.2 billion), 24 F/A-18F Super Hornet strike fighters ($6 billion, which included 10 years of support), and the Enhanced Land Force initiative, which included adding two infantry battalions to the Army at a cost of $10 billion over a decade. This additional funding came on top of that provided for new and expanded capabilities in the aftermath of 9/11 and the deployments that followed. Because of out-turning, it's difficult to estimate the precise value of additional funds provided post-2000. The best we can do is to capture the scale of funding using the historical values that appeared in the budget papers at the time, converted to 2010-11 dollars. The result appears in Figure 3.1.

Figure 3.1: Additional funding 2000 to 2008



Source: ASPI analysis of budget papers and DAR, CPI inflation used

Despite all the new money, it remained unclear whether adequate funds were available pre-*Defence 2009* to deliver the capabilities sought at that time. On one hand, it looked like not

enough money had been set aside to crew and operate the raft of new capabilities under development—hence the $10 billion savings program announced in early 2008. On the other hand, Defence was unable to spend the money it had for both investment and recurrent spending. So much so, that it was directed to absorb $1.1 billion of measures in 2008-09 following an abnormally large windfall from price supplementation (and the embarrassing hand back of $830 million of unspent funds from 2007-08). This was the confusing state of Defence funding prior to the release of *Defence 2009.*

From 2009 to 2016

The 2009 Defence White Paper was released on 3 May 2009. Entitled *Defending Australia in the Asia Pacific Century: Force 2030,* the 138-page document included one and half pages—585 words to be precise—on how the government planned to fund Defence over the next 21 years. The plan had two parts:

- 3% real growth in the Defence budget to 2017-18 and then 2.2% from 2018-19 to 2030. The latter growth rate was based on questionable economic analysis undertaken by an external Defence Budget Audit in 2008.
- Retention of the proceeds from a decade-long $20 billion Strategic Reform Program.

Eight days later, in the 2009-10 Budget, the government abandoned its funding commitment and deferred $8.8 billion from across the forthcoming decade. In addition, Defence was required to 'absorb' additional new budget measures amounting to $1.7 billion over the decade. But that was only the start of what became a steady erosion of funding.

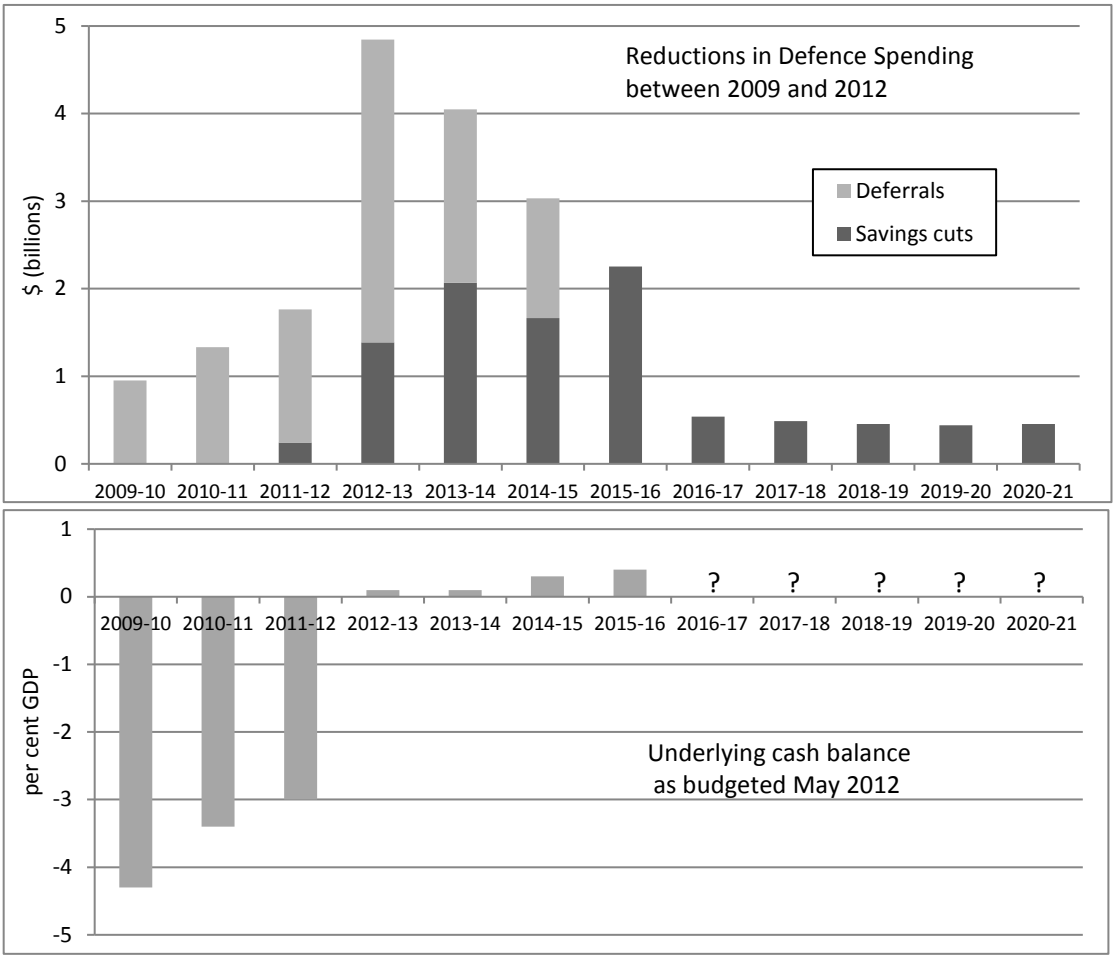
Over the life of the 2009 Defence White Paper (May 2009 to April 2013), $10.6 billion of planned investment was deferred and $10 billion of promised funding was returned to Treasury, including from areas that were supposed to be delivering efficiencies but which subsequently encountered cost pressures exacerbated by the need to absorb $2.5 billion worth of unfunded measures. Nonetheless, Defence still managed to hand back $1.5 billion at the end of the 2010-11.

The aggregate effect of those deferrals and cuts is plotted in Figure 3.2 atop the underlying cash balance for the Commonwealth as estimated at the time of the 2012-13 Budget. Note that if Defence spending had been held at the levels promised in *Defence 2009*, in May 2012 the Commonwealth would have been projected to remain in deficit for two additional years until 2014-15.

The clear correlation between reduced defence expenditure and the return to surplus wasn't a surprise. In 2007-08, we warned—based upon the experience of recessions in the early 1980s and 1990s—that the risk to defence funding occurred not at the outset of an economic downturn, but around the time when the government was striving to return to surplus (see 2007-08 ASPI Budget Brief, p. 135). Events between 2009 and 2012 confirmed our analysis.

It's a matter of opinion whether the potential economic and political gains of delivering a surplus in 2012-13 justified the cuts to defence funding. As it happened, the effort was for naught and the Commonwealth fell into deficit by $19.5 billion that year due to a collapse in revenues resulting from deterioration in the terms of trade.

Figure 3.2: Reduced Defence funding and the underlying cash balance, circa 2012



Source: DAR, PBS and the 2012-13 Budget Overview.

The 2013 Defence White Paper was released on 3 May 2013—four years to the day after its predecessor. Entitled simply *Defence White Paper 2013,* the 132-page document includes one and a half pages—675 words to be precise—on Defence funding. Although it devoted 90 more words to the topic than its predecessor, it managed to say less. Key points included a promise to provide a single aggregate figure for defence funding for the six years beyond the forward estimates and an in-principle commitment to spend 2% of GDP on defence 'in an economically responsible manner as and when fiscal circumstances allow'.

With the prospects of achieving a surplus long gone, the way was open for the government to alleviate Defence's budget dilemma by providing additional funding. And it did. As best we could estimate using the fragmentary information available in May 2013, around $3 billion was brought forward from the then fourth year of the Forward Estimates and the years beyond, and around $10.7 billion of funding was cut from those same years. So while short-term pressures were partially addressed, the longer term picture was made even less favourable. (The estimate of $10.7 billion being removed is based on the inadvertent disclosure of long-term funding in the *2010 Intergenerational Report*.)

The $10.7 billion taken away in 2013 was *in addition* to the roughly $10 billion taken away (as opposed to deferred) in 2011 and 2012. Moreover, it doesn't capture any funds deferred to beyond 2022 or the erosion of buying power due to absorbed costs. All up, this puts a lower limit of around $21 billion for the accumulated shortfall relative to 2009 promises.

Nonetheless, the capability goals of *Defence 2009* largely survived through into the 2013 document, with some substantial new acquisitions added as well. With capability targets static or growing, and funding at least $2 billion a year less, the result was a yawning gap between means and ends.

It was hardly surprising therefore, that budget pressures emerged early. In one of its last acts prior to the 2013 election, the outgoing Gillard government brought forward $750 million from 2016-17 into the period 2013-14 to 2015-16 to address near-term funding shortfalls. Near-term budget pressures continued to emerge during 2013-14 and the incoming Abbott government used the Supplementary Estimates process in early 2014 to bring forward an additional $1.5 billion into the period 2013-14 to 2015-16. The funds came from $2 billion removed from 2017-18, with the remaining $520 million pushed back into 2019-20 and 2020-21. In doing so, immediate funding pressures were alleviated—especially in the capital investment program—and an impractical hump in funding for 2017-18 was removed.

The 2016 Defence White Paper

On 25 February 2016, the government finally released its 2016 Defence White Paper (*Defence 2016)*. It promised an additional $29.9 billion in funding over ten years and provided explicit year-by-year guidance for that period, see Table 3. 1. Note that the figures used in *Defence 2016* correspond to 'Funding from government' and do not take account of the (albeit small) revenue from capital sales. The difference is not important when looking at the macro funding picture.

Table 3.1: 2016 Defence White Paper funding guidance ($ millions), out-turned dollars

	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26
Baseline	31,532	34,180	36,709	38,486	40,585	42,588	45,193	47,337	49,477	51,540
White Paper funding	700	0	60	600	1,800	3,200	4,500	5,540	6,256	7,202
Operations supplement	142	19	0	0	0	0	0	0	0	0
Total	**32,374**	**34,199**	**36,769**	**39,086**	**42,385**	**45,788**	**49,693**	**52,877**	**55,733**	**58,742**

Source: 2016 Defence White Paper

The White Paper said that the Defence budget will 'reach $42.4 billion, which is 2% of GDP in 2020-21'. Based on the GDP estimate for 2018-19 in the 2015-16 Mid-Year Economic and Fiscal Outlook (the last publicly available economic baseline prior to the White Paper), nominal GDP would have to grow by 5.3% in 2020-21 for that to be true.

Since the release of the 2016 White Paper, we've had two budgets and one additional estimates statement. Consequently, planned funding has changed, though we only have visibility of the first five years of the White Paper decade. Table 3.2 lists the changes as they occurred. Note that the 2016-17 PBS provides two different sets of figures for foreign exchange adjustments; those reflected in Table 3.2 come from PBS Table 3 (because only that set of figures reconciles funding with the White Paper). Presumably the White Paper used a different funding baseline to the 2015-16 PAES. Even then, the numbers only add up to within an error band of $20 million—though that sort of variation is common between successive Budget Papers. A breakdown of the changes is given in Table 3.3, where the two alternatives for foreign exchange adjustments are provided.

Table 3.2: White Paper funding guidance ($ millions), out-turned dollars

	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26
White Paper (Feb 2016)	**32,374**	**34,199**	**36,769**	**39,086**	**42,385**	**45,788**	**49,693**	**52,877**	**55,733**	**58,742**
2016-17 changes	-36.5	351.7	7.0	139.7						
2016-17 PBS	**32,338**	**34,551**	**36,776**	**39,226**	**-**	**-**	**-**	**-**	**-**	**-**
mid 2016-17 changes	-406.7	-628.5	-763.1	-814.2	-	-	-	-	-	-
2016-17 PAES	**31,928**	**33,921**	**36,012**	**35,411**	-	**-**	**-**	**-**	**-**	**-**
2017-18 changes	0	655.9	-246.7	-31.0	280.8	-	-	-	-	-
2017-18 PBS	**31,881**	**34,570**	**35,749**	**35,359**	**41,967**	-	-	-	-	-

Source: 2016 Defence White Paper and subsequent PBS and PAES.

Table 3.3: White Paper funding changes ($ millions), out-turned dollars

	16-17	17-18	18-19	19-20	20-21	Total
Delayed spending	-500	500	0	0	0	0
Efficiency dividends	0	-128	-176	-210	-92	-606
Inter-agency transfers	-57	-103	-58	-44	?	-205
Other measures	3	34	0	*0*	?	34
Ops supplement	794	869	105	55	0	1,028
Foreign exchange 1	-548	-778	-879	-511	375	-1,793
Foreign exchange 2	-273	-494	-585	-229	375	-933

Source: 2016 Defence White Paper and subsequent PBS and PAES.

Apart from losing $606 million over five years (and probably around $1.1 billion over the decade) to efficiency dividends—see Chapter 4—the buying power of White Paper funding has been preserved. Operational and foreign exchange supplementation are provided on a no-win no-loss basis, and should not affect the planned delivery of capability. Similarly, inter-agency transfers reflect a concurrent transfer of responsibly for activities alongside the funds.

Unfortunately, the ambiguity and substantial year-to-year variation in foreign exchange adjustments prohibit saying anything about what's going on in 2021-22 and beyond. Moreover, given what we know about movements in the Australian dollar, it's impossible to explain what's going on with foreign exchange (forex), see Table 3.4. While the adjustments made in 2015-16 were in the expected direction and scale, Defence lost $2.3 billion over four years in the 2016-17 PAES, despite depreciation of the Australian dollar—the opposite of what you would have expected.

To gauge the scale of forex adjustments, assume that all our foreign purchases come from the United States. If around $8 billion of defence spending goes overseas, a 2-cent depreciation against the US dollar from 1 AUD = 75 US cents would then require an additional $216 million in supplementation. Yet the adjustments in the 2016-17 PAES were between $435 million and $684 million (as well as being in the wrong direction).

Table 3.4: Forex changes ($ millions), out-turned dollars

	Treasury assumed forex 1 AUD =	16-17	17-18	18-19	19-20	20-21
2014-15 PAES	84 US cents	74.4	23.8	-30.4		
2015-16 PBS	77 US cents	681.0	688.7	696.6		
2015-16 PAES	72 US cents	299.0	312.4	402.1	-	-
2016-17 PBS (Table 2)	77 US cents	162.1	152.9	306.8	459.3	-
2016-17 PBS (Table 3)	77 US cents	-112.7	-131.1	12.7	177.1	-
2016-17 PAES	75 US cents	-435.0	-549.6	-656.3	-684.3	-
2017-18 PBS	76 US cents	-	-97.2	-235.1	-4.1	374.6

Source: 2016-17 PBS and PAES, and 2017-18 PBS.

Because we are unable to make sense out of the published forex movements, we shall use the figures from the 2017-18 Budget for first half of the decade, but leave the latter half of the decade as it was in May 2016. We cannot extrapolate forex to the final five years.

Two-per cent of GDP

Defence 2016 more than makes good on the promise to spend 2% of GDP on defence by 2023-24. On current projections of economic growth, defence spending will reach 2% of GDP four years earlier, in 2020-21. However, *Defence 2016* jettisoned GDP targeting and its ten-year funding guidance 'will not be subject to any further adjustments because of changes in GDP growth estimates'. Good riddance; as we argued last year, GDP targeting is bad policy.

Nonetheless, the prominence given to the 2% target demands that we analyse the annual GDP share of the funding in *Defence 2016*. In the absence of long-term GDP growth estimates, it's difficult to model beyond the forward estimates. In the absence of anything better, we'll stick with the 5.3% nominal growth figure inferred last year for 2021-22 and beyond. That growth rate is consistent with the gradual recovery in GDP growth projected by the present budget, see Table 3.5, if you factor in a recovery in the GDP deflator (which is projected to be only 1% in 2017-18 and 2018-19)

Table 3.5: Nominal GDP growth expectations

Year	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22 +
Source	2017 Budget	2017 Budget	2017 Budget	2017 Budget	2017 Budget	Estimate
Growth rate	5.95%	4.04%	3.88%	4.63%	4.68%	5.3%

Source: 2016-17 Budget Papers and analysis of 2016 Defence White Paper

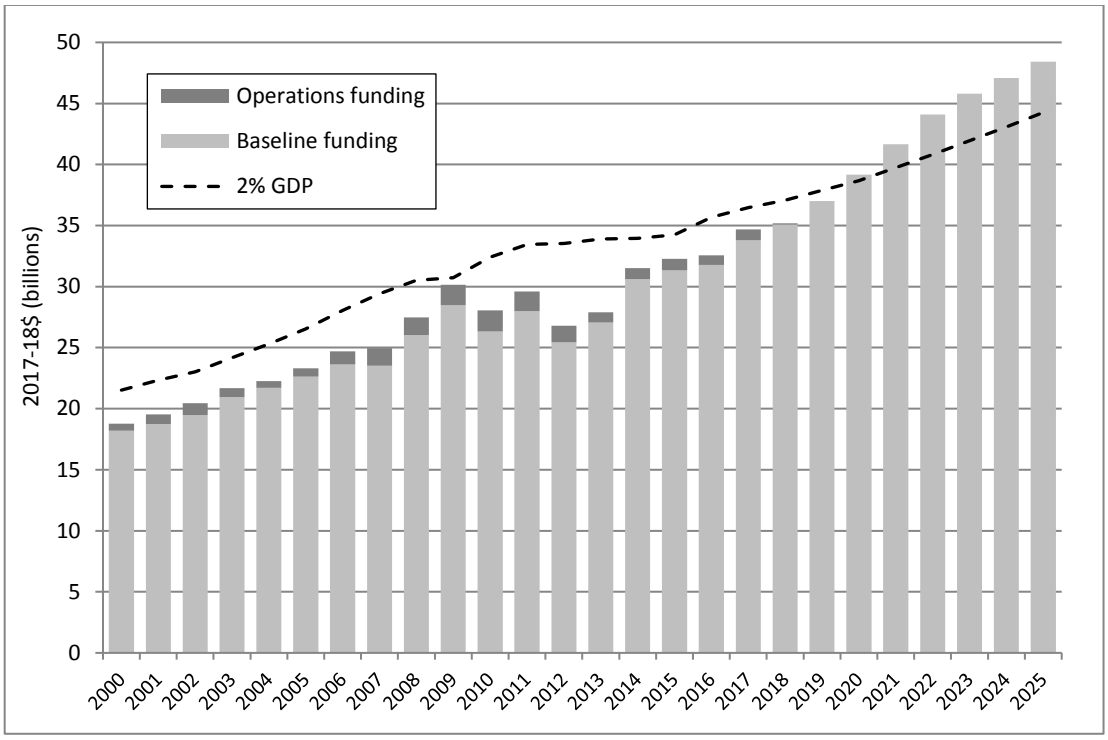
Using the GDP estimates in the Budget Papers out to 2020-21 and our 5.3% nominal growth figure for the subsequent years, we can calculate the GDP share out to 2025-26, see Table 3.6 and Figure 3.3.

Table 3.6: Defence funding and GDP share

	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26
Nominal $	31,151	31,995	34,687	35,937	38,713	42,010	45,788	49,693	52,877	55,733	58,742
2017-18 $	32,260	32,572	34,687	35,178	37,005	39,176	41,658	44,108	45,790	47,086	48,418
% GDP	1.88%	1.83%	1.90%	1.90%	1.95%	2.03%	2.10%	2.16%	2.18%	2.19%	2.19%

Source: 2017-18 Budget Papers and analysis of 2016 Defence White Paper

Figure 3.3: Defence funding and 2% of GDP—historical and projected



Source: Various DAR, 2017-18 Budget Papers and analysis of 2016 Defence White Paper

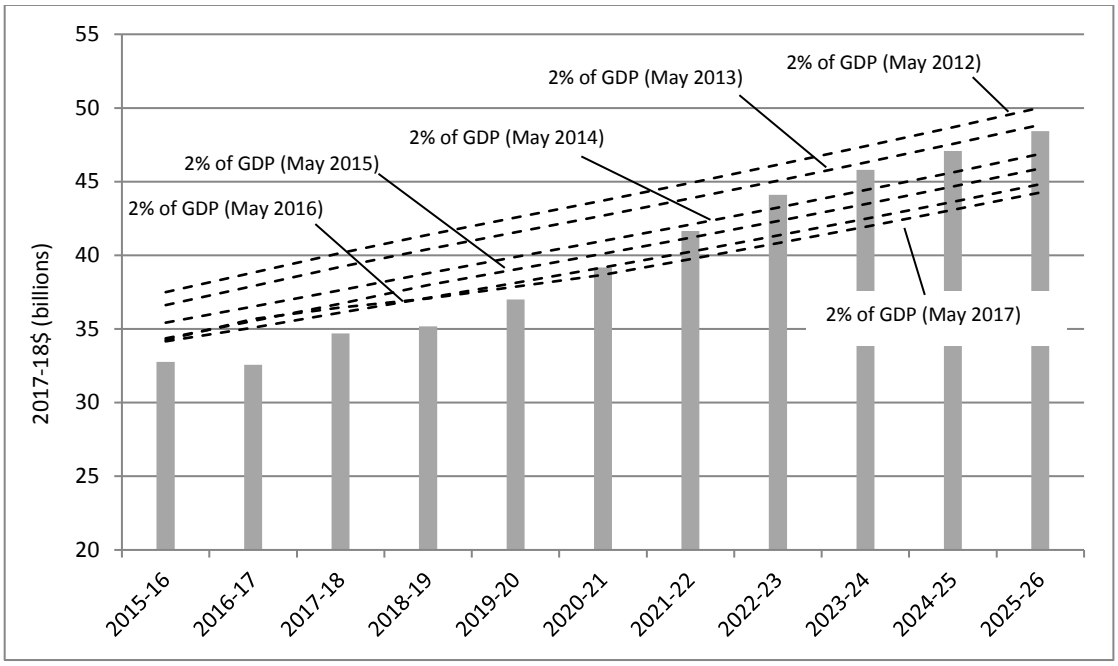
It would be nice to think that that the early attainment of 2% of GDP represented a deepening commitment to a stronger ADF by the government. That's probably not the case. Instead, the early attainment of 2% of GDP almost certainly reflects that Defence was given a funding envelope in late 2013 or early 2014 when (1) GDP growth estimates were higher and (2) the Australian dollar was worth more. As estimates of growth moderated and the dollar fell in value, the GDP share automatically grew—without Defence gaining an iota of additional buying power. A full analysis of the dynamics was included in last year's Budget Brief. Successive estimates of what 2% of GDP meant are shown in Figure 3.4. Over the past 12 months, projected GDP has declined again.

Where will the money go?

Defence 2016 provides a useful 'layer cake' chart (p. 182) of plans for spending the money over the next decade. Because the categories do not correspond to those used in Defence's public reporting (such as the Capital Investment Program and Capability Sustainment Program discussed in Chapter 2.1), we cannot include earlier years or reflect changes due to the 2016 Budget. It nonetheless warrants close examination to see what it tells us about where the money will go in the medium to longer term. Figure 3.5 shows the four categories of spending in real 2017-18 dollars.

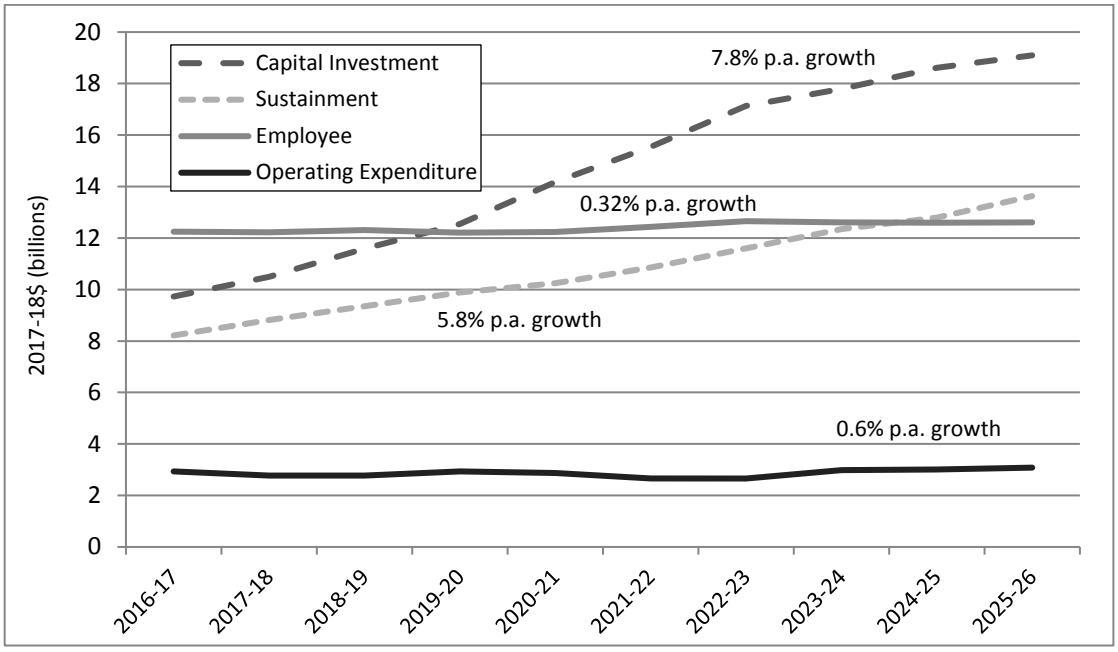
Although *Defence 2016* claims that the 'Integrated Investment Program allocates approximately $195 billion in the decade to 2025–26 for investment in new and enhanced capabilities', there is only $162 billion in capital investment guidance in the White Paper's Figure 5.

Figure 3.4: GDP share is rising because the GDP is falling



Source: Various Budget Papers and analysis of 2016 Defence White Paper

Figure 3.5: Trends in 2016 White Paper financial guidance categories



Source: Analysis of Figure 5 from 2016 Defence White Paper

It's informative to look at analogous trends in the budget. Table 3.6 compares the trends in *Defence 2016* with those for the Capital Investment Program, Capability Sustainment Program and Cash Employee Expenditure for the period 2016-17 to 2020-21 (which is the extent of temporal overlap between the two data sets). No ready comparator for what the White Paper calls 'operating expenditure' is available. Growth rates are annualised, compounding and real, based on CPI.

Table 3.6: Annualised trends in 2016 White Paper financial guidance 2016-17 to 2020-21

	2016-17 Portfolio Budget Statement (Capital Investment Program, Capability Sustainment Program & Employee Cash)	2017-18 Portfolio Budget Statement (Capital Investment Program, Capability Sustainment Program & Employee Cash)	2016 Defence White Paper (Capital Investment Guidance, Sustainment Guidance & Employee Guidance)
Capital Investment	6.5%	9.0%	7.8%
Sustainment	5.4%	6.2%	5.8%
Employee	-0.2%	0%	0.32%

Source: Analysis of data from 2016-17, 2017-18 PBS and 2016 Defence White Paper

Comparing the rates of growth, the employee figures are fully consistent and the difference between the sustainment figures is small enough to be explained by varying definitions. The capital investment figures, however, are more difficult to reconcile, but probably reflect the significant variations in capital investment over time. While personnel and sustainment costs tend to be smooth, capital investment is often 'chunky'.

Is the White Paper 'fully costed'?

The White Paper says that the '10-year funding model is based on a fully costed future force structure, with external validation of these costs by experts in cost assurance from private sector companies which are globally recognised for their cost analysis and assessment services'. As we detailed in 2015, Defence spent more than $14.5 million on those external cost estimates. The fruits of their labour appear in the 2016 Integrated Investment Plan (IIP) and Figure 5 of *Defence 2016*.

Only time will tell whether the equipment costs in the IIP are accurate or not, but anecdotal comments from industry point to a possible overestimation bias in some of the figures. While that might simply reflect the use of 'out-turned' numbers, which inflate financial figures relative to current values, at least some of the cost estimates seem overly generous. For example, it's unclear how to spend $4–5 billion sensibly on the AWD combat system over the next decade, given that the vessels only cost $9 billion to build and are yet to be delivered. Recent extensive upgrades of Japanese vessels with the same combat system only cost several hundred million dollars per vessel, and the actual combat system itself only cost $400 million per vessel to acquire.

If the White Paper authors and their globally recognised experts have erred on the side of caution with equipment costs, they have done the opposite with employee costs. Using the White Paper's workforce figures and employee financial guidance (Figure 5), per capita employee expenditure can be calculated. The result is that planned per capita costs fall by 0.3% per annum across the decade.

Such a reduction is difficult to credit. Although there are planned reductions in the number of executive and middle management positions, those have so far only amounted to around 520 fewer people in civilian and military executive/middle management positions out of

8,700 (comparing 2014-15 with 2017-18). Just as importantly, there are plans to strongly upskill the Defence workforce.

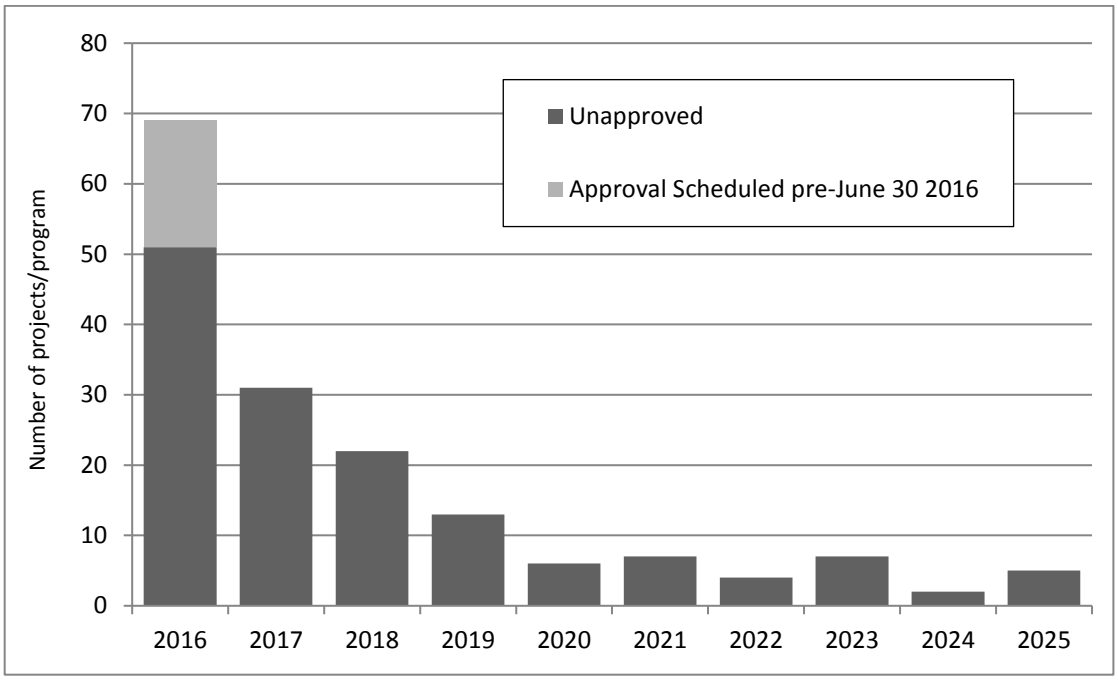
The expansion and rebalancing of the integrated workforce will create the new jobs needed to build a high-tech Defence organisation for the 21st century. In part, that represents the need to crew the new advanced platforms being acquired, such as the Joint Strike Fighter. At the same time, *Defence 2016's* avowed 'emphasis on intelligence, space and cyber security capabilities to meet our future challenges' will see more people working in those areas. Other areas of growth include engineering, logistics, force design and analysis, and additional military and civilian overseas postings. *Defence 2016* is clear about the net impact of the changes: 'As Defence adopts new and more complex capabilities, the demands on the integrated workforce will increase.'

Consequently, it's difficult to reconcile the planned cuts to per capita employee costs with *Defence 2016's* promise to ensure that 'the employment offers to Defence staff remain competitive to attract and retain the right number of people with the skills Defence requires'. Whatever happens with acquisition and sustainment costs, it appears likely that employee expenses will emerge as a budget pressure in the years ahead.

Can the White Paper be delivered?

Although the commencement dates of acquisition windows in the IIP are unlikely to coincide with project approvals, it is reasonable to conclude that there are many approvals planned over the next few years given the distribution of acquisition window commencement dates in Figure 3.6.

Figure 3.6: Commencement dates of 'Indicative Acquisition Windows' in the 2016 IIP



Source: 2016 Integrated Investment Plan

The expectation of a looming rush of approvals was reinforced by the 2016-17 PBS, which listed 36 equipment approvals for 2016-17 as a *sample* of the projects to be considered. The IIP mentioned a further 18 projects—including 16 equipment and 2 facilities projects—

scheduled for approval prior to 30 June 2016. Not to be outdone, the 2017-18 PBS lists another 57 projects for approval, see Table 3.7. The 2017-18 list includes 40 equipment projects, eight Information Communication Technology (ICT) projects, and nine estate projects.

Progress-to-date is hard to assess. For the first time in decades, the 2015-16 Defence Annual Report did not list projects approved during the year. Instead, there was a list of eight projects 'transferred to' CASG, which does not mean they have achieved second pass (since two of those projects are scheduled for second-pass in 2017-18, and one looks to be a minor project). The 2016-17 PAES said that 29 projects had been approved during the year, but only listed 15 approvals (3 first-pass, 10 second-pass and 2 others), which were referred to as both 'major' and 'significant'. Defence declined to provide ASPI an updated list of 2015-16 or 2016-17 approvals.

In the absence of better information, we've had to use the fragments disclosed by Defence, augmented with additional data from media releases and announcements. Our best estimate of approvals for the past two years appears in Figure 3.7. Where a project has been approved in a later year, we've counted that approval in the year it occurred. Where a project has been announced but not foreshadowed, we've added it to both the number approved and the total number of projects planned for the year.

Table 3.7: IIP approvals planned and actual—what we know

2015-16 — 36 projects			
approved (1st pass)	4	unapproved (1st pass)	0
approved (2nd pass)	14	unapproved (2nd pass)	4
approved (other)	2	unapproved (unknown/other)	12
total approved & identified	**20**	**total potentially unapproved**	**16**

2016-17 — 41 projects (including 2 delayed from 2015-16)			
approved (1st pass)	3	unapproved (1st pass)	8
approved (2nd pass)	10	unapproved (2nd pass)	15
approved (other)	2	unapproved (unknown/other)	3
total approved & identified	**15**	**total potentially unapproved**	**26**
total approved but not identified	**29**		

2017-18 — 59 projects (including 1 delayed from 2015-16 and 5 from 2016-17)	
For approval (1st pass)	20
For approval (2nd pass)	37
For approval (other)	2
total for approval	**59**

There are two uncertainties. First, we do not know what additional projects were planned for approval beyond the 'samples' disclosed in 2015-16 and 2016-17. Second, we do not

know what was contained in the 29 projects announced as approved in the 2016-17 PAES. Setting aside those uncertainties, here's what we can say:

- Sixteen projects are unaccounted for from 2015-16, of which at least three were delayed into subsequent years. Thus, at least 3 and as many as 16 failed to gain approval on schedule.
- In 2016-17, 29 projects were approved prior to the May Budget, of which 15 can be identified. Twenty-six projects are unaccounted for, of which at most 29 – 15 = 14 could be within the 29 approvals. Thus, at least 26 – 14 = 12 projects remain to be approved in 2016-17. We also know that five projects scheduled for 2016-17 have been delayed into 2017-18 for approval. So, at least five and as many as 12 or more projects will fall behind schedule in 2016-17.

As best can be estimated, approvals look to be at least eight projects behind schedule and potentially many more. But, at the same time, at least 20 + 29 = 49 projects have been approved over the past 22 months. Moreover, there is often a surge in approvals in the final months of the financial year. So, while it's clear that approvals are behind schedule, the rate of approvals is commensurate with, or better than, what has been achieved historically, Table 3.8.

Table 3.8: Historical first- and second-pass approvals

	Actual													Plan
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
First pass	10	8	14	3	4	4	7	11	4	6	5	4	3+	20
Second pass	7	12	14	6	9.5	11.5	10	16	15	9	13	14	10+	37
Total	17	20	28	9	13.5	15.5	17	26	19	15	18	18	29	57

Source: DAR and data from Defence

It's early days yet, but the pace of approvals is better than might have been expected given recent disruptions due to organisational change and the 2016 election. See Chapter 4 for a fuller discussion. Of course, project approvals are but one of several potential sources of delay to the investment program. Experience shows that extended contract negotiations and slow deliveries of equipment by industry also introduce delays.

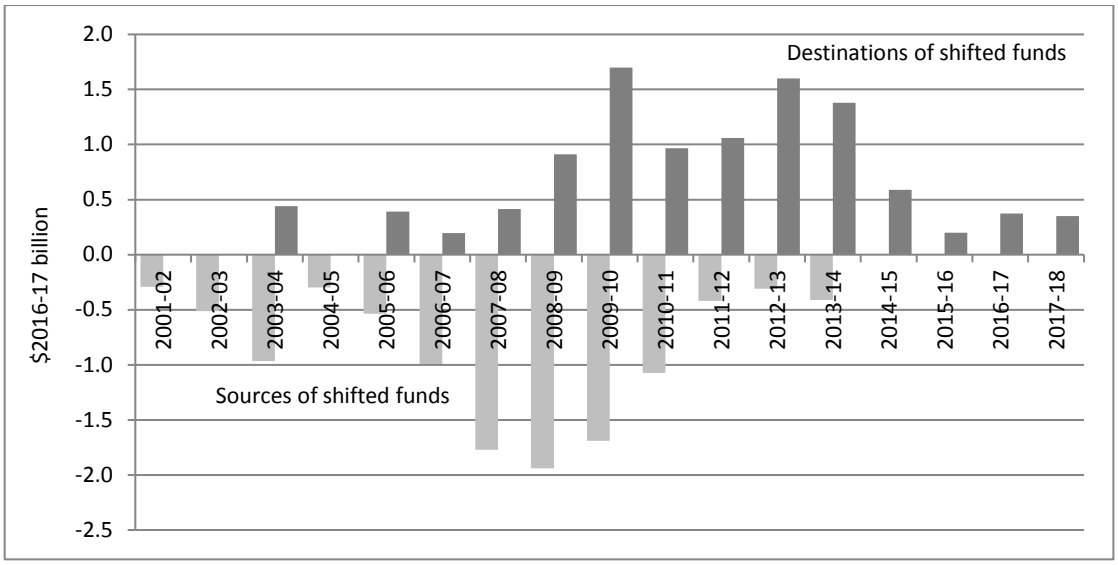
The last time that there was a concerted effort to expand the investment program was following *Defence 2000*. During that period, defence spending managed to grow at 5.3% in real terms while investment grew at around 5.4%. This time around, although the overall budget will grow by only 4.5% (using 2016-17 as a start point), investment is slated to grow in real terms by 7.8% per year.

The results of the earlier, less-ambitious, program were disappointing, to say the least. Figure 3.7 shows the shifts to planned investment that occurred between 2001-02 to 2008-09 (the year immediately prior to *Defence 2009*). In total, $9.5 billion was delayed by an average of 4.4 years and $1.6 billion was brought forward by an average of 4.1 years. The

net result was 34.5 billion dollar-years of delay, where a dollar-year represents one dollar shifted by one year.

Over the same period, Defence underspent its budget on four occasions, including by $785 million in 2001-02, $500 million in 2003-04 and $680 million in 2007-08. A portion of the underspent funds flowed on into delayed investment spending, and some was handed back to government. Meanwhile, over at the quasi-independent DMO, $987 million of unspent funds (very quietly) accumulated in its intra-government account between 2005-06 and 2007-08—funds that were reported as spent by Defence.

Figure 3.7: Delays in capital investment 2001-02 to 2008-09



Source: 2002-03 PBS and 2008-09 PBS

Finally, emerging trends in industry policy are likely to increase the likelihood of delays to the investment program. Back in 2008 (see the 2008-09 ASPI Budget Brief, Chapter 7), we examined historical defence procurements and found that delays were strongly correlated with projects that were:

- developmental
- software dependent
- Australian unique
- locally produced.

There's no escaping software dependence in the modern world, but the other three factors are largely discretionary. Over the past decade, we've seen a growing number of off-the-shelf purchases of proven equipment from established production lines. Examples include the F/A-18F Super Hornets, C-17 transport aircraft and CH-47F Chinook helicopters. Those low-risk projects were all delivered on time and within budget. But the tide appears to have turned. As explained in Chapter 7, the government has made it clear that it wants more defence work done locally, and industry will surely oblige.

If that weren't enough, there also seems to be a renewed embrace of developmental solutions to the ADF's capability needs. Both the new submarine and frigates will be highly developmental. Moreover, the government's new Defence Industry Policy Statement (DIPS) released alongside *Defence 2016* places a high emphasis on innovation, science and

technology, including through a new $73 million a year Next General Technologies Fund. The fact the DIPS uses the word *innovation* 186 times, and mentions *off-the-shelf* but once, does not bode well for containing the level of risk in future defence projects.

Will the money be delivered?

On the surface, it looks like the best of times for Defence. The long-awaited *Defence 2016* has finally been delivered, and its centrepiece explicit ten-year funding commitment has received bipartisan support. But promises are easy when surpluses are an electoral cycle or more away; past experience shows that defence spending is most at risk when a surplus comes within reach. In what might turn out to be a fateful coincidence, defence spending is slated to hit 2% of GDP in 2020-21, the same year that a return to surplus is anticipated. With the next federal election likely in mid-2019, the temptation will be to budget for a surplus a year early, in 2019-20—what better way to establish economic credentials prior to going to the polls?

The priority to fund defence will depend on events. A clash in the South China Sea or a severe recession could quickly tip the balance in different directions. As well as such external events, there's also a risk endogenous to Defence's situation that could change things profoundly. Few things would encourage a government to abandon its commitment more than Defence being unable to spend the money it already has. As occurred following *Defence 2000,* we could see a situation where falling confidence in Defence's ability to spend results in large deferrals. In this way, the various headwinds pushing against the delivery of capability could eventually undermine the prospects of reliable funding.

Chapter 4 –Defence Reform

Key Points

The implementation of the recommendations of First Principle Review (FPR) of Defence is on track.

Nearing the end of the two-year implementation period, 63 of 69 FPR recommendations have now been completed.

There are signs of both benefits and risks from the new capability life cycle.

On the 1 April 2015, the government released the report of the independent First Principles Review of Defence. As a result, Defence has been undergoing its second major reform program in less than a decade. Its predecessor, the Strategic Reform Program (SRP), was only abandoned in 2013.

This chapter is divided into four sections. The first surveys defence reform over the past 35 years. The second summarises the SRP. The third reports progress on implementing the First Principles Review. A fourth and final section looks at the efficiency dividends imposed on Defence in the Budget.

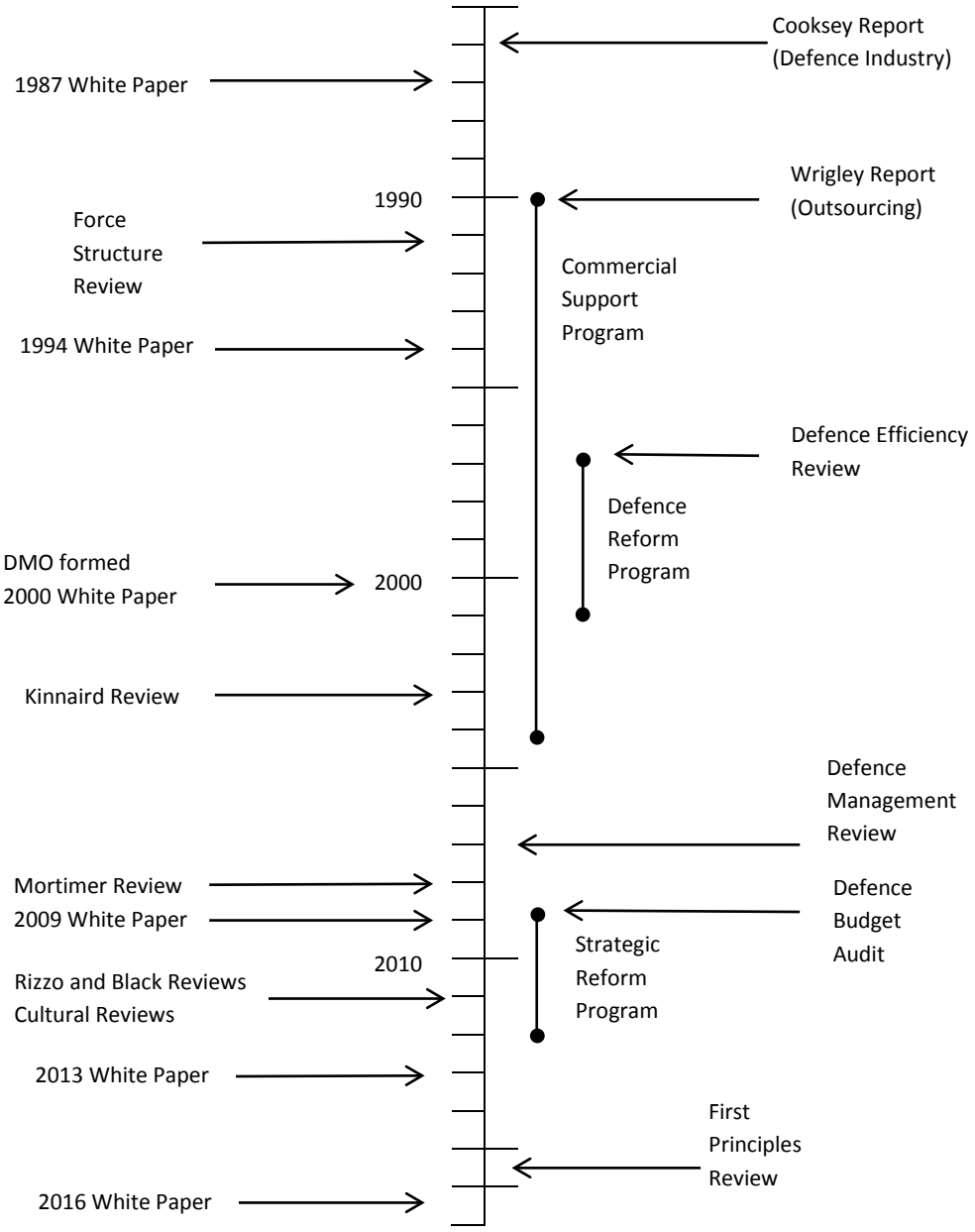
A detailed examination of the First Principles Review can be found in the 2015 ASPI Special Report *One Defence—one direction?*, available from the ASPI website. While the emphasis here is largely explanatory, the aforementioned publication provides a critical analysis of the program. For further background on Defence reform, see previous editions of the Budget Brief and Ergas (*Agenda*, Volume 19, #1, 2012) and Ergas and Thomson (*Agenda*, Volume 18, #3, 2011). Consistent with the financial focus of the Budget Brief, Defence's cultural change program *Pathways to Change* is not examined.

Background

The Australian Department of Defence was created in 1976 by the amalgamation of the previously separate three services and civilian department. As with similar consolidations in the United States and United Kingdom, the goal was to achieve greater inter-service cooperation and, to an extent, impose closer civilian oversight. The resulting organisation was largely a federated structure with central execution of policy development, financial management, force structure planning, science and technology, and capital acquisition. Then, as now, a diarchy of the Secretary and Chief of the Defence Force (CDF) lead Defence with separate and overlapping responsibilities.

In the late 1980s, Defence commenced a long-term program of systematically market testing non-core functions. Under the auspices of the Commercial Support Program, see Figure 4.1, civilian and military activities were compared with private sector alternatives. By the end of turn of the century around 16,000 positions had been market-tested with around 66% of activities examined transferred to the private sector. Activities included printing, repair and maintenance of equipment and facilities, medical services, technical training, corporate services, catering and information technology. Around the same time, the government divested itself of shipyards, munitions plants and aircraft factories. By 2000, the civilian workforce had fallen from 40,000 to 16,300 positions and the military from 70,000 to 50,300. These reductions were largely the result of outsourcing and privatisation, notwithstanding that several thousand military positions were also lost due to the 1991 Force Structure Review.

Figure 4.1 Defence reform: 1985 to 2015



In 1996, the newly elected Liberal–National government undertook a comprehensive Defence Efficiency Review involving a high-level private/public sector advisory team. The Review led to the Defence Reform Program (DRP), which ran between 1997 and 2001. The DRP:

- adopted a shared services model for a wide range of activities including personnel administration, materiel sustainment, training and education, base/facilities support and information technology
- geographically consolidated some activities and disposed of the resulting surplus property

• accelerated the outsourcing of activities, including many that had recently been consolidated.

The promised savings from the DRP were around $1 billion from a then budget of $10 billion. Although the DRP fundamentally restructured the organisation by embracing a shared services model, the long-term financial impact of the changes is difficult to discern. Most of the savings were used to 'buy-back' 7,000 military positions. But because there were no additional ships, planes or battalions raised, the 'buy-back' was as much a 'roll-back' of reform.

In 1999, the Australian-led mission to East Timor heralded a decade of high operational tempo and rising defence funding. With money flowing and attention focused on operational matters, efficiency reforms were put on the back burner and the shared services model eroded by the migration (and in some cases the duplication) of many activities back into the individual services.

In one area, however, reform continued during the 2000s. Beginning in 2000, materiel sustainment and acquisitions were consolidated by the creation of the Defence Materiel Organisation. There followed a series of reforms to capability planning and acquisition precipitated by several embarrassing multi-billion-dollar acquisition debacles. Key developments included:

• re-establishment of DMO as a quasi-independent 'prescribed agency' with separate financial accounts from Defence

• the introduction of a two-pass process of project approval that saw the National Security Committee of Cabinet directly involved in the approval of large defence acquisitions

• revamped project governance and professionalisation of the DMO workforce.

The merits of the reformed DMO are difficult to judge given the extended duration of major defence projects, but some improvements arose in the delivery of projects on schedule and within budget. As for the two-pass process; alignment between strategic policy and capability development remained elusive, and the time taken to conceive and approve projects increased.

Towards the end of the 2000's, there emerged two (almost contradictory) propositions about Defence funding. First, that there was not enough money in projected Defence funding to afford all that was planned in terms of new equipment and attendant personnel and operating costs. Second, that Defence was not as efficient as it could be, having grown fat and complacent after close to a decade of escalating funding. Faced with that situation, in early 2008, the then government directed Defence to find $10 billion of savings over the next decade.

Then in May 2008, the government appointed George Pappas to audit the Defence budget. His report was delivered to the Minister in April 2009. The Budget Audit identified prospective savings of $1.3 billion to $1.8 billion a year based on 2007-08 spending, plus one-off savings of between $218 million and $398 million. On an out-turned basis (taking

anticipated inflation into account), the prospective recurrent savings over the decade commencing 2009-10 were between $15 billion and $20.7 billion.

To the work of the Budget Audit were added (1) the initial work done by Defence to save $10 billion, (2) the results of the 2008 Defence Procurement and Sustainment Review and (3) the results of a series of internal 'companion reviews' conducted in parallel to the development of the 2009 Defence White Paper. The result was the Strategic Reform Program; a package of reforms and efficiency initiatives to improve Defence's performance and deliver $20.6 billion of savings over the subsequent decade for reinvestment in capability.

The Strategic Reform Program

There were three key elements to the Strategic Reform Program (SRP); improved accountability, improved planning, and enhanced productivity. Planned reforms to accountability and planning were detailed in the 2009-10 Budget Brief.

Reporting against the $20 billion savings program was abandoned only three years into its planned ten-year life. Although it was not said directly, it is likely that the savings program became unviable because of deep cuts to Defence funding in the 2012-13 budget coupled with mounting budget pressures in areas that had supposedly been delivering savings.

That was no great loss. As contemporary editions of the Budget Brief explained, the much lauded $20 billion savings program was implausible and exaggerated, with savings reported against inflated hypothetical business-as-usual baselines. There was no actual transferring of savings from one part of Defence to another. The notional savings were built into group budgets back in 2009. In fairness, however, some savings were achieved and some worthwhile reform occurred, but not on the financial scale claimed.

In 2011 and 2012, further savings efficiencies were announced in addition to the original SRP program. Unlike their predecessors, the new efficiencies represented cuts to defence funding rather than the freeing up of funds for redirection within Defence. As such, there is no question of whether the savings were delivered or not; the money was removed from the Defence budget and returned to the Treasury. With defence funding being cut repeatedly and deep, the notion of pursuing efficiency savings under the SRP became fanciful. So it was, that the government abandoned the reporting of SRP savings in 2012. Further cuts occurred in 2013 and 2014.

As explained in the 2014 Budget Brief, worthwhile reform continued in Defence after the end of formal SRP reporting. In particular, substantial progress was made in rolling out 'smart sustainment' in DMO and the Services and progressive reform continued towards the consolidation of the shared services model.

The First Principles Review

Consistent with its election promise, the Abbott government initiated the First Principles Review (FPR) on 5 August 2014. The five-person review panel was chaired by David Peever (former Rio Tinto managing director) and included Peter Leahy (former Chief of Army), Jim McDowell (former BAE Systems executive), Robert Hill (Defence Minister in the Howard government) and Lindsay Tanner (Finance Minister in the Rudd government). Panel

members were engaged under seven-month contracts valued at $322,575 each. The panel was assisted by the Boston Consulting Group and an in-house secretariat from Defence. The Boston Consulting Group was engaged under a six-month contract valued at $4,950,000 dollars.

In announcing the review, the Defence Minister said that it would 'make recommendations designed to ensure Defence's business structures support the Australian Defence Force's principal tasks out to 2030'. ASPI's 2015 report *One Defence—one direction?* reproduces the review's lengthy terms of reference. They're a peculiar mix of the general and the specific. On the one hand, the review was given a wide remit to look at Defence's structure and business processes. On the other, it was tasked to report on a range of very specific issues, from the organisational arrangements for geospatial intelligence to improving cash-flow estimation for capital investment.

Background

According to the FPR report, there have been over 35 significant reviews of Defence since the absorption of the three single services into the Department of Defence in 1973—and no fewer than 20 were undertaken between 2008 and 2011. In many cases, the reviews were direct responses to specific events. For example, the 2011 Rizzo review of naval sustainment followed the unexpected collapse of the RAN's amphibious lift capability just before a cyclone struck the coast of Queensland. Other reviews, such as the 2003 Kinnaird review of defence procurement, reflected long-term dissatisfaction with performance in a core function. The FPR falls into a third category: a comprehensive review of the entire enterprise, in the manner of the 1996 Defence Efficiency Review, the 2006 Defence Management Review and the 2008 Defence Budget Audit.

Going back to first principles

The review team 'conducted an end-to-end holistic review based on the outcomes required of Defence and founded on the first principles agreed by the review team'. The outcome required of Defence was taken to be its Strategic Direction Statement from government:

Protect and advance Australia's strategic interests through the provision of appropriately prepared and equipped armed forces. To achieve this, Defence prepares for and conducts military operations and other tasks as directed by the Government.

The seven 'first principles' agreed by the team were:

- **Clear authorities and accountabilities that align with resources:** decision-makers are empowered and held responsible for delivering on strategies and plans within agreed resourcing.

- **Outcome orientation:** delivering what is required with processes, systems and tools being the 'means not the end'.

- **Simplicity:** eliminating complicated and unnecessary structures, processes, systems and tools.

- **Focus on core business:** Defence doing only for itself what no-one else can do more effectively and efficiently.

- **Professionalism:** committed people with the right skills in appropriate jobs.

- **Timely, contestable advice:** using internal and external expertise to provide the best advice so that the outcome is delivered in the most cost-effective and efficient manner.

- **Transparency:** honest and open behaviour which enables others to know exactly what Defence is doing and why.

Although it's doubtful that the seven principles apply in every circumstance, and even less clear that they include everything to be desired of Defence, they're a reasonable and non-contentious starting point. Certainly, a defence organisation that fully reflected the seven principles would be a good thing.

Notwithstanding the 'first principles' methodology, the review was clearly also influenced by reforms to the UK Ministry of Defence following the 2011 Levene review. As in the past, Australian defence reform has taken its cue from UK developments.

The report

The review panel's report, *Creating One Defence* (henceforth *One Defence*), was released by the Defence Minister on 1 April 2015. 'One Defence' refers to the proposed end-state for Defence— 'a more unified and integrated organisation that is more consistently linked to its strategy and clearly led by its centre'. Presumably, **One Defence** (which appears in bold text throughout the report) is intended as a catch-cry for implementation.

In releasing the report, the Defence Minister said that the government had agreed, or agreed in principle, to 75 of its 76 recommendations—the exception concerned the future of the Defence Science and Technology Organisation (DSTO). Of the 76 recommendations, six are overarching imperatives within which 70 specific recommendation are grouped, leaving the 69 agreed recommendations.

Implementation

Implementation commenced immediately, and most of the changes were planned to be completed by April 2017. The review panel, along with Ms Erica Smyth, have formed an Oversight Board to monitor implementation, provide regular reports to the government, and assist Defence in making annual progress reports to the government.

The implementation process is being run centrally, with the Secretary and CDF leading a weekly implementation meeting. Reforms have been divided into five separate work streams; strategic centre, capability life cycle, enablers, workforce and behaviours. A senior Defence leader has been made accountable for each of the work streams. In addition, accountability has been assigned for each of the 69 recommendations.

During 2015, the priority was to design the new processes and structures demanded by the FPR and to plan their implementation. The focus for 2016 was on concrete implementation.

Progress to date

As of May 2017, 63 of the 69 recommendations had been completed (in April 2016 the figures stood at 36 of the 69). Defence advise that they are on track to complete the vast majority of recommendations by June 30, 2017. The status of specific recommendations is given at the end of this chapter. A summary of accomplishments by category is in Table 4.1.

Table 4.1: Status of FPR recommendations by category

#	Category	Count	%
1	Establish a strong, strategic centre to strengthen accountability and top level decision making	19/19	100%
2	Establish a single end-to-end capability development function within the Department to maximise the efficient, effective and professional delivery of military capability	18/20*	90%
3	Fully implement an enterprise approach to the delivery of corporate and military enabling services to maximise their effectiveness and efficiency	11/13	85%
4	Ensure committed people with the right skills are in appropriate jobs to create the One Defence workforce	4/7	57%
5	Manage staff resources to deliver optimal use of funds and maximise efficiencies	5/5	100%
6	Commence implementation immediately with the changes required to deliver One Defence in place within two years	4/5	80%
	TOTAL	63/69	91%

**There are 21 recommendations but one was not accepted.*

The Oversight Board is currently undertaking an independent Health Check, encompassing a stocktake of FPR recommendations, an assessment of accountability in Defence's senior committees, and an assessment of progress relative to the original 'problems' identified by the FPR. Defence advise that early indications are that the implementation of FPR recommendations has been broadly successful.

To continue the momentum of reform, Defence advise that it plans to retain the current FPR governance arrangements, including a dedicated implementation committee and an external Oversight Board. In addition, an evaluation framework is being designed, with strategic metrics to gauge how the reforms are being embedded into Defence. On balance, all signs are that the FPR is being carefully and systematically implemented.

Turning to specifics, with so many reforms underway it's impossible to report what's going on in each area. Instead, we turn now to looks at developments in two overarching areas; accountability, governance and structure, the capability life cycle, and Smart Procurement.

Accountability, governance, and structure

Consistent with the FPR's focus on a strong strategic centre and clear accountability, steps have been taken to strengthen the accountability of the Defence Senior Leadership Group, including by developing role charters for all its members. The role charters 'set out individual and shared accountabilities, decision rights and the agreed leadership behaviours'. In addition, a regime of 360^{o} feedback has been established for all Senior Executive Service personnel, and a new approach to Senior Executive Service performance agreements has also been adopted, to 'reinforce the agreed leadership behaviours' rather than focus only on results.

The key structural changes to Defence have now been concluded, including the formation of Capability Acquisition and Sustainment Group and the dismantling of the old Capability Development Group. At the higher governance level, the Defence Committee is operating with a streamlined membership and the new Enterprise Business Committee is up and running and managing the in-year performance of the organisation. More-coherent planning is evidenced by a raft of new medium term plans, including the Defence Strategic Workforce Plan 2016-2026; the Defence Estate Strategy 2016-2021 and associated Defence Estate Strategy Implementation Plan 2016-2021. In addition, Defence now has an Enterprise Information Management Strategy 2015-2025 and an enterprise-level Information Transformation Program.

Capability Life Cycle

In addition to the organisational restructuring mentioned above, the capability development life cycle process has been augmented by:

- Adding a 'gate zero' step in the capability life cycle to both confirm the priority of new proposal and allow the development of tailored acquisition paths consistent with the risks and maturity of the capability sought.
- Introducing arm's-length contestability of capability proposals to ensure that the Investment Committee has access to the full range of information and perspectives about the proposals it considers.
- Revamping processes within the Capability Acquisition and Sustainment Group to ensure that Defence becomes a Smart Buyer of goods and services. To this end, Centres of Expertise are being established to provide consistent approaches to the Group's core functions.

Consistent with the designation of industry as a 'fundamental inputs to capability', the 'Smart Buyer' approach will allow greater partnering between Defence and its suppliers of equipment and sustainment services.

Initial indications are encouraging. As an example of progress, Defence cites the streamlining of the project approval process. Prior to the FPR, the average government submission was 70 pages, and took 16 weeks to move through the Cabinet preparation process and an average of 46 months to go from first-pass to second-pass approval. After the FPR reforms, submission lengths fell to an average of 19.4 pages, took only 6 weeks to move through the Cabinet preparation process, and an average of less than 12 months (ranging from 2 to 10 months) to go from first-pass to second-pass approval. Moreover, Defence advises that some Cabinet approvals now occur 'below the line' at the National Security Committee, where approval is granted without further Cabinet consideration, based on support from all Central Agencies.

Further evidence offered by Defence of significant improvements to Capability Life Cycle processes include:

- The key bureaucratic artefacts governing procurement have been simplified. For example, the Defence Procurement Policy Manual has been reduced from 485 pages to 62 pages.

- Mandatory procurement requirements have been reduced from 290 to 53.
- The Smart Buyer methodology has enabled Defence to opt for a sole-source request for tender, dramatically reducing the time and costs associated with the tender process.

A critical test for the revised approach to capability development is the timely approval of projects. However, Defence no longer discloses sufficient information to allow an unambiguous assessment to be made. But while that might be taken to imply that progress has been poor, I doubt that's the case. There's enough evidence to conclude that approvals are probably going well, despite the substantial number needed to deliver the 2016 Integrated Investment Plan.

Sure, they are behind schedule; we know that because some projects that were planned for approved that have been rescheduled downstream. But, as best can be estimated, the pace of approvals has been at least as good as historical performance (see Chapter 3). The situation is certainly much better than I anticipated. With a new capability development process and a major internal reorganisation, I thought Defence would struggle to get even a fraction of planned projects through the National Security Committee (NSC) on time. I am pleased to have been wrong.

As the new arrangements are bedded down, we should expect the pace to pick up. It had better; the approval target for next year will be a critical test of the new arrangements; 20 first-pass and 37 second-pass approvals. That's more than twice the pace of approvals achieved prior to the FPR changes.

The several factors cited above have contributed with project approvals. Not least, bringing Defence's acquisition function back in-house has put an end to tensions between Defence and the Defence Material Organisation.

Just as importantly, the Smart Buyer approach now makes it easier to tailor acquisition strategies to be tailored to the demands of specific projects, rather than using a one size fits all template. The recent decision to sole-source the Ground Based Air Defence (GBAD) project following a request for information, rather than going to a competitive tender, is an oft-cited example.

But we shouldn't fool ourselves about the revised approach. It's largely just a reversion to the pre-Kinnaird situation. On multiple fronts, the FPR has simply turned back the clock to where we were prior to 2004, with one crucial difference—we've added in the 1990s 'buy Australian' defence industry policy. Everything old is new again.

We've gone back to the processes and policies that spawned such memorable favourites as JORN, FFG Upgrade, Super Seasprite, HF Modernisation and, yes, Collins. As for the contestability function, it didn't save us last time, and it won't do so this time.

Not all the Kinnaird process was a waste of time. While it's likely that few people ever read the ponderous 80 page submissions of a few years ago, the mere act of preparation meant that Defence had to dot the i's and cross the t's before going forward. And as for the tensions between Defence and DMO, the most bitterly fought tussle was over whether DMO

should provide independent advice to the government about project risk. It's worth a moment to reflect on why Defence might have thought that was a bad idea.

Even the much-lauded smart procurement approach is hardly new. Acquisition strategies have always been tailored to the problem at hand. Simultaneous first- and second-pass approvals occurred prior to the FPR, and sole-source acquisitions have been commonplace for as long as Defence has been buying kit.

For example, a haunting parallel of the recent GBAD decision can be found in October 1999 decision to truncate the process and sole-source the MU90 lightweight torpedo following a request for proposal. Despite the immaturity of the product, and the challenges of integrating a European torpedo onto multiple US designed platforms, Defence thought they knew enough to make the call. It probably didn't hurt that—like the successful GBAD supplier—the project came with a juicy local-content industry package.

After languishing on the projects of concern list, the MU90 achieved final operational capability in September 2013, one month shy of fourteen years after the decision to sole-source. And, as the ANAO observed, the project experienced a cost increase that was only accommodated by reducing the number of platforms the torpedo was integrated onto. As a result, the ADF now has two types of light-weight torpedoes in inventory—with all the duplication of costs that entails.

Consider also the Air Warfare Destroyer project. The design phase began with a bespoke 'baby-Bourke' as the preferred design. Even Blind Freddy knew that the Navantia F-100 was a stalking horse that had only been included because of the Kinnaird rule that mandated an off-the-shelf option. But, once the phase was complete, it became clear that a properly informed analysis of cost, risk and capability favoured the Spanish design. Given the multiple schedule delays and the cost blowout experienced with the less-ambitious F-100, imagine where we would be now if we'd truncated the process and sole-sourced the US design. But maybe we'll gain that insight yet, having chosen our submarine design through a beauty contest.

It's delusional to think we've moved to a new process that's better in every way better than the old one. There's no magic pixie dust that allows Defence to make better decisions with less work and in less time. It's still the same cadre of mid-level officers with little commercial or acquisition expertise doing the staff work on multi-billion dollar purchases.

Although some wasteful work has surely been eliminated, the more crucial factor is that we've adopted a different trade-off between time and risk. Under the Kinnaird system we expended time to reduce risk. Now we accept greater risks to save time. I don't make that observation as a criticism. On the contrary, I endorse shifting the balance between risk acceptance and schedule. The present strategic situation demands that we accept risks to strengthen the ADF sooner rather than later. But we need to be honest about what we're doing so that we can manage it properly. Two things need to happen.

First, the government needs to accept that things will go wrong and be ready to explain that to the public. Scapegoating industry and Defence won't cut it. The government needs to explain that the expeditious development of a cutting-edge ADF is a risky endeavour.

Second, we need to carefully manage the risks we're taking on. Of course, we should always do that but the imperative strengthens as we accept larger risks. A critical question is whether we are devoting sufficient resources to managing project risk. Only time will tell.

Conclusion

As an early critic of some of the FPR recommendations, I must concede that it has had an undoubted positive impact on Defence's performance—even in areas where I had misgivings. Nonetheless, in the critical area of the capability life-cycle, the FPR has introduced a greater acceptance of risk, which must be acknowledged if it is to be managed.

In part, the success of the FPR as a change program reflects the vigour with which it has been implemented. More so than any previous major Defence reform program, the changes are being managed actively from the top. Another factor is that, in stark contrast to both the Defence Reform Program and Strategic Reform Program, the primary goal is improved performance rather than financial savings. While some longer-term savings are anticipated, the organisation is not overwhelmed with poorly conceived and implausible savings targets as in the past. Indeed, prior attempts at Defence reform have faltered, at least to some extent, because they coincided with times of financial duress. With a strongly rising budget and a limited emphasis on savings, the organisation has been able to wholeheartedly focus on remaking itself to deliver the expanded ADF set out in the White Paper.

Efficiency dividends

The Coalition went to the 2013 election with the promise of 'no further cuts to Defence spending under a Coalition government'. That lasted until the 2014 Budget, when Defence was hit with a 0.25% increase to the non-operational efficiency dividend, albeit amounting to only $76 million over four years. Things then went quiet on the efficiency front for the next two Budgets, but we've recently seen $493 million cut from defence spending over four years.

How can we reconcile those cuts with the hoopla surrounding last year's 'fully costed' and 'affordable' 2016 Defence White Paper?

The first round of cuts came earlier this year, when $189 million was cut under the auspices of a budget measure entitled 'Public Sector Transformation and the Efficiency Dividend'. Despite sounding like the least-interesting Harry Potter movie ever, the measure was a one-off boost to the efficiency dividend imposed across government agencies from 2017 to 2019.

Efficiency dividends work like this: the government pretends that productivity growth is surging along in the public service (despite stagnant productivity in the Australia economy and abroad), and uses that to justify taking money away. Impacts vary from agency to agency. Efficient departments have no choice but to reduce the quality/quantity of their products. Less efficient departments can either do the same, or cut unnecessary costs, which, because public sector agencies don't have the discipline of turning a profit, can easily creep in. Even so, efficiency dividends are like weeding the garden blindfolded; it hurts the daffodils as much as the thistles.

In the 2017 Budget, a further $304 million was taken from Defence over four years due to a reduction of funding for 'contractors, consultants and business travel'. If the measure is

extended in proportion to gross funding across the reminder of the initial White Paper decade, Defence will lose more than $1 billion. So, what do we know about Defence spending in the targeted areas? Table 1 lists Defence's expenses on travel and consultants, along with the number of contractors reported in the annual report.

Table 1: Trends in Defence expenses

	2013-14	2014-15	2015-16
Travel	$175 million	$188 million	$236 million
Consultants	$44 million	$82 million	$91 million
Contractors	358 positions	361 positions	421 positions

Source: 2014-15 and 2015-16 Defence Annual Report

Let's start with travel. Defence ceased reporting international travel separately several years ago, so we must make do with a single aggregate figure. Even so, a jump of $61 million in two years is noteworthy. That's easily enough to fund 5,000 week-long business class trips to Europe or the United States each year. Chairman's lounge anyone? Unless a surge in deployment-related travel explains the recent data, belt-tightening seems in order.

A doubling of expenses for consultants over two years might seem a lot, but you probably don't get much change out of $3,000 a day for a defence-sector consultant. Nonetheless, that still implies 120 bright young things running around Defence with clipboards every working day. Again, the taxpayer probably won't shed a tear if Defence relies a little less on gun-for-hire MBA graduates.

Finally, there are the contractors. I've been arguing for years that Defence's figures understate its reliance on contractors (see, for example, page 64 of the 2015 ASPI Budget Brief). In this year's budget, Defence revised its definition so that there are now 2,087 on the books, so you can ignore the contractor numbers in Table 1. Assuming those folks are costing *half* the average $512,000 per annum paid to contractor filling positions in the submarine project a couple of years ago (see page 206 of the 2015 ASPI Budget Brief), the total bill still comes to $522 million a year.

It can make sense to use contractors (as opposed to expanding the public service workforce), if the positions are only needed temporarily, such as contracting a specialist engineer to help solve a one-off problem. But it stretches credulity to think that there are more than 2,000 such positions when the Defence civilian workforce is only 17,350. Once more, the case for an efficiency dividend looks more than reasonable.

On balance, the imposition of less than $100 million a year in total efficiencies per annum on travel (cost: $236 million p.a.), consultants (cost: $91 million p.a.) and contractors (estimated cost: $522 million p.a.) is neither overly onerous nor unjustified in the circumstances. Not only is it a drop in the ocean of the $151 billion budgeted over the next four years, but it's well below the financial gains to Defence from being indexed for inflation at 2.5% p.a. when the CPI has been running at around 1.75% since the White Paper. In those two years, Defence has received a windfall gain in buying power of around $500 million a year (2 x 0.75% x $34.7 billion). Across the decade to 2020-16, the accumulated gain implied by

current Treasury estimates is $7.3 billion. Of course, that could be reversed in inflation exceeds 2.5% for several years.

Workforce numbers might not be a problem either—but not for the reason you might think. The planned growth in civilian numbers over the next several years won't make up for fewer consultants and contractors. A target of 18,200 was set in last year's White Paper, to support new capabilities entering service. However, Defence's civilian workforce is currently 600 positions below the figure budgeted for in May 2016-17, so there's clearly room to replace some of today's consultants and contractors with tomorrow's public servants. And, as we've seen, you don't have to lose too many highly-paid outsiders to clock up $100 million in savings—30 consultants and 300 contractors should just about do it.

The question is whether Defence can attract the people it needs. Defence civilian individual and workplace morale (see Chapter 2.8) is substantially lower than that of the ADF, and the last time civilians received a pay rise was back in July 2013. It takes more than carelessness to allow your workforce to decline by 600 positions more than planned in a single year.

Status of specific recommendations

The status of specific recommendations as at May 2017 is given in the six tables below.

1. Establish a strong, strategic centre to strengthen accountability and top level decision-making			
#	**Recommendation**	**Accountable**	**Status**
1.1	This review be adopted as the road map for Defence reform for the next five years	Secretary	Done
1.2	A new One Defence business model	Secretary	Done
1.3	The diarchy is retained.	Secretary	Done
1.4	The individual and shared accountabilities of the Secretary and the Chief of the Defence Force be clarified, formally documented and promulgated through the organisation	Secretary	Done
1.5	A streamlined top level management structure for the Department that is aligned with the One Defence business model	Secretary	Done
1.6	The strategic centre include the Associate Secretary and Vice Chief of the Defence Force as the integrators for the Defence enterprise and the future force and joint capabilities respectively.	Secretary/ CDF	Done
1.7	The Vice Chief of the Defence Force's decision rights be greatly strengthened, including the right to stop projects proceeding through the approval process until joint force integration is proven.	Secretary	Done
1.8	Legislative changes to formally recognise the authority of the Chief of the Defence and the Vice Chief of the Defence Force, including removing the statutory authority of the Service Chiefs	CDF	Done
1.9	Policy advice be strengthened by bringing all policy functions into one organisational unit in order to improve the quality of advice provided to Government	DEP SEC SP&I	Done
1.10	A strong and credible internal contestability function be built and led by the Deputy Secretary Policy and Intelligence with responsibility for strategic contestability, scope, technical and cost contestability	DEP SEC SP&I	Done
1.11	The policy and intelligence functions be combined under a Deputy Secretary Policy and Intelligence, who will have responsibility for providing policy advice and intelligence assessments to the Secretary and the Chief of the Defence Force	Secretary	Done
1.12	The Defence Security Authority be repositioned under the Associate Secretary	Secretary	Done
1.13	The Defence Committee be re-positioned as the primary decision making committee of Defence and the heart of the strategic centre with two supporting committees – Enterprise Business Committee and Investment Committee	Secretary	Done
1.14	All other enterprise-wide committees be reviewed for their relevance and alignment with the One Defence business model with the aim of a substantial reduction in the number of committees	Secretary	Done
1.15	The organisational structure reporting to the Vice Chief of the Defence Force be simplified through the incorporation of a two-star Head of Joint Enablers role.	CDF	Done
1.16	A strengthened centre-led, enterprise-wide planning and performance monitoring process be adopted.	ASSOC SEC	Done
1.17	The Associate Secretary be the central authority to deliver enterprise planning and performance monitoring processes, in line with the requirements of the Public Governance, Performance and Accountability Act 2013.	Secretary	Done
1.18	The Minister for Defence meet with the Defence Committee twice yearly to consider a formal strategic assessment of the alignment between Defence's strategy, funding and capability.	Secretary	Done
1.19	Defence conduct regular reviews of the capital program in consultation with the Minister and central agencies.	Secretary	Done

2. Establish a single end-to-end capability development function within the Department to maximise the efficient, effective and professional delivery of military capability			
#	**Recommendation**	**Accountable**	**Status**
2.1	Disbanding the Capability Development Group and dispersing its functions to more appropriate areas	VCDF	Done
2.2	Disbanding the Defence Materiel Organisation and transferring its core responsibilities in relation to capability delivery to a new Capability Acquisition and Sustainment Group	VCDF	Done
2.3	Developing a new organisational design and structure as part of the implementation process for the Capability Acquisition and Sustainment Group with reduced management layers	VCDF	Done
2.4	Examining each System Program Office to determine where each fits within the smart buyer function, the most appropriate procurement model and achieving value for money	DEP SEC CAS	-
2.5	The Capability Managers specify the Fundamental Inputs to Capability requirements with the Capability Acquisition and Sustainment Group having responsibility for developing and delivering an integrated project plan	VCDF	Done
2.6	The accountability for requirements setting and management be transferred to the Vice Chief of the Defence Force and the Service Chiefs with strategic, financial and technical contestability being located with Deputy Secretary Policy and Intelligence	DEP SEC SP&I	Done
2.7	The Independent Project Performance Office and the Capability Investment and Resources Division be relocated to Deputy Secretary Policy and Intelligence, significantly enhanced and strengthened to provide such contest	DEP SEC SP&I	Done
2.8	Revising the Defence investment approval process for all large or complex capability projects	VCDF	Done
2.9	Introducing a new formal gate into the process at entry point - Gate Zero: Investment Portfolio entry	VCDF	Done
2.10	Government increase approval thresholds for capability development projects, with ministerial approval required only for projects above $20 million, two ministers above $100 million and Cabinet above $250 million	VCDF / DEP SEC SP&I	-
2.11	Significant investment to develop an operational framework which comprehensively explains how the organisation operates and the roles and responsibilities within it; detailing the life cycle management processes which provide project and engineering discipline to manage complex materiel procurement from initiation to disposal; and reviewing architecture to reinforce accountability at all levels and bringing together information upon which good management decisions can be made	DEP SEC CAS	Done
2.12	The Deputy Secretary Capability Acquisition and Sustainment must sign off and assure the Secretary of the operational output of each of his/her divisions every quarter and on major contracts on a monthly basis	DEP SEC CAS	Done
2.13	The use of net personnel operating costs process cease immediately	CFO	Done
2.14	Developing a Defence Investment Plan which would include all capital and related investments (such as materiel, estate and facilities, workforce and information and communications technology)	VCDF	Done
2.15	On Government approval, the entire project acquisition budget is allocated to the Capability Acquisition and Sustainment Group to ensure expenditure is in accordance with the project delivery plan	VCDF	Done
2.16	The Defence Science and Technology Organisation be required to clearly articulate its value proposition. This would include examples and actual amounts of value created	CDS	Done

2.17	~~The Defence Science and Technology Organisation become part of the Capability Acquisition and Sustainment Group~~	n/a	n/a
2.18	The Defence Science and Technology Organisation senior leadership be rationalised	CDS	Done
2.19	The Defence Science and Technology Organisation strengthen partnerships with academic and research institutions to leverage knowledge and create pathways with academia and industry	CDS	Done
2.20	Disbanding the Defence Science and Technology Organisation advisory board	CDS	Done
2.21	Defence, in partnership with academia and industry, review its research priorities, their alignment with future force requirements and capacity to leverage allied partners to promote innovation	CDS	Done

4. Ensure committed people with the right skills are in appropriate jobs to create the One Defence workforce			
#	**Recommendation**	**Accountable**	**Status**
4.1	As part of the budget and planning process, Defence build a strategic workforce plan for the enabling functions, and incorporate workforce plans for each job family in order to drive recruitment, learning and development, performance and talent management.	ASSOC SEC	Done
3.2	Defence employ Australian Defence Force personnel in non-Service roles only when it is critical to achieving capability and for a minimum of three years to achieve best value-for-money from the premium paid.	ASSOC SEC	Done
4.3	As many functions as possible be performed by public servants or outsourced if they are transactional in nature.	ASSOC SEC	Done
4.4	Defence review the entirety of its enabling and military corporate workforce to ensure that it supports the Australian Defence Force with the minimum of overlap and redundancy, and with the greatest overall economy, efficiency and effectiveness.	ASSOC SEC	-
4.5	Defence reduce organisational layers; increase the spans of control of managers; align workforce standards in accord with the requirements of the Australian Public Service Commission; and engage external assistance to facilitate this work as required.	ASSOC SEC	Done
4.6	Defence implement a transparent performance management system that is consistently applied, recognises and rewards high performance and introduces consequences for underperformance and failure to deal with it.	ASSOC SEC	-
4.7	As part of the performance management system, Defence take steps to create a culture where leadership, professionalism and corporate behaviour are valued and rewarded	ASSOC SEC	-

3. Fully implement an enterprise approach to the delivery of corporate and military enabling services to maximise their effectiveness and efficiency			
#	**Recommendation**	**Accountable**	**Status**
3.1	Defence define the estate need as determined by future force requirements and Government agree to dispose of all unnecessary estate holdings starting with the 17 bases identified in the 2012 Future Defence Estate Report	SDEP SEC E&I	Done
3.2	Defence strengthen its capability to present options to Government for estate disposal including obtaining expert external advice as required	SDEP SEC E&I	Done
3.3	The Government amend the *Public Works Act 1969* to set a $75 million threshold for referring proposed works to the Public Works Committee, and re-consider recent adjustments to the 2015-16 Budget operational rules that run counter to more efficiently managing investment spending	ASSOC SEC	-
3.4	The Associate Secretary be directed and resourced to implement enterprise information management that provides Defence with trusted information to inform decision-making and military interoperability, with the Vice Chief of the Defence Force as the design authority for the next generation of Command, Control, Communications, Intelligence, Surveillance and Reconnaissance	ASSOC SEC	Done
3.5	The information management agenda be governed at the Band 3/3 Star level by the Enterprise Business Committee to set overall direction and priorities, including the management of trade-offs and conflicts	ASSOC SEC	Done
3.6	Supporting the Chief Information Officer to meet these responsibilities by formally recognising the Chief Technology Officer as the technical authority with appropriate 'red card' decision rights	ASSOC SEC	Done
3.7	Defence establish enterprise-wide frameworks for architecture standards and master data management	CIO	Done
3.8	Defence embark on a pragmatic implementation road map to standardise business and information processes and their supporting applications	CIO	Done
3.9	Defence ensure adequate resourcing and funding for information management reform is prioritised as part of the fully costed 2015 Defence White Paper	ASSOC SEC	Done
3.10	Geospatial information functions be consolidated into the Australian Geospatial-Intelligence Organisation following improved resourcing and connectivity	DEP SEC SP&I	Done
3.11	The service delivery reform program, including full integration of the current Defence Materiel Organisation corporate functions, be completed	ASSOC SEC	-
3.12	All corporate services (with the exception of finance but including the Defence Security Authority) be consolidated under the Associate Secretary	ASSOC SEC	Done
3.13	All military enabling services (Joint Logistics Command Policy, Joint Health Command, Australian Defence College, Australian Civil-Military Centre) be consolidated under a Two-Star officer who reports to the Vice Chief of the Defence Force	VCDF	Done

5. Manage staff resources to deliver optimal use of funds and maximise efficiencies			
#	**Recommendation**	**Accountable**	**Status**
5.1	The use of the measures such as the teeth-to-tail ratio and the one third budget split should cease.	ASSOC SEC	Done
5.2	Appropriate efficiency measures are developed which link to the delivery of agreed outcomes.	ASSOC SEC	Done
5.3	The focus on public service reductions as the primary efficiency mechanism for Defence cease.	ASSOC SEC	Done
5.4	Defence manage its workforce numbers in line with good resource management practice where Defence is held to account for delivering on required outcomes within available resourcing.	ASSOC SEC	Done
5.5	As part of the implementation process, Defence examine the headquarters functions for opportunities to achieve more effective and efficient arrangements.	ASSOC SEC	Done

6. Commence implementation immediately with the changes required to deliver One Defence in place within two years			
#	**Recommendation**	**Accountable**	**Status**
6.1	No additional reviews on the organisational issues covered by this Review are imposed on Defence, particularly within the early years of implementation	ASSOC SEC	Done
6.2	Past reviews and current reform initiatives should be assessed for currency and alignment to the One Defence model	SEC	Done
6.3	Establishing an Oversight Board to provide close external scrutiny, advice on implementation progress and regular reports to the Minister	ASSOC SEC	Done
6.4	The Minister, with input from the Department and the Oversight Board, report progress on implementation to the Government in March 2016 and March 2017	SEC	-
6.5	Stability in the key leadership positions, particularly over the next two years to provide consistency of direction and ownership of the change	ASSOC SEC	Done

Chapter 5 – International Defence Economics

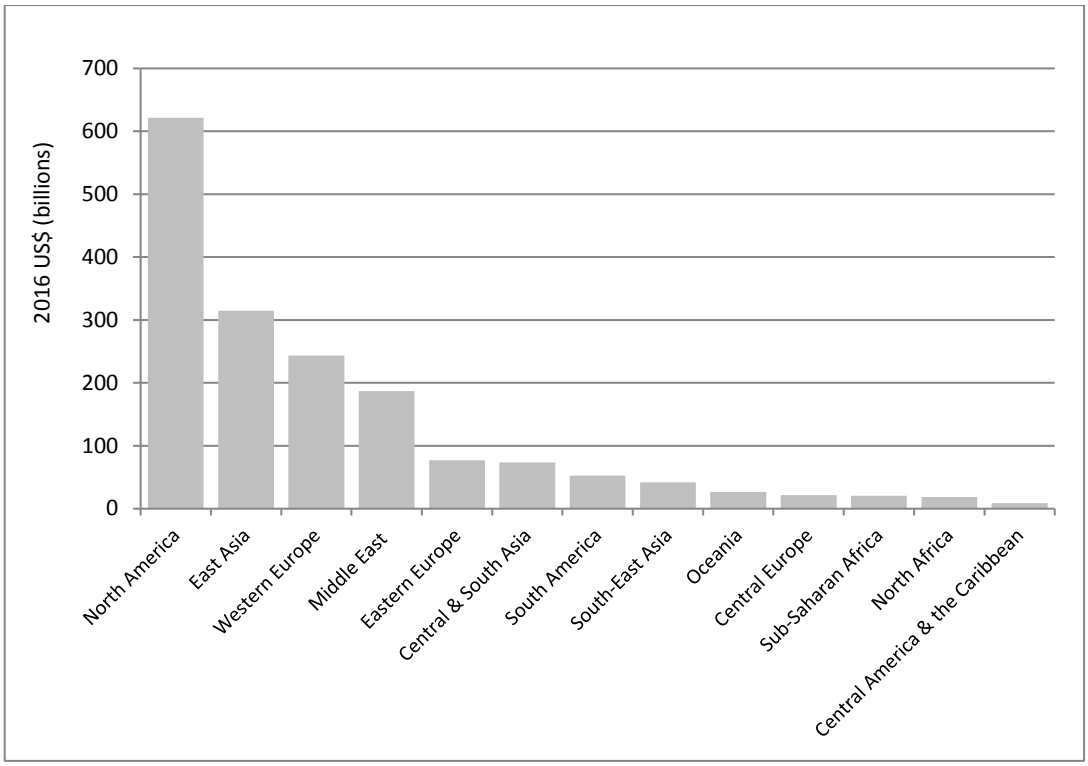
This chapter is divided into four parts. The first examines key international defence spending trends. The second explores Australian defence spending in an international and historical context, and the third explores the continuing impact of the Global Financial Crisis (GFC) on countries' abilities to spend on defence. A fourth section discusses the technicalities of comparative international defence spending.

Throughout this chapter, defence spending statistics from a variety of source are used. Given the unresolvable questions of definition and reliability, one source is usually as good as another. For that reason, the most convenient source of data has been chosen to allow for a consistent comparison in each case.

International defence spending

According to the Stockholm International Peace Research Institute (SIPRI), the world expended a total of US$1,688 billion on defence in 2016, equivalent to around 2.2% of global GDP. Except for China, the bulk of the spending occurred in the developed economies of North America and Western Europe, with East Asia also figuring highly in the data, see Figure 5.1.

Figure 5.1: Geographic distribution of defence expenditure 2016

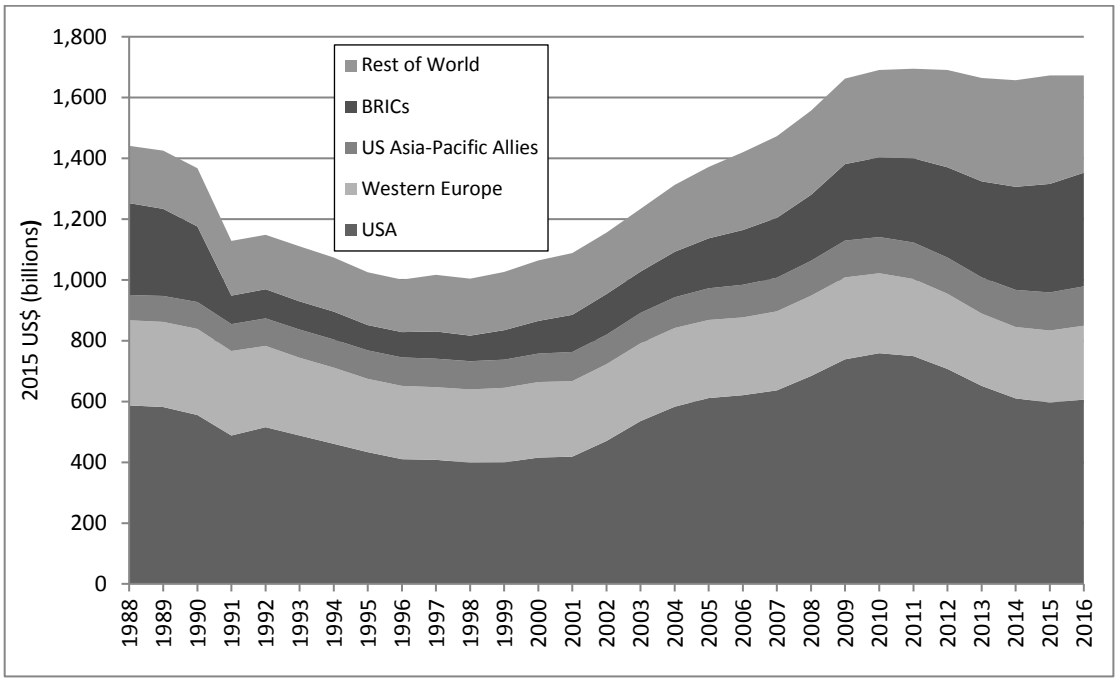


Source: Stockholm International Peace Research Institute (SIPRI) Military Expenditure Database 2017 edition, www.sipri.org.

Global defence spending from 1988 to 2016 is graphed in Figure 5.2, where 'BRIC' refers to the emerging powers of Brazil, Russia, India and China, and the US allies outside of Europe are Australia, Canada, Japan, Korea, New Zealand and Taiwan. As can be seen, the peace dividend following the end of the Cold War resulted in a contraction in global defence

expenditure of around 30% over a decade. From 2001 to 2010, the trend reversed as the United States mobilised following the 9/11 attacks.

Figure 5.2: Global defence spending 1988 to 2016



Source: Stockholm International Peace Research Institute (SIPRI) Military Expenditure Database 2017 edition, www.sipri.org. Russian spending interpolated for 1991. Chinese spending extrapolated for 1988. Soviet spending used for Russia pre 1992.

The United States dominates global defence spending, and the US-led invasions of Afghanistan and Iraq gave rise to a decade-long increase in the global figure. In 2016, the United States accounted for 36.2% of global defence spending, and once its friends and allies are considered the 'West' accounts for just over 58.5%.

From 2010 to 2014, the West experienced a downward swing in defence spending, with the United States and most of Western Europe recording either insipid growth or declining defence expenditures. In part, that reflected a mini peace dividend from the drawdown of Western forces in Iraq and Afghanistan. At least as important, however, were the mounting fiscal pressures across developed economies. Somewhat unexpectedly, Western defence spending has edged up over the past several years. Note the Russian and Chinese spending has continued to expand the BRIC's share since the turn of the century.

A combination of rising social spending and the legacy of crippling debts due to the 2008 GFC are forcing many countries to reconsider the priority for defence spending. Western Europe is facing a long-term fiscal crunch due its ageing population; with tax revenues falling and pension costs rising, something has to give. In the absence of a serious deterioration in the strategic situation in Europe—beyond the current ructions caused by Russia—it's likely that falling or stagnant defence spending will be the most politically expedient course of action for many European countries in the years ahead.

In 2017, US defence spending edged upwards by 1.7%, Western Europe by 2.4% and that of US Asia-Pacific allies by (2.2%). At the same time, BRIC spending increased by 5% and the rest of the world's declined by 10.5%.

The United States

The Trump 'Budget Blueprint' and 2017 Request for Additional Appropriation

Normally, the Pentagon produces a detailed budget with a four-year time horizon in March each year. The last such budget was released in March 2016. This year, because of the new presidency, we have instead (1) a concise Budget Blueprint for the federal government entitled *America First: A Budget to Make America Great Again*, and (2) Department of Defense *Request for Additional FY2017 Appropriations*. Rather than the usual four years, these interim documents cover only FY2017 and FY2018.

The roughly US$3.8 trillion US Federal Budget is divided into mandatory and discretionary components. The mandatory component accounts for a little over two-thirds of the budget and includes Social Security, Medicaid and other legislated programs. The discretionary component includes Defence and a range of smaller programs (see below). The Trump Administration's 53-page Budget Blueprint only deals with the discretionary component of the US Federal Budget. It proposes to leave discretionary spending in FY2018 at US$1,065 billion but transfer US$54 billion to Defence (roughly a 10% boost) from non-Defence areas. In addition, Homeland Security and Veterans Affairs receive an additional US$2.8 billion and US$4.4 billion respectively. The resulting impact on the smaller programs is large, as Table 5.1 shows.

Figure 5.1: Key Budget Adjustment: the 'Budget to Make America Great Again' FY2018

	Enacted 2017 Budget (US$ billions)	Proposed 2018 Budget (US$ billions)	Difference	%
Defence (base funding)	521.7	574.0	+52.3	+10.0%
Veterans Affairs	74.5	78.9	+4.4	+5.9%
Homeland Security	41.3	44.1	+2.8	+6.8%
Health & Human Services	81.4	69.0	-12.4	-15.2%
Education	68.2	59.0	-9.0	-13.5%
Housing & Urban Development	46.9	40.7	-6.2	-13.2%
State, USAID and Treasury International Programs	38.0	27.1	-10.9	-28.7%
Agriculture	22.6	17.9	-4.7	-20.7%
Transport	18.6	16.2	-2.5	-12.7%
Department of Labour	12.1	9.6	-2.5	-20.7%
Environmental Protection Agency	8.3	5.7	-2.6	-31.4%

Source: *America First: A Budget to Make America Great Again*, Table 2.

The proportionate change in many of the non-Defence budget is large, and will therefore result in proportionately reduced activities and outcomes. Of note is the almost 30% cut to the 'State, USAID and Treasury International Programs' item. The Budget Blueprint also proposes an additional US$25 billion for Defence in FY2018 offset by cuts of US$15 billion in other programs. While the additional money flowing to Defence and related areas will surely strengthen the US military, it will come at the cost of a much-reduced US diplomatic and aid effort. In addition, the substantial cuts to social programs will have a human and therefore political impact within the United States.

The Budget to Make America Great Again provides two pages of explanation for the additional US$54 billion in defence funding. Key goals include:

- taking the first steps towards building a 'more lethal joint force, driven by a new National Defense Strategy that recognizes the need for American superiority'
- increasing the size of the Navy and Army, accelerates Air Force improvements and bolsters the Marine Corps
- rebuilding personnel numbers, upgrade assets and replenish inventories
- redressing military readiness shortfalls
- defeating ISIS.

According to the March 2017 *Request for Additional FY2017 Appropriations* the US Base Defence Budget (exclusive of operational contingency funding) will grow by US$24.9 billion in FY2017 and US$52 billion in FY2018—consistent with the Budget Blueprint. Although no details are provided on planned spending in FY2018, there's some useful detail provided for FY2017 (see Table 5.2).

Table 5.2: March 2017 Request for Additional FY2017 Appropriations

Category	Prior Funds (US$ billions)	Additional Funds (US$ billions)	Increase
Procurement	103.8	13.5	13.0%
Military Construction/Family Housing	5.7	0.2	3.5%
Research Development Test and Evaluation	69.0	2.0	2.9%
Operations and Maintenance/	210.3	8.2	3.9%
Military Personnel	142.9	1.0	0.7%
Total	**518.8**	**24.9**	**4.8%**

Source: US Department of Defense, Request for Additional FY2017 Appropriations, 16 March 2017.

In addition, a further $5.1 billion has been sought to fund current operations in FY2017. The net result is a $30 billion increase allocated as follows: Army (US$8.2 billion), Navy (US$9.4 billion), Air Force (US$7.5 billion) and Defense Wide (US$4.7 billion). Total active personnel will increase to 24,000 above FY2016 levels. The bulk of the new money will flow to new equipment, including:

- 20 additional AH-64 Apaches and 17 additional UH-60 Black Hawk helicopters
- 29 upgraded Abrahams tanks and upgrades to Bradley Fighting Vehicles
- 24 additional F/A-18 E/F Super Hornet, and 5 additional F-35 Lightning fighters
- 2 additional V-22 aircraft and 5 additional HC/MC-130 transport aircraft
- 6 additional P-8 Maritime Patrol Aircraft
- 96 additional Tomahawk missiles and assorted other munitions.

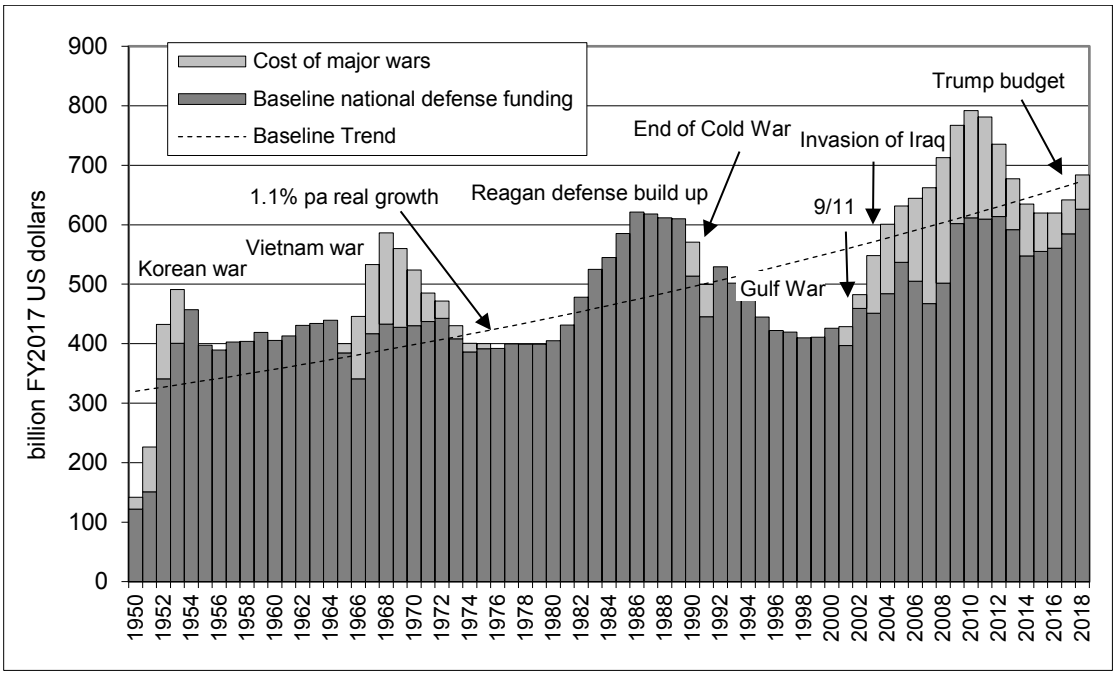
The stated core goal is to 'improve near-term and mid-term warfighter readiness.

The United States: long-term trends

After a decade of robust growth in the 2000s, the US defence budget moderated over the following six years and appeared set to fall further. However, the Trump interim budget has boosted spending in 2017 and 2018 (see Figure 5.3). That said; until 2021 US defence spending is theoretically capped under the Budget Control Acts of 2011 and 2013 (sequestration) due to mounting fiscal pressures, and it remains to be seen if the Trump budget makes its way through Congress intact.

Until this year's reversal, cuts had been accommodated through reduced personnel numbers (and remuneration), base closures, acquisition deferrals, and the early retirement of some assets. Between 2011 and 2016, the US military lost 140,000 active duty and reserve personnel. Sequestration also put pressure on the readiness of the US military by reducing the money available for operations and maintenance, which helps explain the priorities reflected in the Trump interim budget. Given the turmoil in Washington, defence spending post-2017 is uncertain—higher and lower levels of defence spending than at present are conceivable.

Figure 5.3: US defence spending 1950 to 2018



Source: FY 2017 US budget papers (Tables 7.1 and 7.2) and various sources for the cost of major wars. Amended March 2017.

Absent robust and consistent growth, the size of US armed forces will continue to decline. Over the past six decades, the annual cost of maintaining a US Navy vessel in service has risen by around 3% above inflation. Over the same period, the costs of aircraft and soldiers have risen in real terms by similar amounts. As a result, the strength of the army has more than halved and the numbers of aircraft and ships have been reduced four-fold since the 1950s (see ASPI Policy Analysis #56, *Trends in US defence spending: implications for Australia,* 2010). Consequently, although the United States remains the most powerful military force on earth, its ability to mount large-scale operations has slowly been eroding, along with its capacity for concurrent operations.

The People's Republic of China

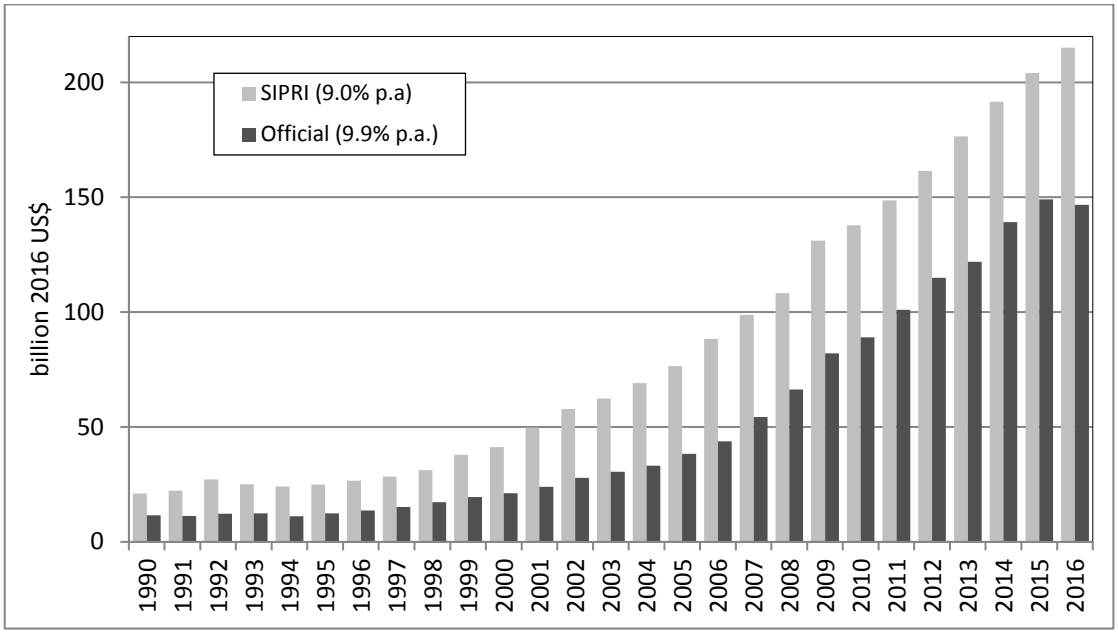
China has enjoyed rapid economic growth since the early 1990s. Over the same period, defence spending has grown apace. Uncertainty surrounds the scale of Chinese defence spending. US estimates of Chinese spending are substantially higher than the official figure, and independent estimates vary, see Figure 5.4. For example, the US Pentagon estimate for 2015 of US$180 billion falls above the official figure of US$145 billion but below the SIPRI figure of just over US$200 billion.

The ongoing appreciation of the RMB and differential inflation means that the growth rates can differ when calculated in Yuan and US dollars. But, by any estimate, Chinese defence spending is rising rapidly; by around 9% to 10% per year above inflation over the past decade, as measured in US dollars. In terms of Chinese currency, the growth rate averaged 12.7% between 2002 and 2011. Because defence spending growth has been matched by robust growth in the Chinese economy, the defence share of GDP has remained below 2%—at least according to official figures. The announced increases for 2016 (7.6%) and 2017 (7%) are smaller than recent increases of around 10% per year.

Although China is often criticised (including by Australia) for not being transparent enough about its military build-up, its periodic defence white papers are reasonably clear and largely consistent with what can be observed; China is developing the military capability to exclude the United States and its allies from its maritime approaches with a focus on operations against Taiwan. This is reflected in a focus on developing and modernising what the US term 'anti-access/area denial capabilities'.

To a lesser extent, China is investing in power-projection assets—including an aircraft carrier—to protect its sea lines of communication and assert its interests further afield. By the end of the decade, China will have the ability to deploy and sustain a modest joint force, including several battalions on low-intensity operations far from China.

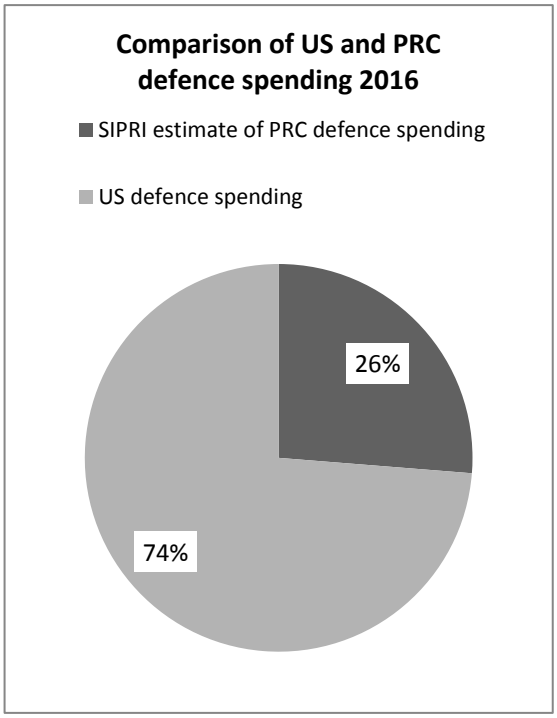
Figure 5.4: Chinese defence spending 1990 to 2016



Sources: Analysis of data from SIPRI Military Expenditure Database 2017, www.sipri.org, globalsecurity.org, and media sources.

Comparing the United States and China

Much speculation surrounds the changing economic and strategic balance between the United States and China. Here's some numbers to put things in perspective.



According to the IMF, the United States economy (US$18.6 trillion) was 1.6 times larger than China's (US$11.4 trillion) at market exchange rates in 2016. If China's economy grows at 7% per annum and the US at 2.5% per annum, it will only take 11 years for economic parity to be reached in 2027.

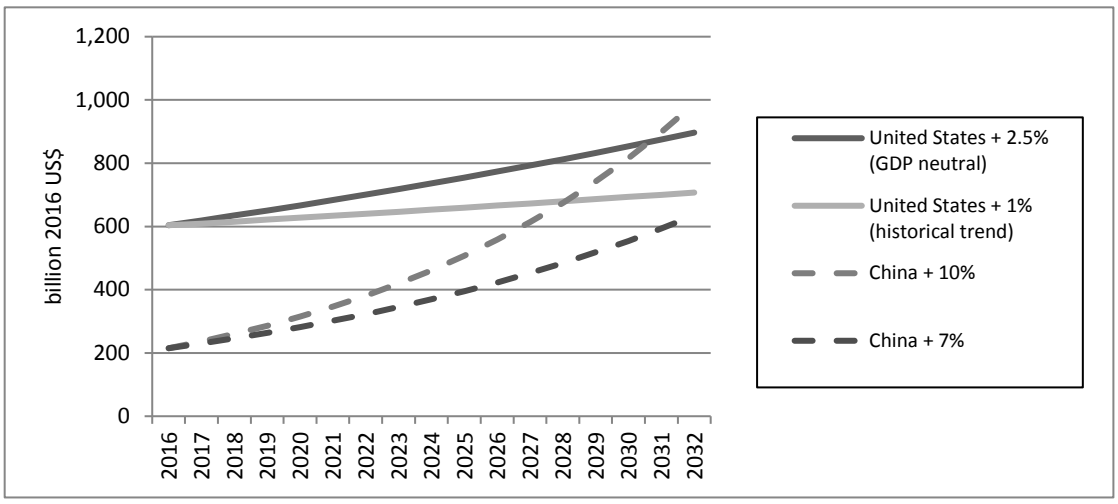
Recent military expenditure by the United States and the People's Republic of China are shown in Table 5.3. China's smaller GDP share gives it a relatively greater capacity to increase defence spending.

Table 5.3: United States and Chinese defence spending circa 2016

	Baseline defence expenditure 2016 US$	Defence expenditure percentage of GDP	Long-term baseline rate of growth
United States (official 2016)	604 billion	3.3%	1%
China (official 2016)	147 billion	-	9.9%
China (SIPRI estimate 2016)	215 billion	1.9%	9%

Plausible defence spending trajectories for the United States and China are plotted in Figure 5.5 based on the latest SIPRI estimate of Chinese spending (2016), and using growth rates commensurate with historical trends. It shows that it is fully possible for Chinese defence spending to exceed that of the United States within the next two decades.

Figure 5.5: Plausible US and Chinese defence spending trajectories



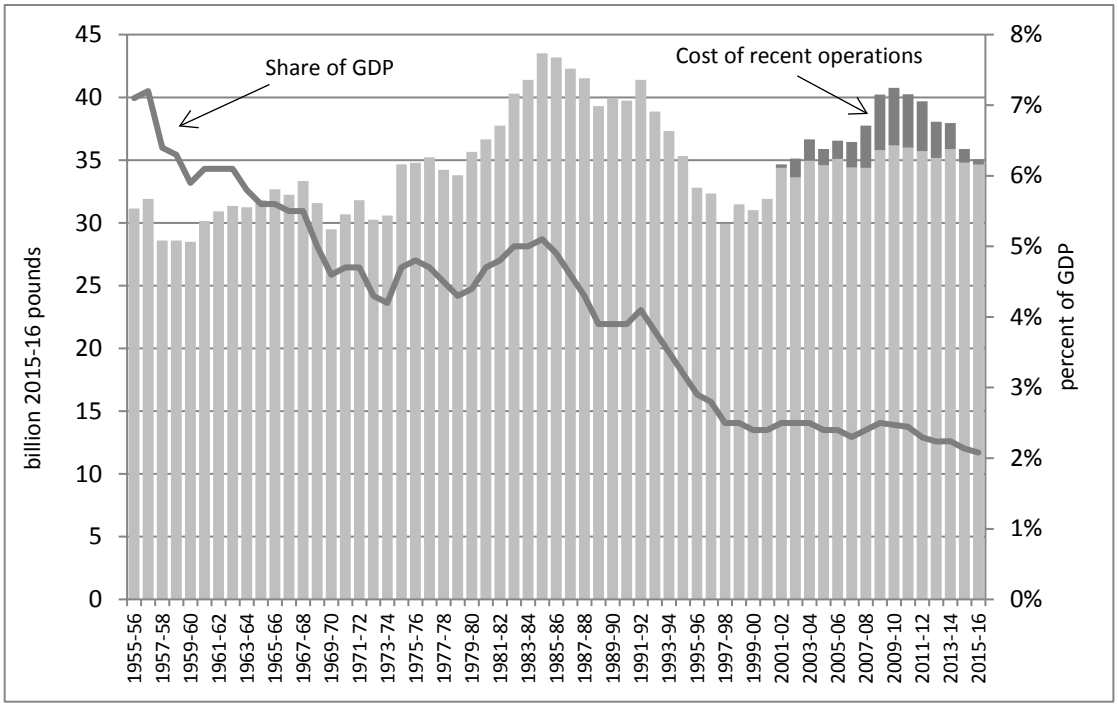
United Kingdom

Like the United States, the United Kingdom ramped up defence spending in the 2000s (though not to the same extent). This trend is now being reversed as part of fiscal consolidation. The 2011 UK defence budget set out real reductions in defence spending out to 2015-16. Subsequent decisions increased the reductions to 8.8% over four years. Initiatives to accommodate the budget cuts included:

- Military personnel reductions of 25,000 (from a base of 158,500) and civilian personnel cuts of 29,000 were imposed in 2015, plus the withdrawal of land forces from Germany by 2020. Reduction in tank and heavy artillery numbers by 40% and 35% respectively.
- Immediate decommissioning of an existing Aircraft Carrier, one Landing Platform Helicopter and one Landing Ship Dock. Continuing with plans to build two new aircraft carriers but keeping one at 'extended readiness' (mothballing). Putting one existing Landing Platform Dock ship at 'extended readiness'.
- Scrapping of the *Nimrod* maritime patrol aircraft and *Harrier* jump-jet fleets and a reduction in the number of *Chinook* helicopters to be purchased from 22 to 12.
- Five-year delay in the replacement of ballistic missile submarine fleet and reduction in the number of warheads from 160 to 120.

Many UK commentators are pessimistic about the prospects for spending growth, and the US has expressed concern about the UK's future capacity to contribute to coalition operations. Although the UK maintains defence spending above 2% of GDP, it has only managed to do so by counting additional items (such as pensions), which were previously not counted.

Figure 5.6: United Kingdom defence spending 1955 to 2016

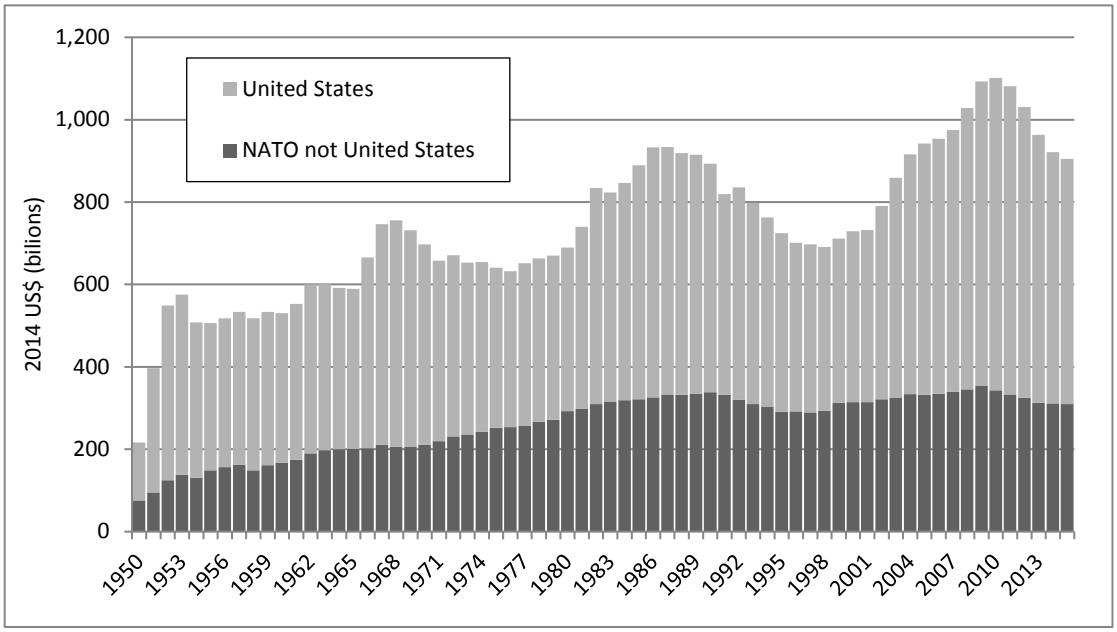


Source: UK House of Commons Library Report SN/SG/113, 2009 & SN/SG/3139, 2012, UK MoD, UK Defence Statistics 2017.

North Atlantic Treaty Organisation (NATO)

Until recently, NATO defence spending (exclusive of the United States) had been largely static in real terms since the end of the Cold War, with the subsequent expansion of NATO doing little to change the situation, Figure 5.7. From 2009 to 2013, spending trended down and subsequently levelled out. According to official NATO reporting, spending by European-NATO members increased by 3.6% in 2016. The larger members of NATO and the scale of their present defence spending are given in Table 5.4.

Figure 5.7: NATO defence spending 1950 to 2015?



Source: Analysis of data from SIPRI Military Expenditure Database 2017, www.sipri.org

Table 5.4: Key NATO members' defence spending 2016

	United States	United Kingdom	France	Germany	Italy	Canada	Spain	Netherlands
Defence spending as a share of GDP	3.36%	2.17%	1.79%	1.20%	1.11%	1.02%	0.90%	1.16%
Defence spending in 2016 US$ billions	680	56.8	44.2	41.7	22.2	15.5	11.2	9.1

Source: Official NATO reporting 2017.

In addition to the United Kingdom, many other NATO members have been under pressure to reduce defence spending due to fiscal pressures—notwithstanding Russian adventurism. The resulting cuts have been being accommodated in various ways. For example, in 2012 Italy announced plans to reduce its troop strength from 183,000 to 150,000 and reduce civilians from 30,000 to 20,000. Germany ended conscription in 2011, and since 2009 France has shed 54,000 military and civilian positions. Because these countries are subject to the same cost pressures as the United States, the scale of NATO forces will continue to decline in the

years ahead making it even more difficult to undertake operations such as in Afghanistan in the future.

NATO and the expectation of 2% of GDP

According to Fox News, Trump handed German Chancellor Angela Merkel a bill for US$374 billion in unpaid NATO contributions. And while the US and German governments deny that it's the case, there's no erasing Trump's tweet from after the meeting:

> '…Germany owes vast sums of money to NATO & the United States must be paid more for the powerful, and very expensive, defense it provides to Germany!'

Perhaps the hand-delivered note would have been preferable.

But how much of the burden does the United States really shoulder on behalf of its allies? And are Trump's indignant protests making a difference to what its European allies spend?

According to the latest official NATO reporting, only four of 26 European countries managed to meet the 2% of GDP NATO benchmark; Greece, Estonia, Poland and the United Kingdom. However, that might be an overestimate. The International Institute of Strategic Studies (IISS) only credits two countries—Estonia and Greece—with making it across the line. As for the big economies of France, Germany, Holland, Italy and Spain, they all fell below the benchmark with GDP shares of 1.8%, 1.2%, 1.2%, 1.1% and 0.9% respectively per NATO reporting.

The situation may be worse. IISS uses the NATO definition of defence spending inclusive of pensions, which can be a substantial share of the overall budget for some countries. As examples, they note that pensions account for 33% of Belgium's defence spending, 24% of France's and 17% of Germany's. But including pensions is questionable. Not only do military pensions not produce any combat capability, they're often just routine social security payments relabeled (as is largely the case with Australia's means-tested Service Pension). A fuller discussion of how pensions affect estimates of defence spending can be found at the end of this chapter.

With or without pensions, it's clear that none of NATO's European members come close to the 3.6% of GDP spent on defence by the United States. It's been argued that, because the United States has security responsibilities in both Europe and Asia, it makes sense for Europe to spend a lower share of GDP on defence. However, Europe's economic interests are vitally engaged in Asia. To be clear, EU exports to China, Japan and South Korea amounted to $290 billion in 2016, whereas the corresponding figure for the United States was only $221 billion.

Trump's demands and Russian troublemaking have led to predictions of a '$50 billion Defence Boost for Western Europe through 2019'. That sounds impressive—until you crunch the numbers. Assuming the extra $50 billion is used to ramp up spending linearly over the three years to 2019, the result is an extra $25 billion in 2019. That's roughly a 10% increase to the $254 billion non-US NATO defence expenditure in 2016. However, the IMF projects that real GDP for the European Union (a reasonable proxy for European NATO) will grow by 5.3% over the same period and inflation will compound to 4.7%.

So, all else being equal, the additional $50 billion will simply allow European NATO to tread water at their present level of 1.46% of GDP.

Some countries are making a visible effort to boost capability—Sweden, for example, is reintroducing conscription. But it remains to be seen if the Europeans will make the sacrifices necessary to significantly boost defence spending. Germany makes for an interesting case study.

Following her meeting with President Trump, Chancellor Merkel said that Germany had a plan in place to reach 2% of GDP by 2024, consistent with the 2014 NATO agreement for all members to reach 2% of GDP within a decade. Once again, however, the numbers don't add up. Germany increased defence spending from €34.9 billion in 2016 to €36.6 billion in 2017 and has just announced plans to reach €38.5 billion in 2018. But, using IMF estimates of German GDP, it turns out that the resulting share of GDP only changes in the second decimal place, from 1.11% in 2016 to 1.17% in 2018. Even the target of €42.3 billion for 2021 will only result in a GDP share of 1.18%.

Reaching 2% of GDP by 2024 would require unfeasibly large hikes over the period 2021–2024. And the German Foreign Minister, Sigmar Gabriel, agrees. Speaking at the end of March, he said 'It's totally unrealistic to believe that Germany would increase its defence spending from €35bn now to €70bn.' He added 'I know no politician in Germany who thinks that this is something you can reach or that it even would be desirable to do so.'

Elsewhere in the larger economies of Europe, the picture's mixed. The Italian and Spanish economies continue to struggle, with those countries' defence spending tending downwards for the better part of a decade. As *The Economist* observed, they 'would struggle to satisfy NATO while observing restrictive European Union budget rules'. Great Britain is keeping its head above the 2% line for now (but only by including military pensions). But budget pressures mean it may have to cut the size of its defence force to live within a constrained budget. France's plans are unclear, but the head of their defence force has called for spending to grow from €32.7 billion in 2017 to €43.5 billion in 2022—which would result in the calculated GDP share increasing from 1.5% to 1.6% (or from 1.8% and 2.0% if the numbers are adjusted to include pensions).

So, despite earnest undertakings to the contrary, there's no sign yet that the European members of NATO are going to make President Trump happy.

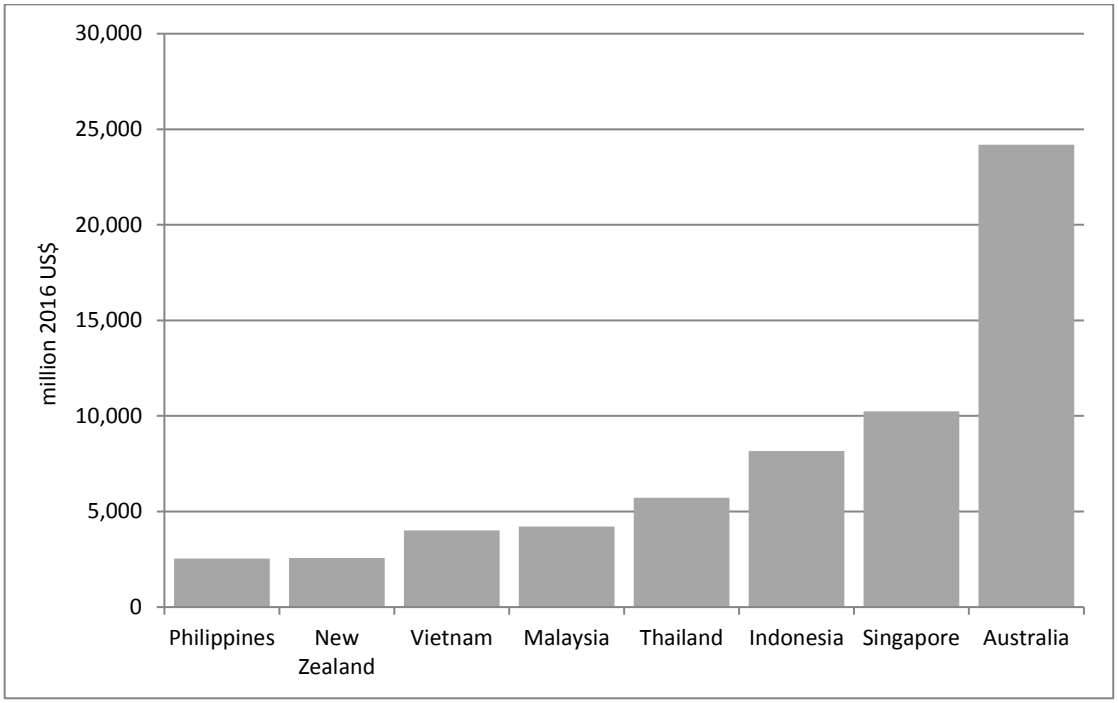
Regional trends

Defence spending trends in Maritime Southeast Asia and Greater Asia are summarised on these two pages.

Maritime Southeast Asia

Defence spending for 2016 in the seven largest Southeast Asian states plus Australia is plotted in Figure 5.8 and further detailed in Table 5.5. Two points are worth making. (1) Australia outspends any of its neighbours by a comfortable margin. (2) Only Singapore shows any real sign of strategic angst, with a GDP share of 3.44%. New Zealand defence spending data is problematic and difficult to track (see Chapter 9).

Figure 5.8: Defence spending 2015 in Maritime Southeast Asia



Source: IISS, The Military Balance 2017.

Table 5.5: Defence spending 1995 to 2016; Maritime Southeast Asia

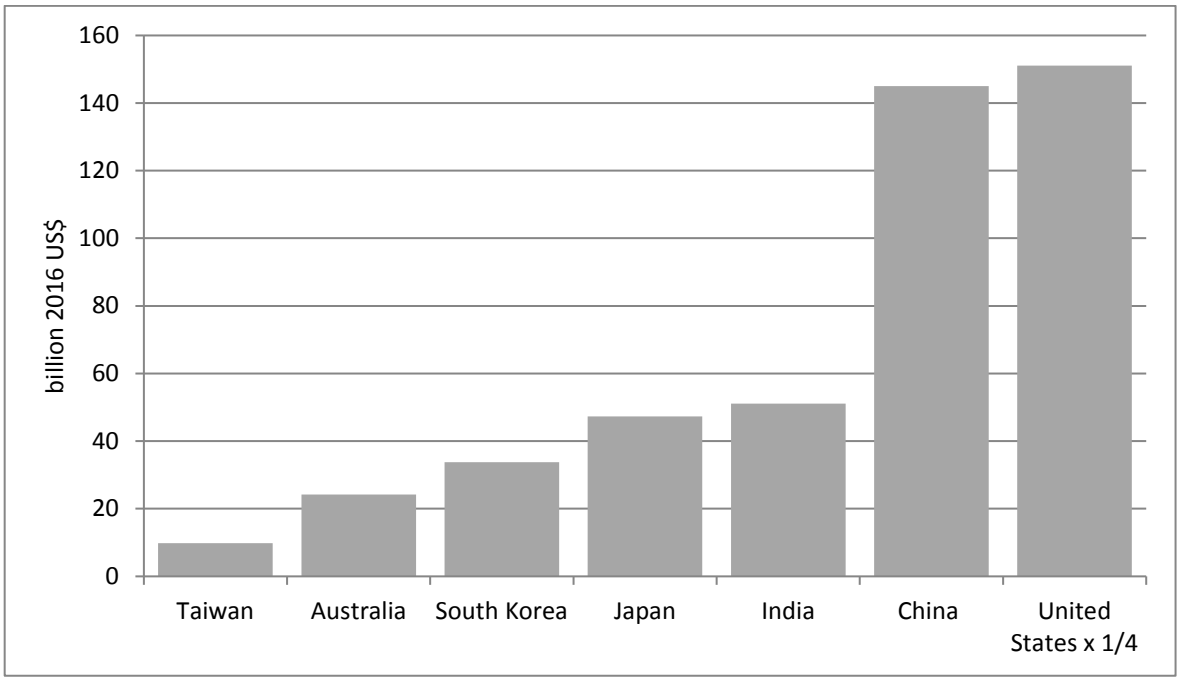
	New Zealand	Vietnam	Philippines	Malaysia	Indonesia	Thailand	Singapore	Australia
2016 defence spending as a share of GDP	1.44%	-	0.74%	1.51%	0.69%	1.44%	3.29%	1.83%
Average annual real defence spending growth 1995 to 2005	-0.7%	-	0.2%	4.3%	0.5%	-4.9%	4.9%	2.8%
Average annual real defence spending growth 2005 to 2016	1.7%	9.7%	4.4%	0.9%	9.1%	6.7%	1.5%	3.4%

Sources: GDP share taken from IISS, The Military Balance 2017, Growth rates in US$ from Stockholm International Peace Research Institute (SIPRI) Military Expenditure Database 2017 edition, www.sipri.org. Australian data from ASPI.

Greater Asia

Defence spending for 2016 in the six largest Greater Asian states plus Australia is plotted in Figure 5.9 and further detailed in Table 5.6. Several points are worth making. (1) Australia is a minnow in the tank of North Asian security. (2) Only India and South Korea shows any real sign of strategic concern with GDP shares of around 2.3% and 2.4% respectively. (3) Taiwan and, to an extent, Japan are allowing their defence capabilities to atrophy, notwithstanding that Taiwan's GDP share remains close to 2%. (4) Although China nominally devotes only 1.3% of GDP to defence, it has been increasing its defence spending at an impressive rate over the past two decades. Note that estimates of Chinese defence spending vary, and that 1.3% is at the lower end of the spectrum.

Figure 5.9: Defence spending 2016 in Greater Asia



Source: IISS The Military Balance 2017

Table 5.6: Defence spending 1995 to 2016; Greater Asia

	Taiwan	Australia	South Korea	India	Japan	China	United States
2016 defence spending as a share of GDP	1.89%	1.92%	2.41%	2.27%	1.00%	1.27%	3.07%
Average annual real defence spending growth 1995 to 2005	-2.7%	2.8%	2.5%	6.3%	0.5%	11.8%	3.5%
Average annual real defence spending growth 2005 to 2016	0.9%	3,4%	3.5%	4.1%	0.0%	9.8%	-0.1%

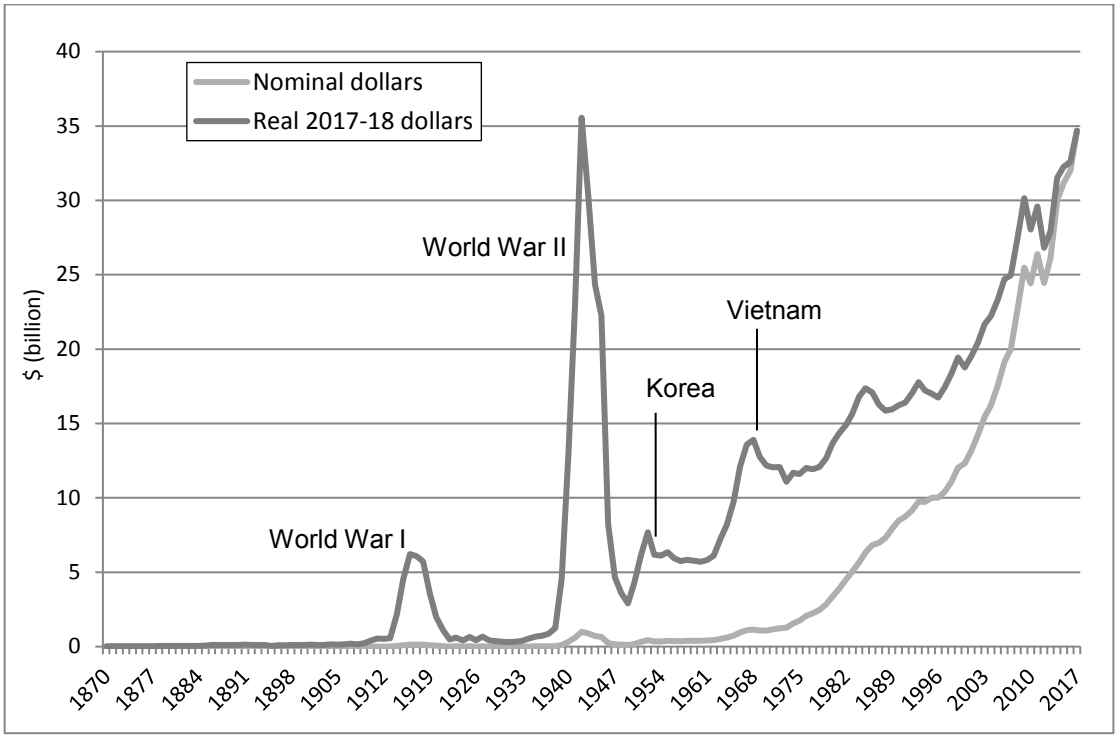
Sources: GDP share taken from IISS, The Military Balance 2017, Growth rates in US$ from Stockholm International Peace Research Institute (SIPRI) Military Expenditure Database 2017 edition, www.sipri.org. Australian data from ASPI

Historical Defence Spending

Historical Australian defence spending

Real and nominal Australian defence spending from 1870 to the present appears in Figure 5.10. Although inflation dominates the nominal data and obscures much of the historical detail, the impact of the wars of the twentieth century is clearly visible in the 'real' data corrected for inflation.

Figure 5.10: Australian defence spending, 1870–2017

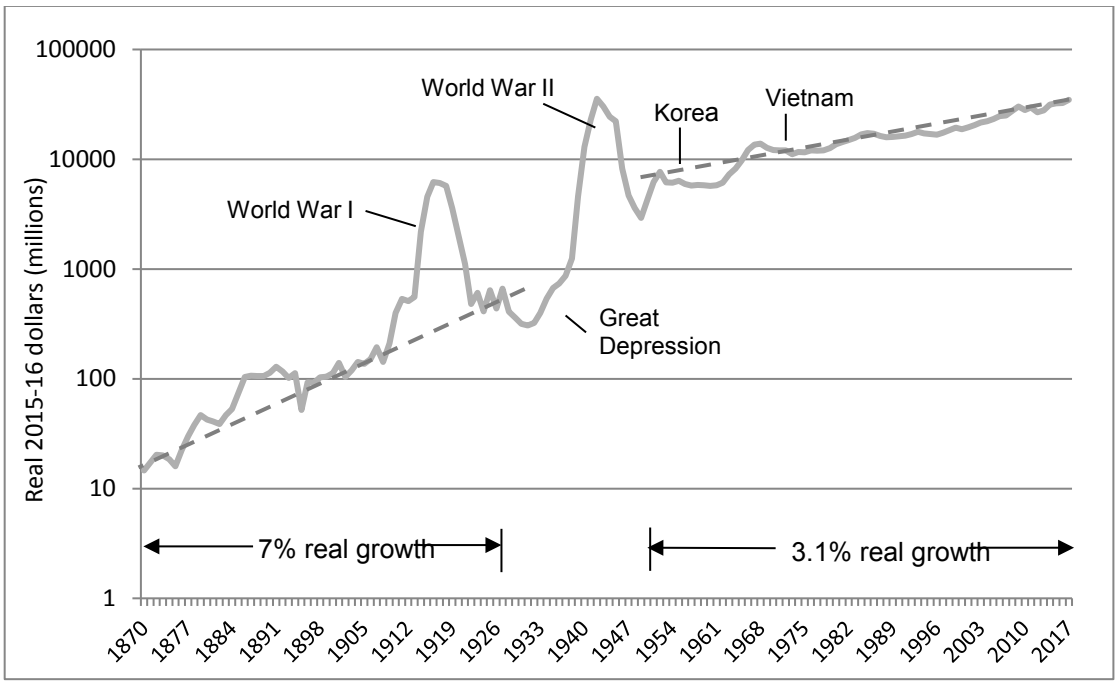


Source: ASPI collation of data from various sources, real dollars calculated using retail/consumer price index.

An even more useful graph of historical spending appears in Figure 5.11 where real spending has been plotted on a logarithmic scale, on which exponential growth (which is close to compounding growth for small rates of increase) appears as a straight line. It shows there have been two epochs of underlying steady growth in defence spending; from 1870 to 1929 spending grew by around 7% per annum, and from 1945 to the present underlying spending grew by around 3% per annum.

None of this should be taken to imply that the defence force has expanded significantly during the post-war period—it has not. Rather, the observed growth in defence spending largely reflects the rising intrinsic cost of delivering modern military capability. The 2003 ASPI publication, *A Trillion Dollars and Counting,* estimated that real growth of around 2.65% per annum was necessary just to maintain the present scale and range of capabilities in the ADF. Comparable analysis of US defence spending and force structure trends leads to a similar conclusion. Thus, the medium rise of 3% per annum is more about maintaining than significantly expanding the defence force. Because of the 2016 Defence White Paper, however, Australian defence spending is planned to grow at an average of 4.1% over the decade thereby allowing for both the modernisation and moderate expansion of the force.

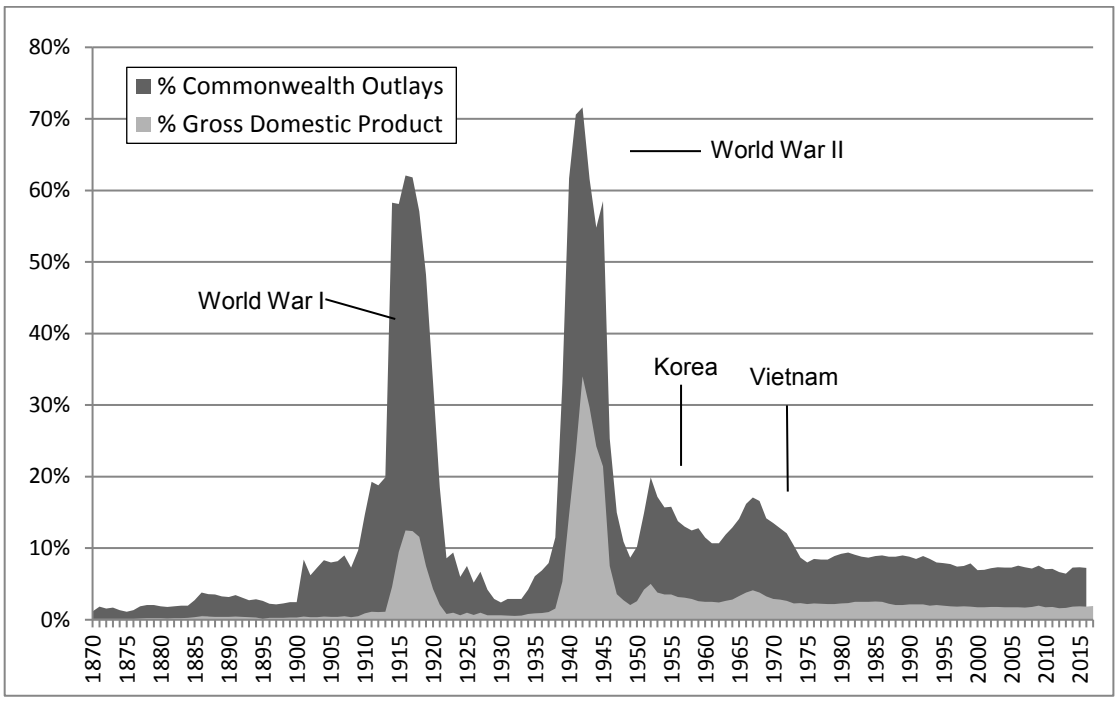
Figure 5.11: Australian defence spending, 1870–2016



Source: ASPI collation of data from various sources, real dollars calculated using retail/consumer price index.

The steady increase in real defence spending since the end of the World War II has been possible because of ongoing growth in the Australian economy over the same period. In fact, as a share of Gross Domestic Product (GDP) the longer term trend has been for defence spending to account for a progressively smaller share of domestic output. Figure 5.12 plots defence spending as both a share of GDP and as a proportion of total Commonwealth outlays.

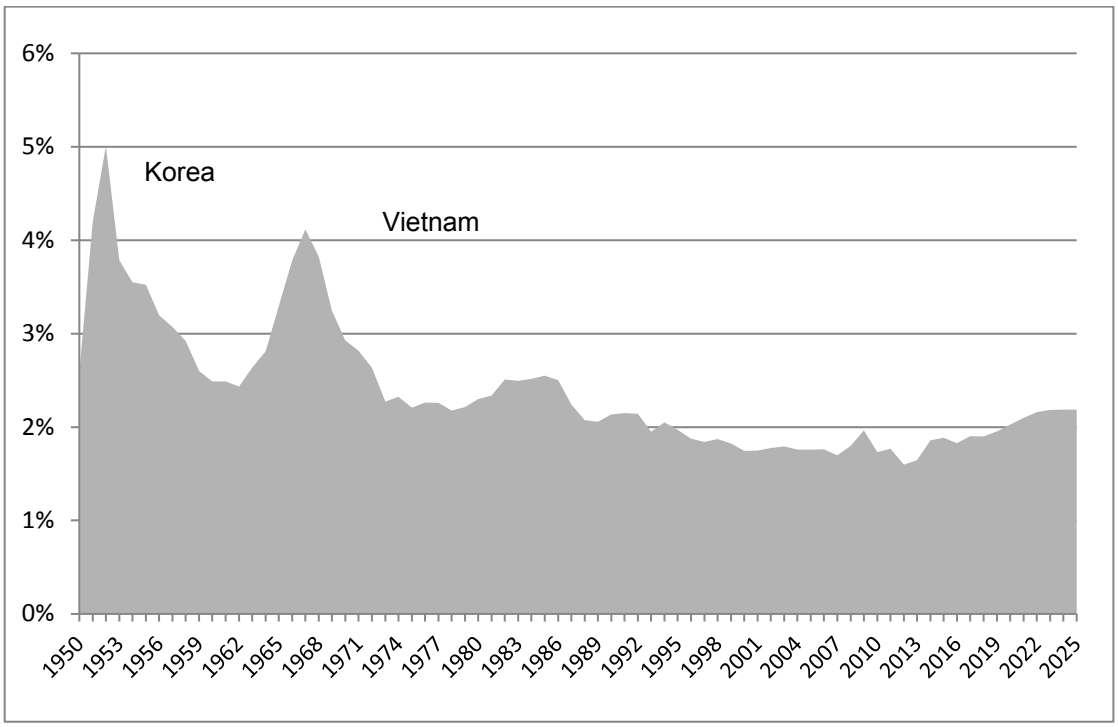
Figure 5.12: Australian defence spending as a share of GDP and Outlays.



Source: ASPI collation of data from various sources.

Given the importance of defence spending as a share of GDP, a magnification of the post-war period has been prepared in Figure 5.13, including the projected impact of the 2016 Defence White Paper.

Figure 5.13: Defence burden (per cent of Gross Domestic Product) 1950–2025



Source: ASPI collation of data from various sources.

GDP share is not a measure of the adequacy or otherwise of defence spending—that's something that depends on the task at hand. Rather, it measures the proportion of national wealth that a nation devotes to defence.

The planned growth in Australian defence spending will see the share of GDP devoted to national defence grow to 2% by 2020-21. While this is high by recent standards, it was only seven or eight years ago that the United States expended more than 4.7% of GDP and the United Kingdom more than 2.4%.

Even taking account of the growing fiscal burden due to the ageing of the Australian population, there is no reason to conclude that a defence burden in the range of 2% to 3% is unsustainable. While it is true that health and ageing will steadily demand a growing share of GDP in the decades ahead, the concurrent rise in individual prosperity (as measured by GDP per capita) will allow living standards to grow appreciably even if a larger share of national product is diverted for public goods like health, aged care and defence.

A more detailed examination of the affordability of Australian defence spending can be found in the 2008 ASPI publication *Strategic choices: Defending Australia in the 21st century*.

Australia's defence effort in an international context

According to the World Bank, in 2015 Australia had the thirteenth largest economy on earth measured at market exchange rates, and nineteenth using Purchasing Power Parity (PPP). From this annual bounty of around 1.7 trillion dollars, Australia finds the money to fund its defence. Table 5.7 displays Australia's 2016 defence spending (the latest year for which comprehensive data is available) along with that of a selection of countries including allies, regional neighbours, and other developed industrial economies around the globe. All figures are given in US dollars calculated at prevailing market exchange rates.

Table 5.7: Defence spending and burden 2016

2016 GDP		2016 Defence expenditure		2016 % GDP	
Country	**$US(b)**	**Country**	**$US(b)**	**Country**	**%**
USA	18,541	USA	604.5	Israel	6.09
China	11,420	China	145.0	Russia	3.68
Japan	4,734	United Kingdom	52.5	Singapore	3.46
Germany	3,480	India	51.1	USA	3.26
United Kingdom	2,651	Japan	47.3	Pakistan	2.73
France	2,484	France	47.2	South Korea	2.41
India	2,249	Russia	46.6	India	2.27
Italy	1,859	Germany	38.3	United Kingdom	1.98
Canada	1,530	South Korea	33.8	Australia	1.90
South Korea	1,402	Australia	26.0	France	1.90
Russia	1,267	Italy	22.3	Taiwan	1.89
Australia	1,257	Israel	15.9	Thailand	1.46
Spain	1,247	Canada	13.2	New Zealand	1.44
Indonesia	939	Spain	12.2	Malaysia	1.39
Netherlands	773	Singapore	10.2	China	1.27
Turkey	736	Taiwan	9.8	Italy	1.2
Taiwan	520	Netherlands	9.2	Netherlands	1.19
Sweden	516	Turkey	8.8	Turkey	1.19
Thailand	392	Indonesia	8.2	Sweden	1.13
Philippines	306	Pakistan	7.5	Germany	1.10
Malaysia	303	Sweden	5.8	Japan	1.10
Singapore	296	Thailand	5.7	Spain	0.98
Pakistan	274	Malaysia	4.2	Indonesia	0.87
Israel	261	New Zealand	2.6	Canada	0.86
New Zealand	179	Philippines	2.5	Philippines	0.83
PNG	20	PNG	0.1	PNG	0.42

Source: IISS: The Military Balance 2017. Australian results from ASPI for 2016-17.

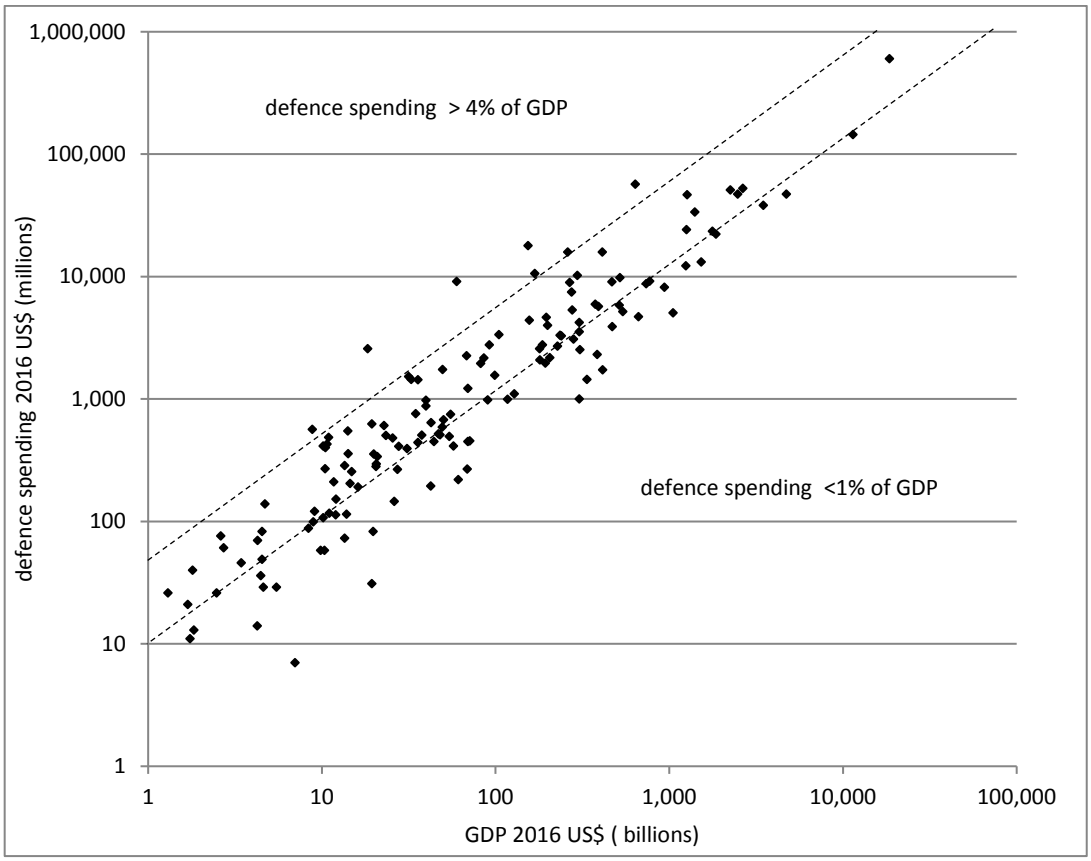
With the caveat that fluctuation in exchange rates can make a significant difference in relative ranking, there are three observations worth making. First, our level of defence spending gives us a budget broadly comparable with Italy and Israel, but far below heavy hitters such as Germany, UK, Japan, France, and China. Second, we outspend all our Southeast Asian neighbours by a considerable margin. Third, the United States remains in a class of its own.

In terms of defence spending as a percentage of GDP, at 1.90%, we devote significantly more than the Netherlands (1.2%), Germany (1.1%), Spain (1.0%), Canada (0.9%) and Japan (1.0%). According to the data, the only fully developed Western countries to allocate a larger share of GDP than us are the (nuclear-armed) United States (3.3%) and the United Kingdom (2.0%). Closer to home, we devote a smaller share of GDP than India (2.3%), South Korea (2.4%), and Singapore (3.5%), but more than Indonesia (0.9%), Thailand (1.5%) and the Philippines (0.8%). New Zealand (1.4%) appears to have lost ground—though NZ spending data is problematic to track (see Chapter 9).

To summarise, we spend a greater share than most developed Western nations but a lesser share than many of our significant regional neighbours. This probably reflects two things: (1) the synergy derived from collective defence in Western Europe, and (2) that some of our less prosperous neighbours must spend a larger share of GDP to meet the demands of a more challenging strategic environment than that of Western Europe.

An alternative and often illuminating depiction of the economic resources a country allocates to defence can be achieved by plotting its position on a graph of GDP against defence spending along with other nations. We've done this in Figure 5.14 for 145 countries based on data collected by the International Institute of Strategic Studies (IISS). To properly capture the wide spread of GDP and defence spending values, the data has been plotted on a dual logarithmic scale.

Figure 5.14: GDP and defence spending for 145 countries 2016



Source: Compiled from data in The Military Balance 2017 (IISS).

A couple of things are immediately apparent. Most obviously, there is a clear correlation between defence spending and economic size; the larger a nation's economy the more it tends to spend on defence. In addition, the vast bulk of nations spend within the band of between 1 and 4% of GDP on defence. Not surprisingly, those countries that spend larger shares of GDP tend to have more challenging strategic circumstances than those that spend less, or else they are impoverished nations that need to spend a greater share of their meagre resources to achieve a credible capability. Small shares of GDP spending tend to correlate with advantageous geography, strong alliances, and benign neighbours. But another factor is also at play. Economically prosperous developed nations tend, understandably, to be able to provide for their defence with a smaller share of GDP.

Money is not the only resource that a nation has available to devote to its defence; there is also people. Table 5.8 lists population numbers, permanent defence force numbers and population percentage in the armed services for our selection of allies, neighbours and Western powers.

Table 5.8: Human resources circa 2016

Country	Population	Country	Armed Forces	Country	% of POP
China	1,385,566,537	China	2,183	North Korea	4.78%
India	1,252,139,596	India	1,395	Israel	2.29%
United States	320,050,716	USA	1,347	Singapore	1.35%
Indonesia	249,865,631	North Korea	1,190	South Korea	1.28%
Pakistan	182,142,594	Russia	831	Taiwan	0.92%
Russia	142,833,689	Pakistan	654	Russia	0.58%
Japan	127,143,577	South Korea	630	Thailand	0.54%
Philippines	98,393,574	Vietnam	482	Vietnam	0.53%
Vietnam	91,679,733	Indonesia	396	Turkey	0.47%
Germany	82,726,626	Thailand	361	USA	0.42%
Turkey	74,932,641	Turkey	355	Malaysia	0.37%
Thailand	67,010,502	Japan	247	Pakistan	0.36%
France	64,291,280	Taiwan	215	France	0.32%
United Kingdom	63,136,265	France	203	Sweden	0.31%
Italy	60,990,277	Germany	177	Italy	0.29%
South Korea	49,262,698	Israel	177	Spain	0.26%
Spain	46,926,963	Italy	175	Australia	0.25%
Canada	35,181,704	United Kingdom	152	United Kingdom	0.24%
Malaysia	29,716,965	Philippines	125	Germany	0.21%
North Korea	24,895,480	Spain	123	Netherlands	0.21%
Australia	23,342,553	Malaysia	109	New Zealand	0.20%
Taiwan	23,329,772	Singapore	73	Japan	0.19%
Netherlands	16,759,229	Canada	63	Canada	0.18%
Sweden	9,571,105	Australia	58	Indonesia	0.16%
Israel	7,733,144	Netherlands	35	China	0.16%
PNG	7,321,262	Sweden	30	Philippines	0.13%
Singapore	5,411,737	New Zealand	9	India	0.11%
New Zealand	4,505,761	PNG	2	PNG	0.03%

Source: International Institute for Strategic Studies: The Military Balance, 2015. UN Population database, 2013.

Here Australia is less well endowed. According to the *UN Population Database*, Australia ranked 51th in population in 2013; ahead of Taiwan and below Yemen. We have about one-third the population of the larger European powers and less than one-tenth that of the US. In regional terms, we're just a little smaller than Malaysia, North Korea and Taiwan, but only a quarter the size of Thailand and the Philippines. Indonesia has more than ten times our population, and we are but a drop in the ocean compared with India and China. The sobering fact is that we account for less than one-third of one per cent of the world's people.

Our permanent armed forces in 2015 amounted to around 58,000, which puts us near the bottom of the table in our selection of countries. Overall, there are around 59 countries with armed forces numerically superior to ours. As a proportion of population, we have around one-quarter of one per cent of our population engaged as full-time military personnel. This is less than European nations Spain (0.26%), Italy (0.29%) and France (0.33%), and behind the United States (0.42%). In fact, in our selection, the only Western countries we comfortably beat are those well-known strategic optimists, Canada and New Zealand (both of which have their strategic approaches covered by more powerful neighbours) and Sweden, which makes extensive use of reserve personnel. That said; we do come ahead of Germany (0.21%) and the Netherlands (0.21%). In regional terms, we fall well behind Singapore (1.35%), Malaysia (0.37%) and Thailand (0.54%). Ranking in terms of proportion of population needs to be seen in the context of our avowed 'maritime strategy'. Except for a short period in the 1960s which saw conscription boost the Army to over 40,000, Australia has never maintained a large peacetime standing Army. As a country with no land borders and no prospective adversaries with an amphibious capability, the imperative to develop a manpower-intensive land force is slight.

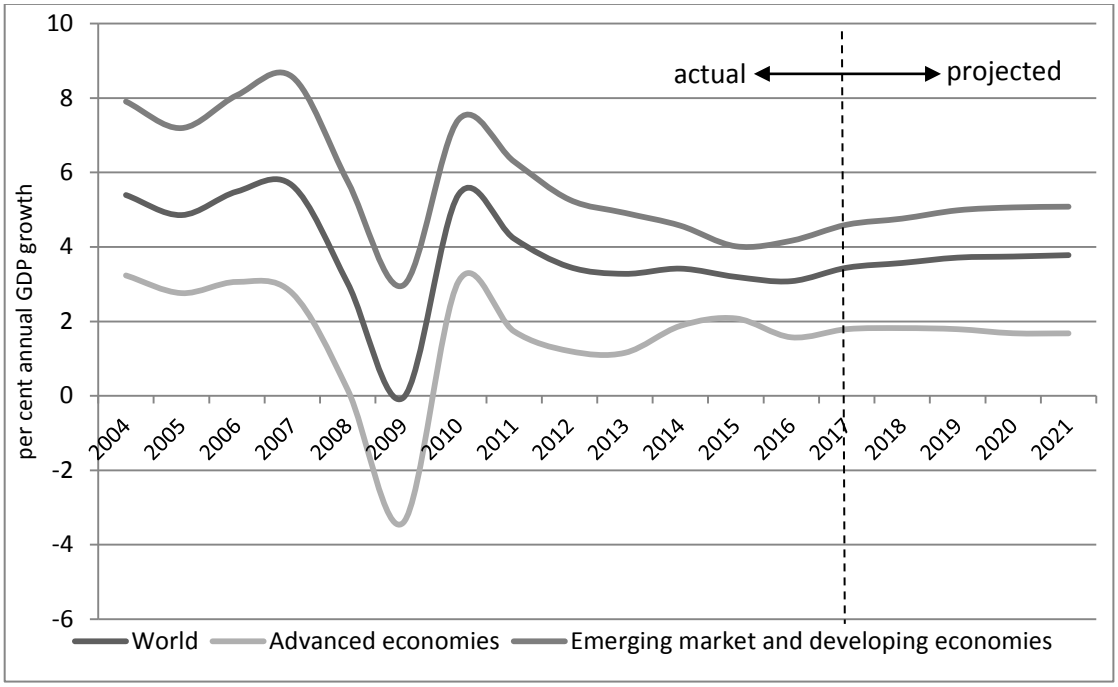
Impact of the Global Financial Crisis

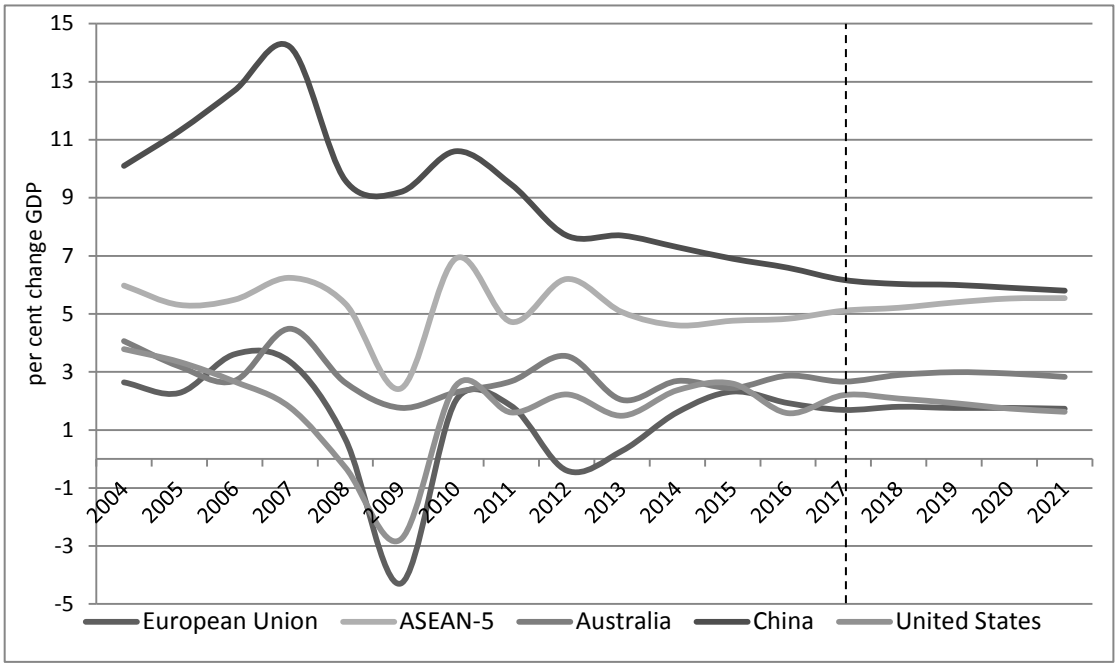
In 2009, the ASPI Budget Brief devoted an entire chapter to the potential impact of the GFC. The key aspects of that analysis are updated below. Figure 5.15 shows the recorded and prospective economic contraction globally and for advanced and developing economies separately. As can be seen, the impact was more severe in the former. In fact, compared with the initial estimates from early 2009, developing countries have gotten off even more lightly than expected—typically 2-3% less contraction—thereby widening the gap between the impact on developed and developing counties.

The results for specific countries and sub-regions are shown in the lower graph. Note that China and Australia managed to avoid the worst of the recession compared with our respective cohorts—at least initially.

Over the past twelve months, the world economic outlook has been more uncertain than encouraging. The ongoing sovereign debt crisis in Europe has cast a shadow over the global economy, growth in China has slowed, and the United Kingdom is undergoing yet another economic slowdown. Overall, growth projections have continued to moderate as the global economy fails to fully recover. On the bright side, the US economy appears to finally be gaining momentum after the slowest and most hesitant recovery from recession in the post-war era. In Australia, where the impact of the GFC was not severe, the recovery has been slow and interest rates have been cut to an historical low of 1.5% to kick-start growth.

Figure 5.15: The Great Recession



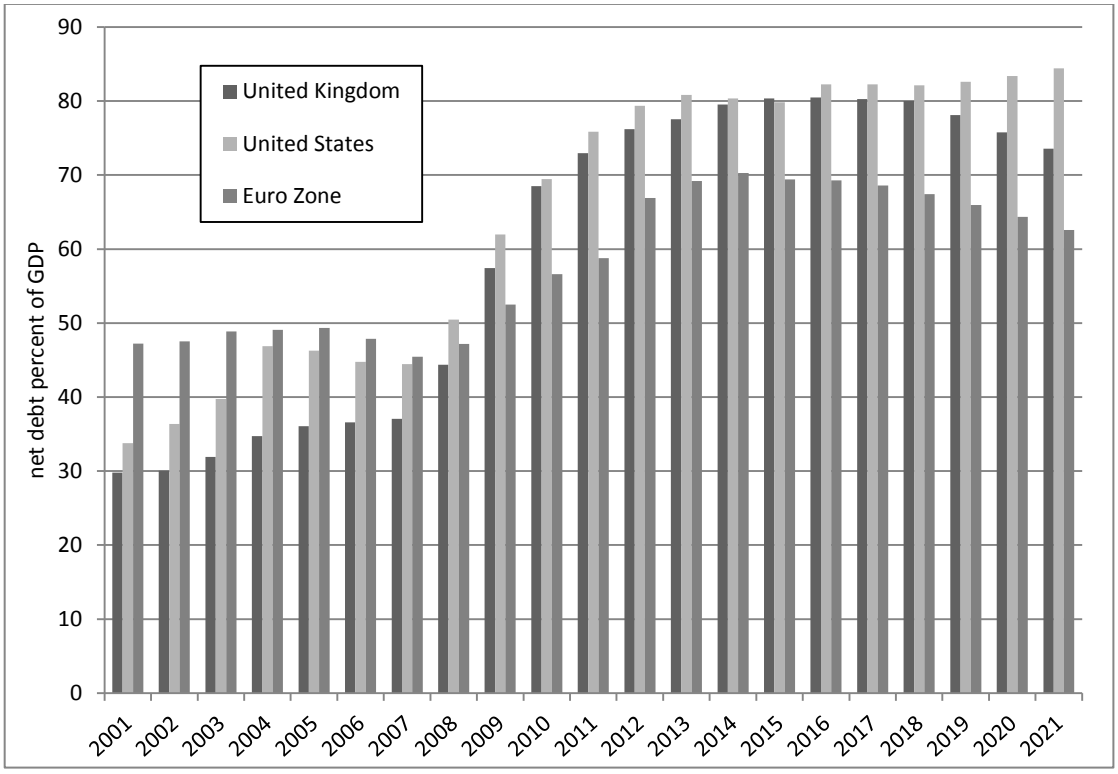


Source: International Monetary Fund, World Economic Outlook, April 2017.

At the time, the GFC only had a limited impact on international defence spending—probably because insufficient time was available to make substantial adjustments. Seven years later, and the longer term consequences are beginning to emerge. As shown earlier, from around 2010 onwards, substantial cuts to defence spending have been made in several countries.

From the perspective of defence spending (and government spending more generally), the GFC did two things. First, it rapidly exacerbated long-standing problems with government debt in many advanced economies, see Figure 5.16.

Figure 5.16: The GFC and government debt



Source: IMF World Economic Outlook, April 2017.

Second, the GFC removed the complacency surrounding the sustainability of the financial system in general and government finances in particular. No longer is it possible to pretend that advanced economies can live beyond their means forever. Moreover, the GFC forced many countries to face up to the fiscal dilemma caused by ageing populations.

The extent to which a country decides to reduce its defence spending because of mounting debt will depend on many factors—economic, strategic and cultural. A proper analysis of how these factors might come together for even one country is beyond the scope of this brief. But as we've already seen, several advanced economies are already working towards fiscal consolidation, including through cuts to defence spending.

As a guide to the extent of fiscal pressures, key economic and fiscal data for countries of interest has been collected in Table 5.9. France, Germany, Italy, the United Kingdom and the United States all face sizable growing debts.

As the data makes clear, there will be much more pressure on advanced economies to rein in defence spending than on developing ones. Among the advanced countries, Australia is in a relatively strong position given its low debt and relatively shallow downturn.

It is worth noting that the debt held by advanced economies will be more difficult to pay off than that in developing countries. Not just because advanced economies tend to owe a greater share of GDP, but also because developing economies grow two or three times faster than their advanced counterparts. Japan faces an increasingly serious situation where its ageing population will impede growth at the same time as aged care and health costs rise

in the years ahead. China, on the other hand, could erase its public debt within several years if it chose to do so.

Table 5.9: Pressures on government spending that might curtail defence spending

	Net borrowing 2016 (% GDP)	Percentage annual GDP growth			Net general government debt (IMF) as a share of annual GDP		
		2007	2015	2020	2005	2015	2020
Advanced economies							
Australia	-2.9%	4.5%	2.4%	2.9%	-3.8%	17.7%	19.8%
Canada	-2.5%	2.0%	1.1%	1.9%	31.6%	26.3%	19.6%
France	-3.3%	2.4%	1.3%	1.8%	58.8%	88.2%	88.0%
Germany	0.1%	3.4%	1.5%	1.3%	52.0%	47.5%	38.5%
Italy	-2.5%	1.5%	0.8%	0.9%	86.0%	113.3%	108.9%
Japan	-5.2%	2.2%	0.5%	0.1%	82.1%	125.3%	132.2%
Korea	0.8%	5.5%	2.6%	3.0%	25.5%	35.7%	35.0%
Netherlands	-1.1%	4.2%	2.0%	1.7%	21.9%	34.3%	32.1%
New Zealand	-0.4%	3.4%	3.0%	2.5%	11.2%	6.5%	6.0%
Singapore	2.4%	2.1%	2.0%	2.6%	-	-	-
Spain	-4.5%	3.8%	3.2%	1.8%	34.1%	79.7%	81.7%
Taiwan	-1.6%	6.5%	0.6%	2.5%	-	34.6%	26.3%
United Kingdom	-3.3%	2.6%	2.2%	1.9%	37.5%	80.4%	75.8%
United States	-4.1%	1.8%	2.6%	1.7%	46.3%	79.8%	83.4%
Regional economies							
Indonesia	-2.5%	6.3%	4.8%	6.0%	-	-	-
Malaysia	-3.4%	6.3%	5.0%	5.0%	-	-	-
Philippines	-0.1%	6.6%	5.9%	7.0%	-	-	-
Thailand	-0.4%	5.0%	2.8%	3.0%	-	-	-
Vietnam	-6.5%	7.1%	6.7%	6.2%	-	-	-
Emerging powers							
China	-3.0%	14.2%	6.9%	5.9%	-	-	-
India	-6.7%	9.8%	7.6%	8.0%	-	-	-
Russia	-3.9%	8.5%	-3.7%	1.5%	-	-	-

Source: International Monetary Fund, World Economic Outlook, April 2017.

International comparisons

Prepared with the assistance of Zoe Glasson and Patrick Kennedy

Apart from NATO reporting, most countries present their defence spending in their own unique way. Chapter 9, for example, explains the very unconventional system employed by New Zealand. Several organisations produce tables of international defence spending, each using its own approach to what's included and excluded. No two sources offer the same numbers for every country—in part because they each adopt a different definition of what's included in defence spending. Key sources of comparative defence spending data are compared in Table 5.10, where three common international sources, and one Australian source are given. The coverage in time and space of each varies, as do the sources of defence spending data.

Table 5.10: Sources of comparative defence spending data.

Publication	Publisher	Coverage	Sources
2017 SIPRI Military Expenditure Database	Stockholm International Peace Research Institute (SIPRI)	1949 to 2016 173 countries + regional totals calendar- & some financial-year	Official budgets, NATO reporting, IMF, and various other sources.
2016 Defence Economic trends in the Asia-Pacific	Australian Defence Intelligence Organisation (DIO)	2006 to 2015 27 countries calendar-year (?)	Official budgets and IISS, and some in-house estimates.
The Military Balance 2017	International Institute of Strategic Studies (IISS)	2014 to 2017 171 countries + regional totals calendar-year (?)	Official budgets, NATO reporting, and some in-house estimates.
NATO	North Atlantic Treaty Organisation	2009 to 2016 27 countries calendar-year or fiscal-year with most months in calendar year	Official budgets as reported to NATO

Sources: Reports cited above.

To exemplify the differences, we turn to consider the United States and Australia as case studies below. We've chosen the United States alongside Australia because the official US defence budget is more comprehensive and transparent than any other. We conclude this section by discussing the comparisons of defence spending over time and between differing currency jurisdictions.

Table 5.11 compared the inclusions and exclusion of items in defence spending, including ASPI and the official US national defence budget. Note that DIO and IISS do not employ a prescriptive definition, whereas NATO and SIPRI share one. The clear but minor source of difference between NATO and SIPRI is the treatment of 'destruction of weapons'. Comparing ASPI with NATO and SIPRI, the potentially substantial difference is the treatment of retirement pensions for military personnel. It's unclear whether NATO and SIPRI include retirement pensions for civil employees.

Table 5.11: Varying definitions of defence expenditure.

	ASPI	US Official	DIO	IISS	NATO	SIPRI
Scope:						
official defence budget			yes	yes		
'actual defence expenditure' (including items omitted in official defence budget).			no	yes		
NATO defence expenditure (for NATO members)			no	yes	yes	
Detailed scope:						
armed forces, including peacekeeping forces	yes	yes			yes	yes
defence ministries and other government agencies engaged in defence projects	yes	yes			yes	yes
paramilitary forces when judged to be trained, equipped and available for military operations	n/a	no			yes	yes
military space activities	yes	yes			yes	yes
civil defence	no	no			no	no
humanitarian missions	yes	yes			yes	?
national signals and geospatial intelligence	yes	no			?	?
Inclusions:						
personnel:						
- all expenditures on current personnel, military and civil	yes	yes			yes	yes
- pensions for retired military personnel	no	no			yes	yes
- accrual of future liabilities for retirement pensions	partial	partial			?	?
- healthcare for retired military personnel and families	no	yes			no	no
- social services for personnel and their families	yes	yes			yes	yes
operations and maintenance	yes	yes			yes	yes
procurement	yes	yes			yes	yes
military research and development	yes	yes			yes	yes
military construction	yes	yes			yes	yes
military aid (donor country only)	yes	yes			yes	yes
Current expenditure for previous military activities:						
- veterans benefits	no				?	no
- demobilization	no				?	no
- conversion of arms production facilities	no				?	no
- destruction of weapons	yes				yes	no

Sources: Reports cited in Table 1.7.4 plus US DoD Comptroller Green Book 2016.

Comparing the ASPI definition with the US official national defence budget, there are several differences. First, the United States includes, but ASPI excludes, healthcare for retired personnel and their families. Second, ASPI includes (because the Australian Defence budget includes) the entirety of our signals and geospatial intelligence whereas the United States funds those functions jointly through its National Intelligence Program (NIP) and Military Intelligence Program (MIP). Only the latter is included in the US national defence budget.

The inclusion (or exclusion) of military and civil retirement pensions is problematic. Many countries have unfunded, or partially unfunded, pension schemes for retired military and civil personnel. Such countries incur real and often substantial ongoing costs—either within or in addition to their defence budget. However, those costs add nothing to current military power, and are instead the deferred cost of past military activities.

In a technical accounting sense, there is a way to deal with the problem. The unfunded liability for future pensions (and other deferred personnel costs) should be recognised as an expense at the time the liability is incurred. That way, the full cost of delivering current military capability is recognised immediately.

If only it were that simple. Because accrual accounting has only recently, and partially, been introduced into the public sector internationally, for many years, pension liabilities have built up without them being recognised as an expense. Moreover, the cash cost of today's pensions imposes an opportunity cost on the government and society, which cannot be ignored. That problem is slowly being extinguished in some countries—Australia included—by shifting to pay-as-you-go schemes. But it will be years before legacy schemes are wound up, if ever in some countries.

To complicate matters further, in some countries, military and civil pensions supplant alternative social security arrangements that employees would otherwise be entitled to. When that occurs, at least part of the payment would have occurred anyway irrespective of military service.

From a cash perspective—under which many countries effectively operate—unfunded pension schemes result to two possible errors. First, the cost of future pensions might not be recognised as an expense at the time the liability is incurred, for example, if the country has an unfunded, or only partially funded, military pension scheme. Second, past liabilities impose current costs that are unrelated to current activities. Although the two errors act in opposing directions, the cancellation will rarely be exact. Moreover, because of the contraction of Western military strength since the end of the Cold War, the scale (if not the cost) of today's pensions is likely to exceed that of tomorrow's—hence the inclusion of pensions may tend to overstate current defence expenditure.

Clearly, the inclusion of pensions greatly complicates international comparisons. While some countries have largely unfunded schemes, others are shifting to partial or full pay-as-you-go schemes. For example, Australia moved to a partially pay-as-you-go scheme in 1991, and then to a full accumulation scheme around 2014. However, older schemes have been grandfathered, so that the new scheme will operate concurrent with legacy schemes for

decades hence. With such a mix of arrangements, an apples-to-apples comparison between even two countries would be a tricky accounting exercise.

To appreciate the complications, we turn now to examine reported defence spending for Australia and the United States over the past several years, both to show the impact of pensions and to compare how different organisations report defence spending.

Tables 5.12 and 5.13 show reported defence expenditure figures for Australia and the United State over the past three years. We have not taken account of the Trump mini-budget, and the Australian figures are from May 2016 (which is what the other sources would have access to at the time of publication).

Table 5.12: Reported US defence expenditure 2014-2016

	Official National Defence	NATO (March 2017)	SIPRI (FY) (April 2017)	SIPRI (CY) (April 2017)	IISS (February 2017)	DIO
2014	603,457	653,942	609,914	609,914	604,452	622,300
2015	597,503	641,253	596,010	596,010	589,564	598,400
2016	615,515	664,058	611,186	611,186	604,452	

Sources: Reports cited in Table 1.7.4 plus US DoD Comptroller Green Book 2016. FY = Financial Year, CY = Calendar Year.

Table 5.13: Reported Australian defence expenditure 2014-2016

	ASPI budget (actual)	SIPI (FY) (April 2017)	SIPRI (CY) (April 2017)	IISS (February 2017)	DIO
2014-15	29,813	30,097	28,604	26,500	29,800
2015-16	31,989	33,900	31,999	30,000	34,200
2016-17	32,382	32,338	33,119	32,300	37,900

Sources: Reports cited in Table 1.7.4. For ASPI figures, 2014 = 2014-15 etc. FY = Financial Year, CY = Calendar Year.

The following points are noteworthy:

- For the United States, the SIPRI, IISS and DIO figures are commensurate (within $20 billion) whereas the NATO figure is around $40-50 billion higher in each year. That means that the NATO figures are 7-8% higher than the US official figures in each of the three years. That's enough to boost reported US GDP share from 3.5% to 3.75%. As we explain below, that probably reflects the inclusion of pension payments from outside of the US DoD budget. Of course, that begs the question of why SIPRI failed to include those payments given that its definition includes pensions.

- For Australia, the numbers from SIPRI and IISS are on the same scale, but not obviously correlated with either the budgeted or actual ASPI figures. The results from DIO are curious. While the 2014-15 figure matched with the ASPI budgeted figure for that year, the DIO figures for the subsequent two years are $2-5 billion higher. It may be that DIO started including administered appropriation (see Chapter 1).

Impact of pensions

To see how the inclusion of pensions impacts the two sets of figures, consider 2015. In that year, the United States' national defence budget included $19.5 billion of accrual expenses for future military pensions, and $7 billion of funding for healthcare for retired members and their families. At the same time, $56.5 billion of payments to retired military personnel were made from outside the national defence budget. To compare the US budget on an apples-to apples basis to countries with an unfunded military retirement system, you would add in the $56.5 billion and subtract the $19.5 billion yielding a net increase of $37 billion. That's not quite the same as the $43.8 billion difference between the official and NATO figure, but it's not too distant. Note that such a simple adjustment is only possible because the US has an unfunded military retirement system.

Consider now Australian defence spending in 2015-16, where the DIO figure is around $2 billion or 6% higher. In that year, administered appropriations (which are mainly funding for three military pension/superannuation schemes) amounted to $6.9 billion. No breakdown between schemes is available. However, while no obvious reconciliation presents itself, it's possible that much of the $6.9 billion represented internal transfers with government accounts rather than actual pension payments. Indeed, other sources point to annual payments far below that figure.

There are three military retirement schemes covered by the administrative appropriation. The 1948 Defence Force Retirement Benefits (DFRB) scheme, the 1973 Defence Force Retirement and Death Benefits (DFRDB) scheme and the 1991 Military Superannuation Benefits Scheme (MSBS). The latter two schemes are partially funded by pay-as-you-go payments from members and Defence. A 2011 actuarial report gave the then annual payments as listed in Table 5.14.

Table 5.14: Annual payment military retirement benefits circa 2011.

	Pensioners	Annual payments ($m)
1948 Defence Force Retirement Benefits	3,749	60
1973 Defence Force Retirement and Death Benefits	52,970	1,297
1991 Military Superannuation Benefits Scheme	64,896	1,558

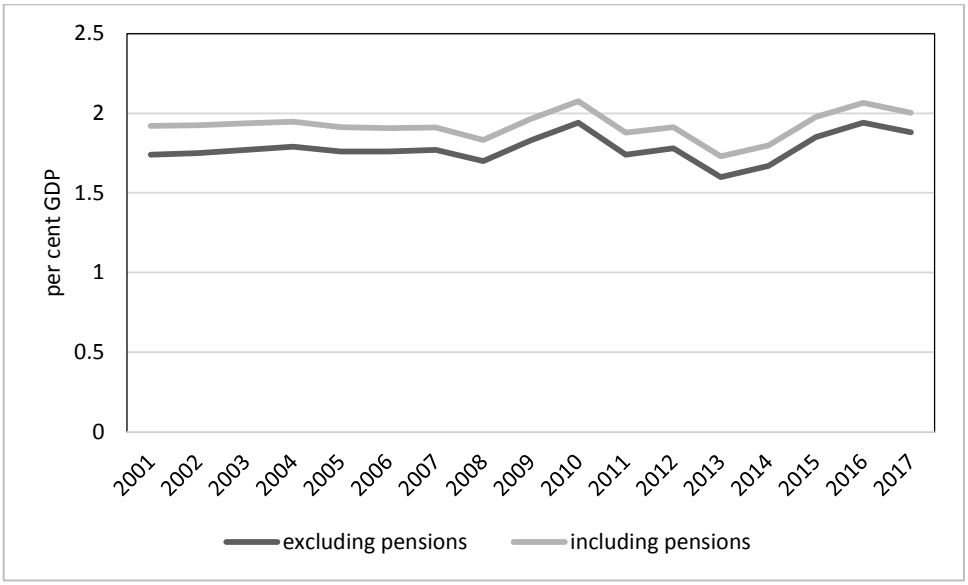
Source: Long terms costs of MSBS, DFRDB and DFRB. Australian Government Actuary, 2011.

Because the DFRDB and MSBS are partially pay-as-you-go schemes, the annual payments listed in Table 5.14 do not have to be covered entirely by the government. Although we could not find financial statements for either the DFRB or DFRDB schemes, the latest annual report from the MSBS (for 2015-16) showed annual payments to retirees of $645 million. Income for that year included investment returns of $143 million, member contributions of $316 million, employer contributions of $180 million, and an appropriation from consolidated revenue of $500 million. As a result, assets grew from $6.8 billion to $7.3 billion over the year. Setting aside the details, the largest of three schemes only required $0.5

billion of money from the government in 2015-16. Consequently, there must be some other another explanation for the $6.9 billion appropriation in 2015-16.

Settings aside the specific schemes and how they do and don't relate to special appropriations, the 2011 actuarial report projected the total annual Commonwealth outlays required by the three schemes until 2054. The estimated outlays began at 0.18% of GDP for 2001 but are projected to fall to around 0.12% in 2017. But because Australia has a hodgepodge of schemes running in parallel with various degrees of underfunding, it is not possible to make a simple adjustment to achieve an apples-to-apples comparison with countries operating a fully unfunded system. However, if we naively add the estimated pension outlays, Australia we would have exceeded 2% of GDP in 2009-10, 2015-16 and 2016-17, see Figure 5.17.

Figure 5.17: Australian defence spending share GDP, with and without pensions



An even more dramatic change would emerge if pensions were subtracted away from the European defence budgets. IISS reports that the reported defence expenditure for Belgium, France and Germany includes pensions amounting to 33%, 24% and 17% respectively, and other sources give figures of 27% for Ireland and 24% for Greece. Table 5.15 gives indicative figures from official budget sources. Unfortunately, we are unable to say anything the structure of the pension schemes—it was difficult enough finding the numbers.

Table 5.15: Indicative share of defence spending going to pensions

	France	Germany	Japan	Spain	United Kingdom
% of budget spent on pensions	19.2%	16.6%	6.8%	34.5%	14.4%

Source: Various official national budget publications.

These figures should be treated, and used, with caution. Without detailed information on the structure and size of each countries' military and civil pension arrangements, it is simply

not possible to confidently compare levels of defence spending. The percentages quoted are only a small part of the information needed for such a comparison.

Impact of national intelligence spending

The situation is not much better when it comes to the inclusion of national intelligence budgets, which are shrouded in secrecy. For example, based on public information, it is not possible to say what the cost of the Australian Signals Directorate (ASD) or Australian Geospatial Organisation (AGO) are, but the recurrent annual operating cost must be less than $909 million (the cost of the Strategic Policy and Intelligence program). In comparison, the US NIP was funded at $53 billion and the MIP at $17 billion. It's unlikely that any useful figures would be available from other countries.

Comparisons between countries, and over time

The comparison of defence spending between countries is made difficult by the currency exchange rates. Two methodologies are used in different contexts. The most usual is to compare spending using US dollars at prevailing market exchange rates. Doing so is convenient because the US dollar exchange rates are easy to find. Accounting in US dollars also provides a measure of a country's ability to purchase and operate advanced military equipment.

The alternative, and less often used, approach is to employ 'international dollars' based on Purchasing Power Parity (PPP). PPP exchange rates reflect the relative domestic buying power of currencies. As such, PPP conversions probably capture the relative ability of countries to employ personnel and purchase domestic services. A hybrid approach that used market exchange rates for equipment spending, and PPP rates for domestic inputs, would probably yield a more accurate comparison—but nobody does that. Market and PPP exchange rates for selected countries are given in Table 5.16. Perhaps surprisingly, only Australia falls below break-even. Consequently, all the countries, apart from Australia, would see their defence spending boosted relative to the United States by using PPP exchange rates.

Table 5.16: Ratio of market to purchasing power parity exchange rates

	United States	China	Australia	Germany	Russia	Indonesia	Italy	India
Ratio of market US$ to PPP international $ exchange rates	1.00	1.75	0.93	1.15	2.75	3.31	1.20	3.83

Source: International Monetary Fund, World Economic Outlook, April 2017.

Comparing defence spending between countries over time introduces a further complication because inflation usually occurs at different rates in different countries. In addition, there are varying inflation indices that can be used within an individual country. The two most common indices are the Consumer Price Index and GDP deflator. The relative merits of each are a subject for another day.

With any given inflation index, the comparison of spending between two countries requires two conversions: one between currencies, and another between nominal ('current') and real

(inflation adjusted 'constant') units of currency. The answer you get depends on the order in which you perform the two conversions. The methods employed by various sources are tabulated in Table 5.17. In each case, the conversion from current to constant dollars is performed first. The inevitable consequence, is that historical spending figures expressed in US dollars are constantly subject to revision as the prevailing US foreign currency exchange rate evolves. For this reason, the alternative approach of using historical US foreign currency exchange rates first, and then using a US deflator, is preferable.

Table 5.17: Comparisons between countries over time--methodology

	Comparison in time	**Comparison in location**	**Comparison in time and location**	**Source for GDP/forex**
DIO	Current domestic currency figure converted to constant figure using GDP price deflator.	Current domestic currency figure converted to current US$ figure using in-year exchange rate.	**Step 1:** Current domestic currency figure converted to constant figure using GDP price deflator. **Step 2:** Constant figures converted to US$ figures using constant-year exchange rate.	International Monetary Fund's World Economic Outlook (IMF). Market forex rate used.
SIPRI	Current domestic currency figure converted to constant figure using CPI index.	Current domestic currency figure converted to current US$ figure using in-year exchange rate.	**Step 1:** Current domestic currency figure converted to constant figure using CPI index. **Step 2:** Constant figures converted to US$ figures using constant-year exchange rate.	IMF. Market forex rate used.
IISS	n/a	Current domestic currency figure converted to current US$ figure using in-year exchange rate.	n/a	IMF, OECD, World Bank and various development banks. Market forex rate used (mostly), PPP in selected cases (including China and Russia).
NATO	Current domestic currency figure converted to constant figure using unspecified index.	Current domestic currency figure converted to current US$ figure using in-year exchange rate.	**Step 1:** Current domestic currency figure converted to constant figure using unspecified index. **Step 2:** Constant figures converted to US$ figures using constant-year exchange rate.	European Commission and OECD.

Chapter 6 – The Cost of War

Introduction

This chapter includes an explanation of how Defence is funded for deployments, updated information on historical deployment costs and a summary of the cost of recent operations including Syria/Iraq and Afghanistan. In addition, the accumulating number of disability pensioners arising from recent deployments is surveyed.

Key Points

Since 1998, Australia has committed more than $16 billion on military operations /overseas deployments.

A total of $1.3 billion has so far been committed to operations against ISIL.

The total commitment to operations in Afghanistan has been $8.3 billion.

Note: all figures nominal.

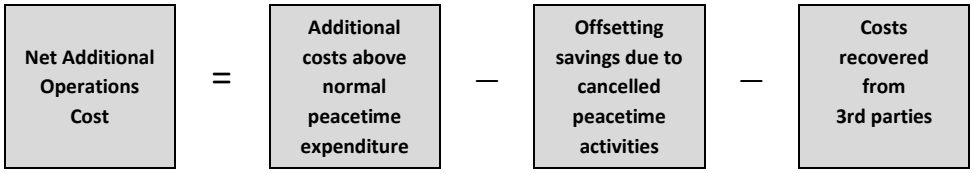
What do we mean by the cost of a war?

As a rule, Defence is supplemented for the *net additional* cost of any major military operation. This makes good sense because, in principle at least, it ensures that Defence does not have to compromise peacetime training to fund operations, and avoids them having to maintain a contingency reserve to cover unanticipated costs. This practice was suspended in 2008-09 because of a surplus of funding. It was then reinstated in 2009-10 but was only applied partially in the case of force protection measures in Afghanistan for which Defence absorbed much of the cost.

Figure 6.1 shows how the net additional cost of an operation is calculated. In the past, Defence only disclosed the aggregate net additional operations cost, the total value of new capital investment and the amount recovered from third parties. However, although offsets remain undisclosed, Defence sometimes provides itemised lists of the individual costs incurred in operations.

Figure 6.1 Calculating the 'Net Additional Cost of War'

Where:



The net additional operations cost includes the additional cost of personnel allowances, shipping and travel, repair and maintenance, health and inoculations, ammunition, contracted support, fuel, inventory, consumables etc. Offsetting savings includes the money saved from foregone activities like the cancelled Exercise Crocodile 99 and the Avalon Air Show in 1999-00 due to the deployment of Australian Forces to East Timor. Those costs recovered from 3rd parties include the partial recouping of costs from the UN when participating in a UN peacekeeping operation.

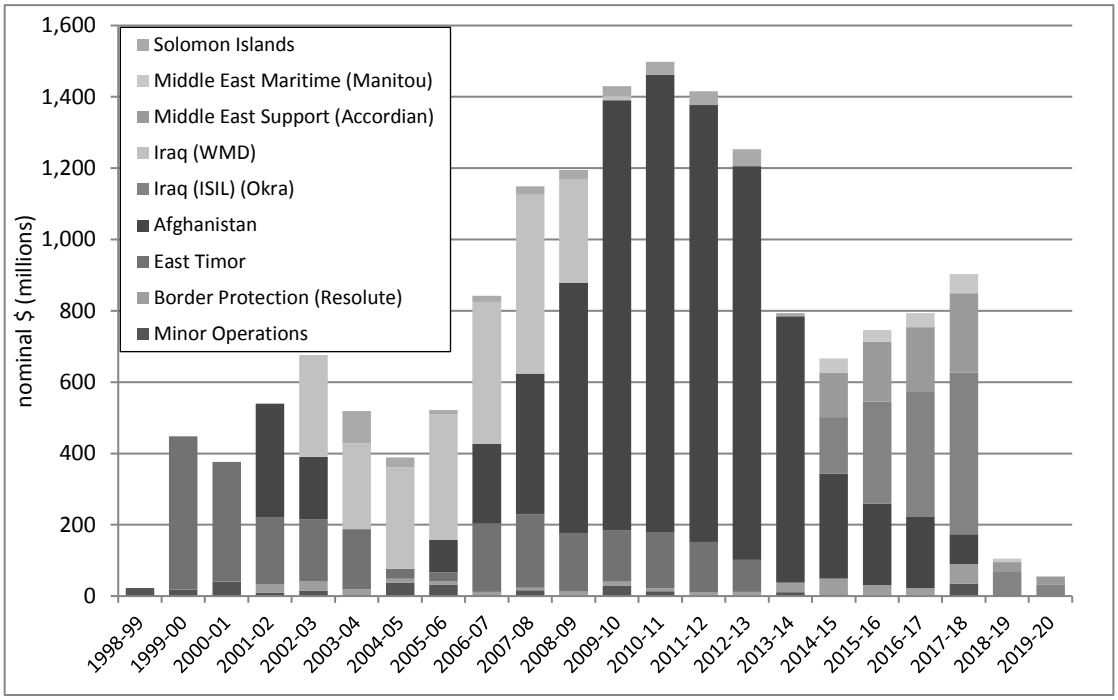
The net additional capital investment usually represents the accelerated filling of capability gaps specific to the operation. Recent examples include the purchase of additional electronic warfare self-protection (EWSP) equipment for the AP-3C maritime patrol aircraft for Iraq, and the rapid acquisition of the *Javelin* anti-armour missile for Afghanistan. Capital costs sometimes also include modifications to platforms and additional inventory purchases.

It's also worth being specific about what is not included. The net additional cost of an operation does not include pay and allowances that would normally be incurred, or the cost of operating platforms within the planned peacetime rate of effort. Nor does it cover the costs incurred outside of Defence by the Australian Federal Police, DFAT or others involved in operations. Thus, aside from additional items like new equipment, ammunition, transport and contracted services, the net additional cost is the *marginal cost* of increased ADF activity due to an operation.

What's the big picture?

Figure 6.2 shows the net cost of Defence deployments from 1998-99 to 2019-20. Note that Defence was directed to absorb costs of $22 million in 2007-08, $1,082 million in 2008-09, $43.1 million in 2009-10, $271 million in 2010-11, $368 million in 2011-12, $176 million in 2012-13, $32.3 million in 2013-14 and $24.3 million in 2014-15.

Figure 6.2: The net additional cost of ADF operations



Source: Defence Annual Reports and Budget Papers

Minor operations include: Bougainville (Op Bel Isi), which cost $109 million between 1998 and 2003 (of which $43.3 million was absorbed by Defence); the 2006 Commonwealth Games (Op Acolyte) ($10.5 million); and support to the G20 Summit in 2014 ($8.1 million). A total of $34.2 million has been set aside for the 2018 Commonwealth Games.

Figure 6.2 excludes the 'force generation' costs nominally associated with expanding the ADF by 3,555 troops for East Timor in late 1999. This was roughly $450 million per annum

permanently included into the Defence funding base at the time of the 2000 White Paper. In the figure, 'Afghanistan' includes the Multinational Interception Force (MNIF) which became, for a time, part of the Iraq operation in March 2003.

As shown in Figure 6.2, the cost of operations fell for the first time in eight years in 2011-12, but has been growing since 2015-16. The total cumulative real cost of recent operations is given in Table 6.1.

Table 6.1: Total real cost of recent and ongoing operations

	Dates (funding)	Length	Nominal cost $ (million)
Minor Operations	1998-99 to 2018-19	21	297
Border Protection	2001-02 to 2018-19	17	329
East Timor	1998-99 to 2014-15	16	2,444
Afghanistan	2001-02 to 2018-19	19	8,281
Iraq (WMD)	2002-03 to 2009-10	8	2,365
Iraq (ISIL)	2014-15 to 2019-20	6	1,347
Middle East	2014-15 to 2019-20	6	919
Solomon Islands	2003-04 to 2014-15	12	355
Total	**1998-99 to 2019-20**	**20**	**16,338**

Source: DAR and 2017-18 PBS. East Timor, 'Force Generation' funding to temporarily expand the Army and Air Force (which did not occur) is not included.

Major operations in the 2017-18 Budget

Afghanistan (Operation Slipper and Highroad)

The government has funded Operation Highroad until June 2018 at a cost of $83.5 million. Operation Highroad is Australia's contribution to 'the NATO-led train, advise and assist mission which has replaced the previous NATO-led ISAF mission'. Two hundred and seventy ADF personnel are presently involved.

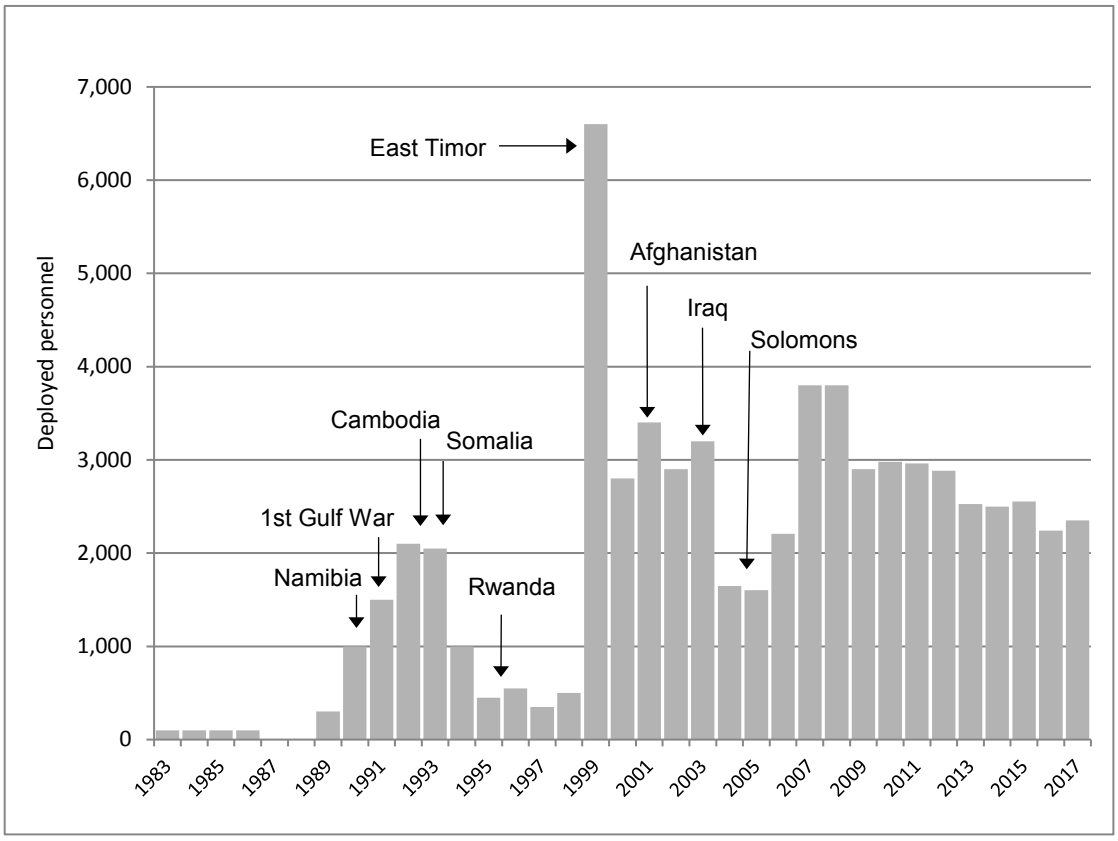
Iraq (Operation Okra)

The government has provided $453.6 million to cover the cost of Australia's contribution to the international coalition against ISIL, or Daesh, in Iraq in 2017-18. The Australian contingent includes a 300-strong Air Task Group (6 x F/A-18 Super Hornets, 1 x E-7A Wedgetail AEW&C and 1 x KC-30A Multirole Tanker aircraft), and an 80-strong Special Operations Task Group and a 300-strong Task Group to help build the capacity of the Iraqi Army.

Middle East Area Region (Operation Accordion and Manitou)

The government has funded the ADF deployment to the Middle East region until June 2018, including $222 million for Operation Accordion and $54.2 million for Operation Manitou. Operation Accordion 'supports the sustainment of ADF operations, enables contingency planning and enhances regional relationships in the Middle East Region'. Around 500 people and various assets are deployed on Operation Accordion. Operation Manitou is Australia's 'contribution to the international effort to promote maritime security, stability and prosperity in the Middle East Region'. One RAN frigate is presently deployed.

Figure 6.3: Indicative deployed personnel numbers, circa May each year.



Note: numbers do not include 500 personnel on border protection duty.

Table 6.2: Deployed ADF personnel as at May 2017

Operation	Location	Personnel	Status
Accordion	Middle East Region	500	Ongoing
Aslan	Sudan	20	Reviewed Annually
Manitou	Middle East Region	241	Ongoing
Mazurka	Egypt	25	Ongoing
Okra	Iraq	780	Ongoing
Paladin	Israel/Lebanon	12	Reviewed Annually
Resolute	Australian Maritime Interests	500	Ongoing
Highroad	Afghanistan	270	Ongoing
Southern Indian Ocean	Indian Ocean	2	Ongoing
	Total	**2,350**	

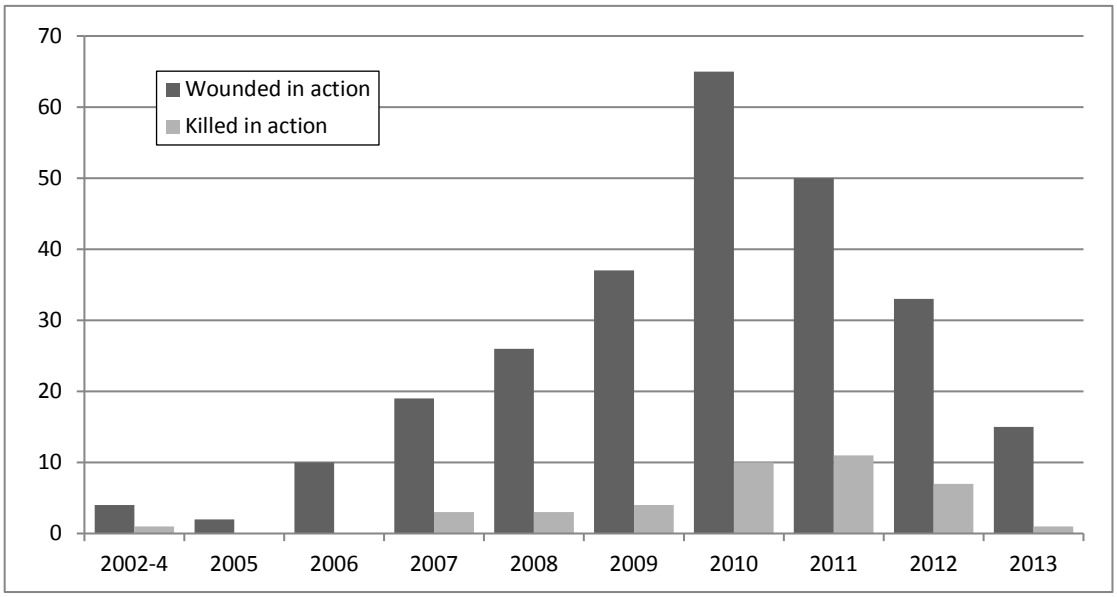
Source: www.defence.gov.au, May 2017

The human cost of war

The financial costs of Australia's military deployments do not account for the human cost incurred by deployed personnel and their families. A partial picture of this complex area is reflected in battle casualty statistics and disability pensions awarded to ADF members in recent conflicts. These are presented below in Figures 6.4 and 6.5. In Figure 6.5, the Special Rate refers to totally and permanently (or temporarily) incapacitated.

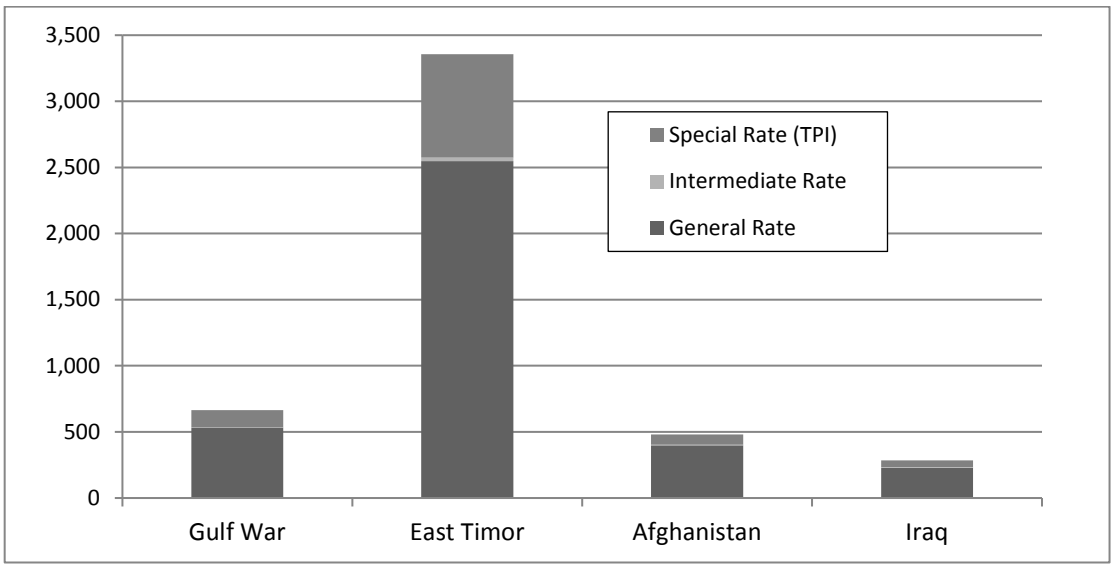
According to a Question on Notice from a Senate Estimates hearing in November 2013, battle casualties and wounded in Afghanistan included: 4 amputations, 56 fractures, 56 gunshot wounds, 12 hearing losses, 22 lacerations/contusions, 33 concussions/traumatic brain injuries, 10 multiple severe injuries, 25 penetrating fragments and 43 'other' injuries.

Figure 6.4: Battle casualties in Afghanistan 2002 to 2013



Source: Department of Defence website, data as at 1 February 2014.

Figure 6.5: Pensions arising from recent conflicts



Source: Department of Veteran's Affairs, DVA Pensioner Summary, December 2016

Chapter 7 – Defence Industry

Key Points

Local defence industry grew two-fold between 1995 and 2006, but then stagnated. Growth has recommenced over the past couple of years and is set to continue.

Local defence industry is dominated by a handful of local subsidiaries of foreign-owned companies.

The future of naval shipbuilding is becoming clearer.

Since at least the 1970s, Australia has aspired to be self-reliant when it comes to its own defence. The caveats and qualifications to what's meant by self-reliance are many and changing, and needn't concern us here. What's important is that everyone agrees that an essential component of self-reliance is a local defence industry that can (at least) repair, maintain and adapt the equipment used by our defence force.

To that end, successive governments have adopted policies to ensure that Australia's defence industrial base is adequate for the task. This outcome is deemed to be important enough for governments to publish formal defence industry policy statements from time to time, the most recent of which was released in tandem with the 2016 Defence White paper last year.

Despite the effort and priority accorded to maintaining a healthy local defence industry, there's surprisingly little hard data in the public domain about the size and shape of the sector. This chapter tries to redress that shortfall by collating and analysing the information that is available. Our aim is to analyse macro trends, such as the rate of growth and pace of commercial consolidation or diversification. Readers seeking a detailed company-by-company description of the sector should consult the latest *Australian Defence Magazine* (*ADM*) *Top-40 Defence Contractors* (see *ADM* magazine Dec 2016/Jan 2017)—a reliable and informative source from which much of our data has been sourced.

Having described the Australian defence industry landscape, we then examine the government's new Defence Industry Policy Statement (DIPS) and the steps taken so far to implement it, along with emerging trends in government defence purchasing. In addition to designating industry a 'fundamental input to capability', the new Policy reorganised several pre-existing industry support programs in areas such as skills development, research and development and export facilitation. Perhaps more importantly, the Turnbull government subsequently signalled an overt 'buy Australia' stance that was not apparent in the DIPS.

Because of its unique status as a 100% government-owned entity, a detailed analysis of the shipbuilder *ASC Pty Ltd* has also been included, along with a discussion of naval shipbuilding more generally, which is particularly interesting given continuing high-profile announcements about the future submarine and surface vessel programs.

Australian Defence Industry

According to government's 2016 DIPS, the Australian defence industry employs around 25,000 people. Structurally, the sector is dominated by a small number of large prime contractors that account for around 50% of employment. In 2017, the Minister for Defence Industry said that there were over 3,000 small and medium-sized enterprises (SMEs) operating in local defence industry. These firms mostly operate as subcontractors to the

larger prime contractors. An SME is typically defined as a firm employing fewer than 200 employees. In most cases, SMEs operating in the defence sector are diversified enterprises that also supply customers in the civil economy.

The 2010 DIPS said that around one-third of Defence's acquisition and sustainment spending went to local SMEs. However, an ASPI analysis of defence contracts (see Chapter 9 of the 2016-17 Budget Brief) implies that a much smaller proportion of CASG spending goes directly to locally owned SMEs.

CASG advise that, in 2017-18, an estimated $6.7 billion (or 54%) will be spent locally from the planned $12.3 billion expenditure on sustainment and acquisition in 2016-17. The $6.7 billion includes around 36% of the $6.6 billion planned acquisition and 75% of the $5.7 billion planned for sustainment. Those figures appear in Table 7.1 along with those for prior years.

Table 7.1: Defence materiel spending 2012 to 2017-2018

	Total spend	Local spend	Total acquisition	Local acquisition	Total sustainment	Local sustainment
2012		$4.9m		$1.4m		$3.5m
2013-14		$5.4m		$1.8m		$3.6m
2014-15		$6.1 m		$1.9m		$4.1m
2015-16	$12.4m	$6.4m (53%)	$6.4m	$2.4m (37%)	$5.7m	$4.0m (71%)
2016-17	$12.1m	$6.3m (52%)	$6.5m	$2.4m (37%)	$5.6m	$3.9m (70%)
2017-18	$12.3m	$6.7m (54%)	$6.6m	$2.4m (36%)	$5.7m	$4.3m (75%)

Source: 2012 DCP, and advice from DMO/CASG

A little arithmetic applied to those estimates reveals that the average revenue per employee in Australian defence industry is $268,000 (Table 7.2). In absolute terms, revenue of $268,000 per employee is low compared with the average of $447,487 for Australian manufacturing firms (ABS series 8155 for 2014-15). But the latter figure is inflated by the high output per employee in the large-scale capital-intensive petroleum and primary metal production industries. Arguably better comparators are 'transport equipment manufacture' ($396,342 per employee) and 'machinery and equipment manufacturing' ($362,066 per employee).

Table 7.2: The scale of Australian defence industry (circa 2013-2015)

	Australian Industry	Australian Manufacturing Sector	Australian Defence Industry
employees	10,636,000	856,000	25,000
revenue ($m)	3,112,828	383,049	6,700
value add ($m)	1,066,484	98,058	*1,715
revenue per employee	$292,669	$447,487	$268,000

*Source: ABS series 8155 2014-15, ASPI analysis. *using manufacturing sector proportion*

The remaining difference in revenue per employee probably reflects a combination of three factors: poor economies of scale that lead to relatively high fixed labour-intensive administrative overheads, an absence of mechanisation (due to poor economies of scale), and intrinsically labour-intensive software and computer work. The other possibility is that the actual number of people employed in local defence industry is smaller than estimated.

Defence industry accounts for 0.24% of jobs in Australia, and 2.9% of jobs in the manufacturing sector. In terms of annual revenue, defence industry accounts for 0.22% of Australian industry and 1.7% of the manufacturing sector. So, although Australian defence industry is undoubtedly important for our defence force, it represents only a trifling fraction of the overall Australian economy.

A closer look

Getting below the aggregate data for local defence industry is difficult because there aren't any official statistics on the composition of the sector. Fortunately, however, the *ADM* has been surveying local defence contractors since 1995 and has generously made its 22 years of data available to us. Two points need to be made before proceeding. First, the nature of the survey results in both limitations and uncertainties on the data set—those will be pointed out as we go. Second, ASPI takes full responsibility for the analysis and conclusions that follow. Whatever violence is done to the data is our fault alone.

The best way to understand the data set is to look in detail at the latest results presented in the Dec 2016/Jan 2017 *ADM* edition. The *Top-40 Defence Contractors* list, as it's known, details the top 40 firms contracted to deliver goods and services to Defence either directly or via subcontracting work to prime contractors. That includes not only defence materiel production and maintenance, but also functions such as catering, cleaning and facilities construction. Because these latter activities draw services from the highly competitive broader economy, they're of less interest to us and are therefore largely excluded in what follows.

That isn't to imply that such suppliers are irrelevant to the operation of the ADF—far from it, they're essential. But our concern is with companies with specialist defence materiel knowledge, which are often highly dependent upon defence contracts for survival. Irrespective of what Defence might do, there will always be companies ready to build facilities, cook meals, clean buildings, mow lawns and transport goods. The same isn't true of firms capable of supplying and sustaining military equipment, hence our focus.

Table 7.3 lists the *ADM Top-40* for 2016, with defence materiel and non-defence materiel companies separated. Some companies straddle the boundary between providing civil and defence specific items, particularly in the information and telecommunications sector. We've done our best to assign such companies on the balance of their activities.

It should also be kept in mind that the *ADM Top-40* survey is voluntary and from time to time companies have chosen not to participate—sometimes reflecting a policy of non-disclosure. Significant companies that did not participate include Jacobs Australia and Elbit Systems. Note that Broadspectrum was previously known as Transfield Services.

Table 7.3: *ADM Top-40* Defence Contractors 2016

		Revenue ($m)	Personnel	Revenue per employee ('000s)
	Predominately defence materiel contractors			
1	BAE Systems Australia	1,200	3,300	364
2	Raytheon Australia Pty Ltd	964	1,251	771
3	Thales Australia	924	3,200	289
4	Boeing Defence Australia (BDA)	850	2,000	425
5	ASC Pty Ltd	797	2,600	307
6	Airbus Group Australia Pacific	635	1,750	363
7	Broadspectrum Limited (BRS)	506	2900	174
8	Lockheed Martin Australia Pty Limited	475	976	487
11	Babcock Australasia	275	700	393
14	Northrop Grumman Australia Pty Ltd	214	461	465
16	Austal	187	650	288
18	Saab Australia	131	350	374
19	Safran Pacific	130	200	650
20	CEA Technologies Pty Ltd	123	322	382
21	UGL Defence	110	70	1,571
22	Australian Defence Apparel Pty Ltd (ADA)	101	250	404
24	Cubic Defence New Zealand Ltd	90	152	590
26	Nova Systems	73	327	222
27	CSC Australia	72		
28	CAE Australia Pty Ltd	70	208	337
29	Sikorsky Helitech	69	242	285
31	AECOM Australia Pty Ltd	57		
32	QinetiQ Pty Ltd (QinetiQ Australia)	55	270	204
33	Quickstep Technologies Pty Ltd	49	170	289
34	Supacat	49	48	1,019
35	Marand	48	112	424
36	Chemring Australia	47	87	540
37	G H Varley Pty Ltd - Defence & Aerospace	43	90	476
39	KBR (Kellogg Brown & Root Pty Ltd)	39		
	Total	**8,421**	**22,835**	**369***
9	Lendlease Building Pty Ltd	450	250	1,800
10	Spotless Group Limited	340	2,010	169
12	Serco Australia Pty Ltd	273	635	430
13	Leidos Australia	257	791	325
15	Aspen Medical	192	2,000	96
17	IBM Australia Limited	134	296	453
23	ESS Support Services Worldwide	95	900	106
25	Accenture	80		
38	St Hilliers Property Pty Limited	43	88	483
39	DHL Global Forwarding	39		
30	Aurecon Australia Pty Ltd	61		
	Total	**1,963**	**6,970**	**281***

**Weighted average*

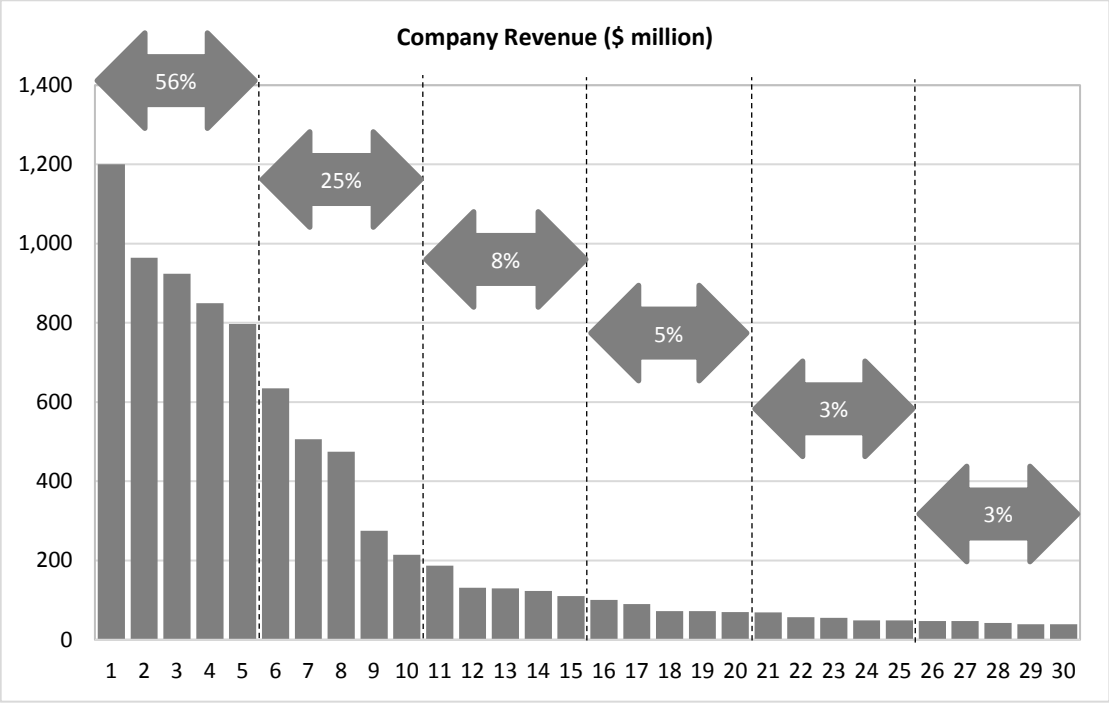
Source: ADM Top-40 Defence Contractors –1995-2016, published by Australian Defence Magazine, Dec/Jan edition each year.

The data reveals several interesting things. To start with, several companies have surprisingly low revenues per employee—as low as $174,000 in one instance—which may reflect an overstatement of the number of employees engaged in defence work within the firm. Conversely, several firms have surprisingly high revenues per employee, of the sort more commonly attached to large-scale capital-intensive primary production. Setting aside the possibility that Defence is simply paying egregious monopoly rents to its suppliers, there are two likely explanations. First, defence revenue may be recognised and interpreted differently between companies, for example, some firms might have included revenue earned from retailing imported equipment. Indeed, several of the companies in question import weapons systems on a large scale. Second, other firms (particularly in the facilities construction sector) have a heavy reliance on subcontractors. The fact that total revenues are higher than what Defence spends is to be expected because of subcontracting between firms.

Taking the data at face value, it says that the top 30 contractors by defence revenue have a collective turnover of $8.4 billion and employ around 18,973 people, implying average revenue per employee of $442,734 a year. That figure is higher than, but broadly commensurate with, that derived earlier from Defence's estimate of employment in the sector.

Over the past 22 years, the largest five firms in any given year have accounted for, on average, around 65% of total revenue of defence materiel contractors as reported by the *ADM Top-40*. In 2016, as shown in Figure 7.1, that share was 56%.

Figure 7.1: Revenue distribution ($ million) for *ADM Top-40* 2016



Source: ADM Top-40 Defence Contractors –1995-2016, published by Australian Defence Magazine, Dec/Jan edition each year.

The actual companies in the top five change from year to year as contracts ebb and flow. Yet the current major players are easily identified. Table 7.4 reproduces the key prime contractors identified in the government's 2010 defence industry policy statement. It's

important to note that only one of the firms—the government-owned ASC Pty Ltd—is Australian owned and controlled, while the remaining entities have parents based in the United States or Europe.

Table 7.4: Key Australia-based prime contractors

Prime	Parent company or owner	Country of origin	Key activities	Per cent of parent revenues	Stock exchange listing
ASC Pty Ltd	Australian Government	Australia	submarines and ships	n/a	n/a
Airbus Group Asia Pacific	EADS	France, Germany & Spain	helicopters	< 1	Paris
BAE Systems Australia	BAE	United Kingdom	varied	3.2	London
Boeing Defence Australia	Boeing	United States	aerospace	0.5	New York
Raytheon Australia	Raytheon	United States	systems integration	1.3	New York
Saab Systems	Saab AB	Sweden	land and maritime	3.1	Stockholm
Lockheed Martin Australia	Lockheed Martin	United States	electronic and information systems	<1	New York
Thales Australia	Thales	France	maritime and varied	2	Paris

Source: 2010 Defence Industry Policy Statement.

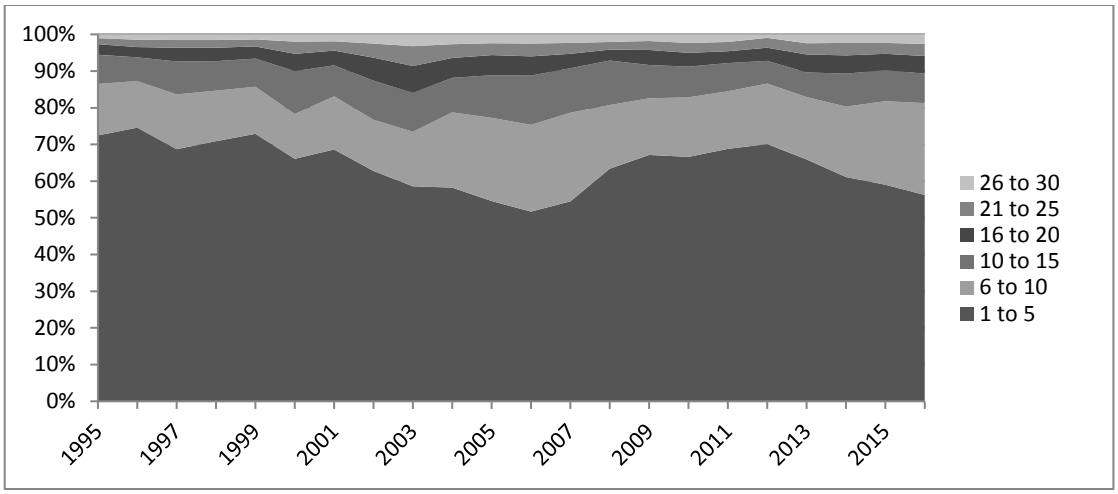
Foreign ownership of our key prime defence contractors brings benefits and risks. On the plus side, it provides ready access to foreign weapons systems (though exports are subject to controls). In addition, foreign subsidiaries in Australia can 'reach back' to their parent owners for skilled personnel, knowledge and intellectual property. Furthermore, large foreign firms provide an avenue for local firms to participate in their global supply chains, and to build skills through subcontracting. Finally, because we have relationships with arms manufacturers on both sides of the Atlantic, competitive pressures can be brought to bear when making purchases—at least in theory.

On the minus side, because foreign-owned Australian primes account for very small proportions of parent company revenue, they're unlikely to command priority if a commercial or strategic conflict of interest arises. For example, if a foreign parent must choose between supplying Australia or its home country with munitions in a crisis, there's no question about what would happen. In most areas, that's unavoidable; Australia doesn't have sufficient demand to support fully indigenous defence industrial capabilities in anything but a limited range of niche areas.

The relatively small number of prime contractors operating in Australia is consistent with the consolidation of defence manufacturing that has been underway in Europe and the United States since 1945 and which accelerated following the end of the Cold War. However, in our case, the local cycle of having a small number of large defence projects dominating spending at any one time is probably also important. It's perhaps noteworthy that revenue among

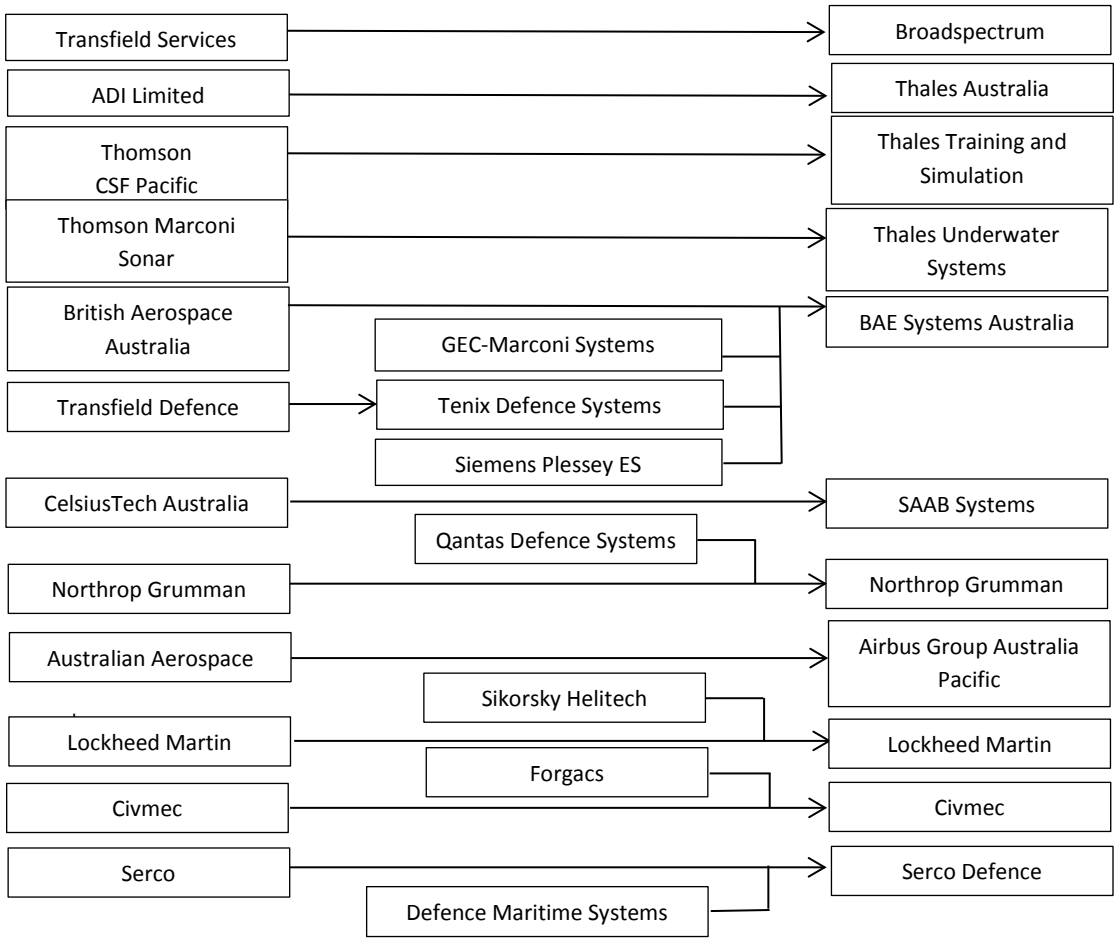
local defence firms broadened between 1995 and 2006 (as the Anzac and Collins programs were completed) and narrowed again between 2006 and 2012 as the local build of air warfare destroyers and finalising of the LHD fitout ramped up (see Figure 7.2). The consolidation of various local companies over the years might have also played a role. Some of the key mergers and acquisitions are depicted in Figure 7.3.

Figure 7.2: Revenue distribution for top 30 defence contractors 1995 to 2016



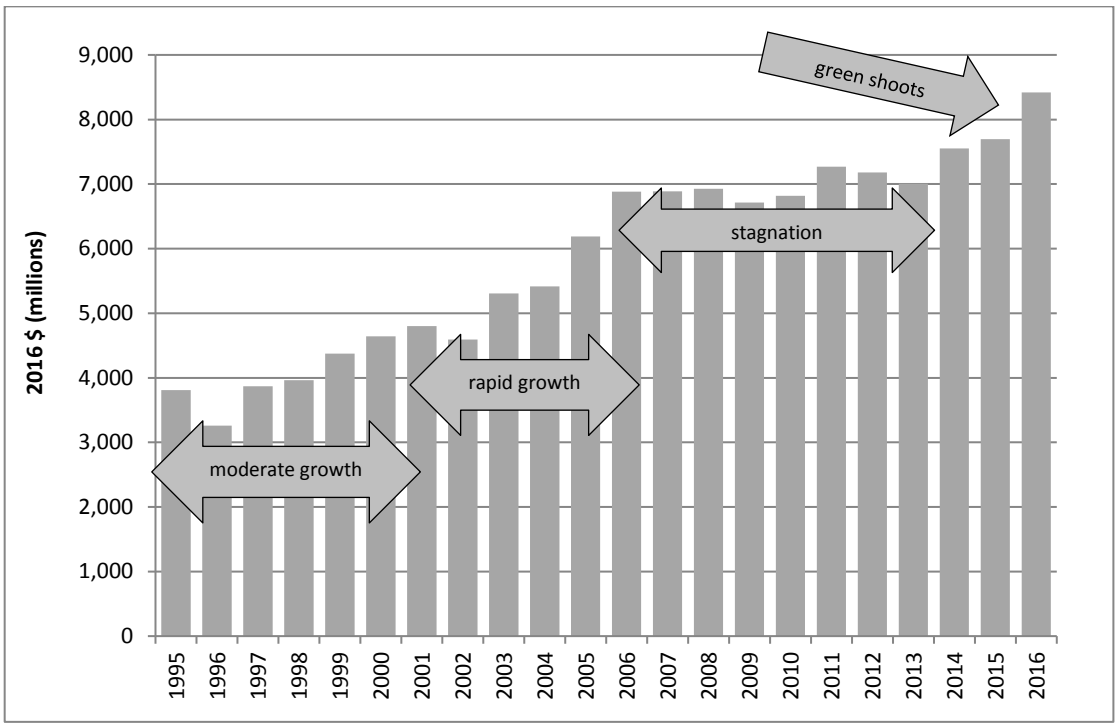
Source: ADM Top 40 Defence Contractors –1995-2016, published by Australian Defence Magazine, Dec/Jan edition each year.

Figure 7.3: Key mergers, acquisitions and name changes in local defence industry



With more than twenty years of data on local defence industry, the obvious question is whether the sector has grown or contracted over time. Figure 7.4 provides the answer, using the Consumer Price Index to inflate historical data. Because total revenues are dominated by a small number of large turnover firms each year, changes to the *ADM Top 40* over time are a credible indicator of trends in the sector. Roughly speaking, the size of the sector has almost doubled in revenue terms since the mid-1990s. Looking more closely, three eras can be identified; moderate growth during the late 1990s, rapid growth in the early- to mid-2000s, and stagnation from 2006 to 2013. It's not surprising that revenues grew in the years following the 2000 White Paper as extra money flowed into Defence. Similarly, the deferral of investment and various efficiency measures from 2007 to 2013 explain the accompanying stagnation. The past three years have shown signs of renewed growth.

Figure 7.4: Growth and stagnation: Turnover of defence materiel contractors in *ADM Top 40*



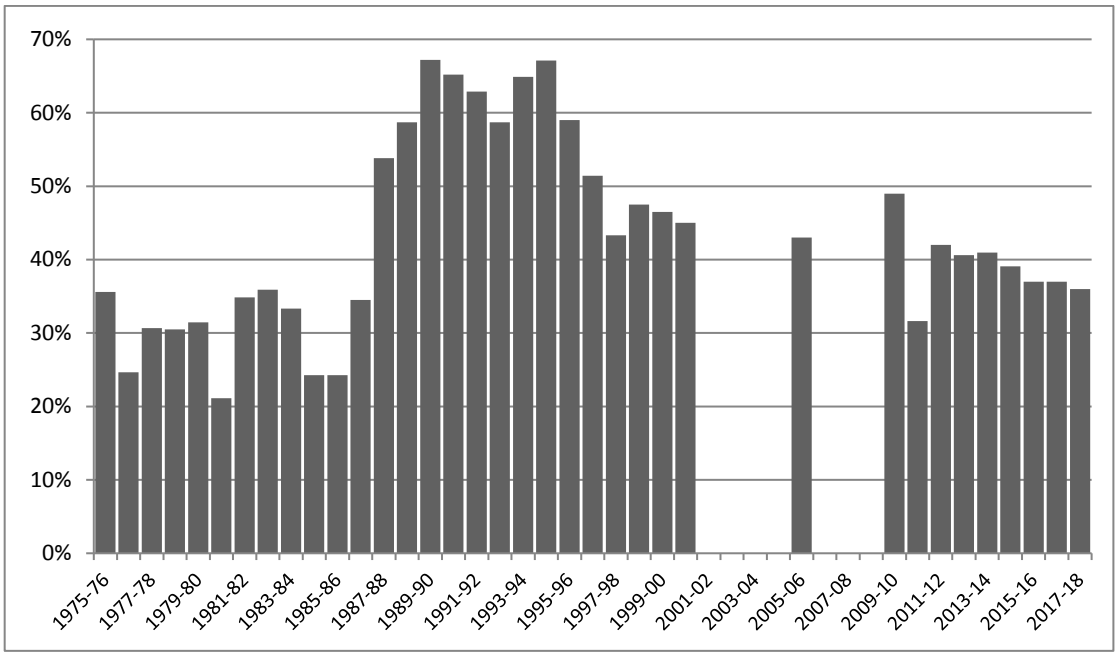
Source: ADM Top 40 Defence Contractors –1995-2016, published by Australian Defence Magazine, Dec/Jan edition each year.

At this point, it's natural to compare the trends in local defence industry with spending by Defence on materiel. However, that can only be done with the caveat that repeated changes to Defence's accounting rules and reporting make it difficult, as does the absence and unreliability of data in the years around the turn of the century. Our best attempt to make sense of the available data appears in Figure 7.5. It looks as if the share of local work rose and fell with the wave of large naval construction and aviation upgrades in the 1990s. Note that the figures refer to acquisition only. Defence advises that the historical range of local acquisition plus sustainment spending is 50% to 55%.

It's possible that the levelling off in revenue for local firms during 2006-2013 (and the relatively static share of total investment) also reflects the then tendency of governments to purchase equipment off-the-shelf from foreign suppliers. Recent examples include the 24 F/A-18 Super Hornet strike fighters and five C-17 Globemaster III transport aircraft. Fortunately, the United States Government collects and discloses detailed information on

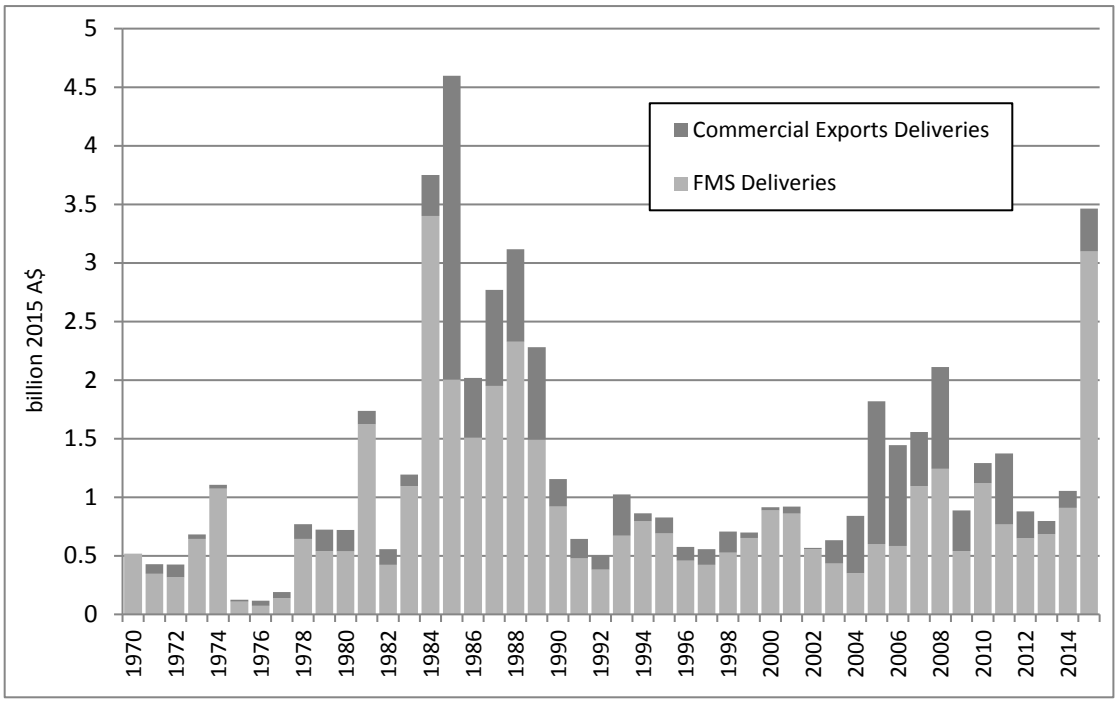
commercial and government-to-government arms exports through the US Foreign Military Sales (FMS) program. Historical trends in US defence exports to Australia are shown in Figure 7.6, where it should be noted that the figures include both equipment acquisitions and sustainment goods and services such as spare parts and repair of rotable items. To allow comparison, the value of each year's exports has been converted from US to Australian dollars at the prevailing exchange rate, before being translated into 2015 dollars.

Figure 7.5: Percentage of equipment by cost purchased locally 1975 to 2017-18



Source: Defence Annual Reports and FAD&T SLC Question on Notice 44, 29 May 2012, advice from Defence.

Figure 7.6: US defence exports to Australia

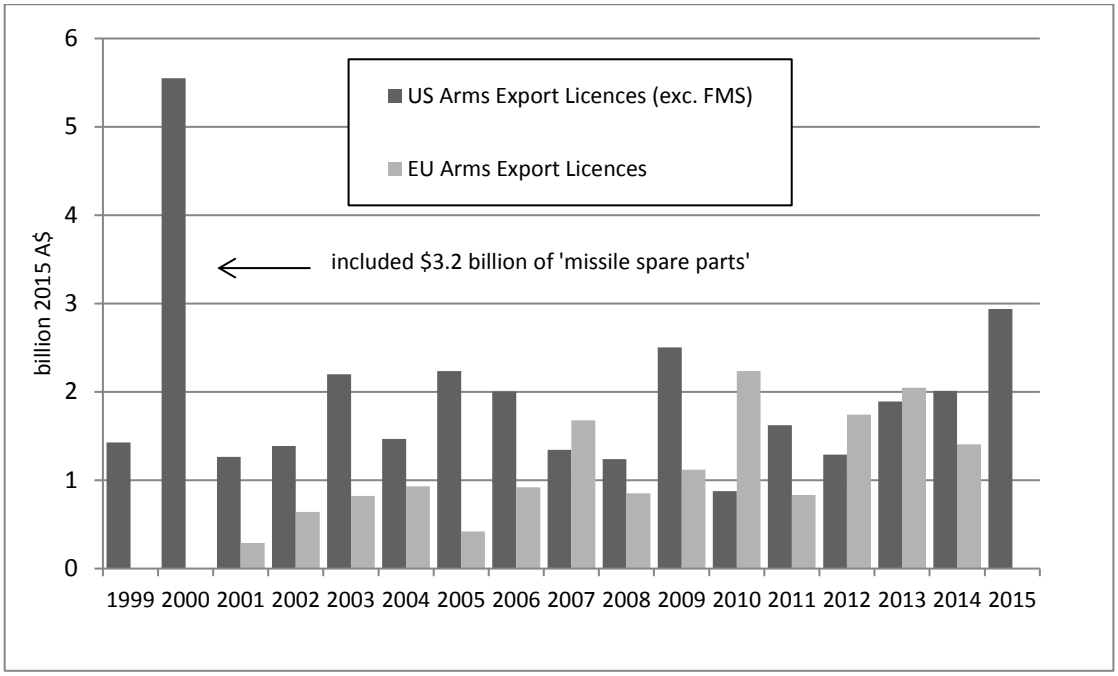


Source: Data from US Security Cooperation Agency, US State Department export controls reports.

Regarding Figure 7.6, the spike in FMS deliveries to Australia in 2015 likely came about through some combination of recent large purchases, including EA-18G electronic attack aircraft, MH-60R naval helicopters, C-17 transport aircraft, Chinook helicopters and various missile buys. There may be further sizeable deliveries over the next several years. So far this century, Australia has signed FMS agreements worth US$22.7 billion, but has only taken delivery of US$10 billion worth of equipment.

Another view of defence exports to Australia can be found in the annual reporting of extant (typically multi-year) arms export licences to commercial US and UK firms for the export of defence materiel to Australia, see Figure 7.7.

Figure 7.7: US and EU export licences for defence exports to Australia



Source: Data from US Security Cooperation Agency, US State Department export controls reports, EU arms export reporting.

2016 Defence Industry Policy Statement

The government released a new Defence Industry Policy Statement (DIPS) alongside the new Defence White Paper in February 2016. The DIP's most recent predecessors date from 2010, 2007 and 1998.

The 2016 DIPS is an unsurprising document. Like most government glossies, it talks up its big-ticket 'announceables'. Specifically, $1.6 billion over ten years to establish:

- A Centre for Defence Industry Capability (CDIC) 'to drive the strategic partnership with Defence, involve industry in governance of the industry programs and provide a range of business and skilling services'
- A Defence Innovation Hub (DIH) 'to undertake collaborative innovation activities from initial concept, through prototyping and testing to introduction into service'
- A Next Generations Technologies Fund (NGTF) 'to invest in strategic technologies that have the potential to deliver game-changing capabilities'.

The first two initiatives are being funded entirely by redirecting $870 million from existing programs. While there's some relabelling afoot, the joint defence-industry CDIC is an entirely new concept. However, the remaining $730 million for the technology fund will come from Defence's investment program. On the scale of defence spending, $73 million a year is a significant but not over-the-top investment in innovative technology.

Two other aspects of the new defence industry policy stand out. First, to ensure that the ADF has access to the industry capabilities it needs, the old Priority and Strategic Industry Capability Framework is being replaced by a Sovereign Industrial Capability Assessment Framework 'to improve the identification and management of the sovereign industrial capabilities that develop and support our ADF capabilities'. Second, industry has been recognised as a *Fundamental Input to Capability*, with the goal of driving 'more formal consideration of industry impacts through the initial stages of the capability development life cycle'. Responsibility for doing so will fall on the Capability Managers (a.k.a. service chiefs and VCDF), who will be assisted by the CDIC.

A test of the new approach will come with the new Defence Industrial Capability Plan, promised for 2017, with sovereign industrial capabilities identified through a 'collaborative process between Defence and the CDIC'. Past attempts to identify key defence industry capabilities have succumbed to special pleading by incumbents in a case of 'we have to do what we do because it's what we do'. Although a dispassionate assessment of industry priorities is difficult at the best of times, the focus on industry in government thinking will increase the influence of firms with a stake in the outcome.

The critical question for defence industry policy is how much preference will be given to local suppliers. In the 1980s and 90s we had explicit programs, such as the Australian Industry Involvement scheme, that favoured local suppliers irrespective of cost. More recently, however, governments have taken a more economically rational approach, which saw equipment purchased off-the-shelf from overseas, with a parallel policy of creating opportunities for local firms to bid competitively into global supply chains.

On paper at least, the new DIPS maintained the pre-existing approach to defence procurement. That is, apart from sovereign requirements, decisions should 'seek to achieve the best value for money', with consideration of 'opportunities to maximise internationally competitive Australian industry involvement'.

Ostensibly, therefore, the new DIPS reflected continuity. There was no changed preference for local suppliers, and the arrangements for managing sovereign industry capabilities were not markedly different to the old ones for priority/strategic industry capabilities.

But defence industry policy is a slippery beast. It's always possible to hide a preference for local suppliers behind a fig leaf of preserving sovereign capability. Moreover, if firms bidding for defence contracts think there's an advantage in offering high local content, they'll happily do so and pass on the costs. For those reasons, the government's actual procurement decisions, and how it explains those decisions, are every bit as important as its declared policy.

Things began to unravel for the DIPS with the government's submarine announcement in late April 2016. When asked about local content in the submarine program, the Prime Minister Malcolm Turnbull said:

> I am determined that every dollar we spend on defence procurement as far as possible should be spent in Australia, and our commitment to that is precisely for the reasons that Marise and I and Christopher and the Vice-Admiral have spoken about. Because when we invest in Australian industry and jobs, Australian technology, we are strengthening our whole economy.

Apart from expressing an unqualified preference for local suppliers in stark contradiction to the DIPS, the Prime Minister stressed the economic benefits of doing so. It was not an isolated mention; the same point is made at three other points during the announcement. Yet, the DIPS said absolutely nothing—not a single mention—about using defence procurement to build a stronger economy.

It's not that there's an iron-clad strategic argument for building submarines in Australia, otherwise the government wouldn't have asked for offshore and hybrid options from the contenders. Rather, a judgement has been made that the cost premium for local production—which the government concedes exists—is outweighed by economic and other benefits.

There's no denying that there were political factors behind the submarine decision, but that doesn't mean that there hasn't been an important change in policy; it merely explains why. Mindful of what the Prime Minister said in Adelaide, future bidders for defence contracts will be packing in as much local content as they can, with the risks borne by the ADF and the costs by taxpayers.

Conversely, there's probably never been a more exciting time to be an Australian defence contractor or an employee of one. With the defence budget set to grow, and local suppliers sheltered from foreign competition, there will be healthy profits to be reaped and good wages to be earned. Whether that translates into a net benefit for the national economy is

more difficult to answer. Since the 1980s, Australia's prosperity has been built on rejecting rather than embracing protectionism. So why the change now?

Implementing the DIPS

While many previous defence industry policies have sat on the shelf gathering dust, the 2016 DIPS led to a flurry of activity. One of the first signs that the government was serious about defence industry was the appointment of Christopher Pyne to the newly created position of Minister for Defence Industry in July 2016. Unlike the old position of Minister for Defence Materiel, which was subordinate to the Minister for Defence, the new appointment sits aside the Defence Minister in Cabinet. Despite an unavoidable overlap between portfolios and gloomy predictions from some commentators, the new arrangement appears to be working fine. Perhaps that should not come as a surprise, given that the Defence diarchy has functioned smoothly for decades.

A centrepiece of the government's new approach to defence industry is the CDIC. According to the government, the new centre will 'support Australian industry by offering the practical advice and assistance needed to work with Defence'. In December 2016, the CDIC commenced operations in Adelaide, with $230 million in funding over the decade. The centre will be staffed by business advisors who will work with firms on 'business improvement, skills development, export and supply chains, supplier continuous improvement, defence market preparedness and defence innovation proposal submission'.

The CDIC operates under an Advisory Board, whose members were announced in October 2016. The Board is co-chaired by Paul Johnson, former CEO of Lockheed Martin Australia, and Kim Gillis, DEPSEC CASG. Members include ex-minister Senator David Johnston, a range of defence industry executives, plus a representative from the peak industry association, Ai Group.

On the same day that the CDIC commenced operations, so did the Adelaide-based Defence Innovation Hub (DIH). Funded at $640 million over the decade, the DIH will invest in 'maturing and further developing technologies that have moved from the early science stages into the engineering and development stages'. Firms with innovative ideas can submit them to the DIH through an online 'innovation portal' (which is richly adorned with light globe symbols). In November 2016, $14.6 million of funding for Capability Technology Demonstrator (CTD) projects was awarded between seven firms. In the future, the funding previously provided by the CTD program will be awarded through the DIH.

In March 2017, the Minister for Defence Industry launched the $730 million Next Generation Technologies Fund. At the time the minister said that 'This is a ten-year strategic research and development program that will deliver game-changing capabilities for the Australian Defence Force (ADF) of the future'. In the longer term, the fund will 'establish Defence Cooperative Research Centres, university research networks, a Defence research accelerator scheme, an innovation research initiative for small business, and expanded technology foresighting activities'.

At the time of the launch, the government said that it would invest $16.8 million by June 2017. With less than three months to receive, assess and decide on funding allocations, that might seem an ambitious schedule. However, a visit to the CDIC website shows that much of

the funding had already been allocated—including, it appears, through pre-existing mature programs such as the Defence Materials Technology Centre.

Additional defence industry initiatives have been announced by the government since the release of the DIPS in February 2016:

- In December 2016, Minister Pyne wrote to Australian Defence Attachés 'stressing the importance of Australian Defence Industry and asking each mission to develop a plan for growth for Australian defence exports to their host nation'. There nothing surprising about the initiative, as most developed nations use their defence attachés to support their defence exports.

- In January 2017, a Defence Innovation partnership was established between the Defence Science and Technology Group (DSTG) and South Australian Universities. A similar initiative is planned for Victoria.

- In February 2017, the government released its first Australian Military Sales Equipment Catalogue, which lists surplus equipment for sale by the Australian Government. Eight items were offered for sale, including armoured vehicles (ASLAV and M113), PC9/A aircraft retired from RAAF service and helicopter spares. While the disposal of surplus equipment might seem unrelated to defence industry, the follow-on work can be substantial. For example, the sale of C-130H aircraft to Indonesia for $15 million resulted in refurbishment contracts worth $100 million for Australian industry.

For its part, industry has responded positively to the government's newfound priority for local defence industry (though the promise of $195 billion in defence investment would probably make them eager to do business here anyway). Examples include:

- Lockheed Martin opened a new R&D centre in Melbourne in August 2016. The Science Technology Engineering Leadership and Research Laboratory is funded at $13 million over the next three years. Areas for investigation include hypersonics, autonomy, robotics and command, control, computer, communications, intelligence, surveillance and reconnaissance.

- Rheinmetall Defence Australia signed a Global Supply Chain Agreement (GSCA) with the government in October 2016. There have also been extensions of existing agreements recently with Lockheed Martin, Thales and Raytheon. GSCA facilitate Australian firms feeding into global defence supply chains. There are presently seven GSCAs in place, which have led to $830 million of contracts with 123 local firms.

- US technology accelerator fund Techstars opened an office in Adelaide in January 2017, with a clear focus on defence and security innovation.

- Boeing Australia opened a new office in the Adelaide CBD in April 2017, and Northrop Grumman announced that it would invest $50 million in the

establishment of an Electronic Sustainment Centre of Excellence at Badgerys Creek in May 2017.

- DCNS, Austal and Lürssen have established or expanded their Australian offices in Adelaide, and Huntington Ingalls Industries has also established an Australian subsidiary.

More generally, defence industry appears happy with both the new defence industry policy and the prospect of new work coming down the line.

At the same time, the government continues to talk up the potential for defence investment to create employment and spur economic growth. That's true for not only shipbuilding, but also other high-profile areas such as Land 400 (army protected mobility).

Given the prominence in the government's agenda to creating jobs and increasing economic growth, we now turn to examine what the promised and likely consequences are of the government's unashamed 'buy Australian' defence industry policy.

Jobs and Growth

In March 2017, the Minister for Defence Industry told ABC radio that 'We know the defence industry is driving the economy.' He backed up that claim by referring to the just-released National Accounts for the December quarter, saying, 'it showed that defence spending had increased by 15.2 per cent over the year and 34 per cent in that quarter alone and was showing up as a major reason for the increase in growth'.

Of course, defence spending has not increased by anything like either of those figures. This year's defence spending is about the same as last year's. What's probably happened, is that one of his eager staff noticed the line in the ABS release that says, 'public investment increased 7.7% during the quarter driven by Defence (34.2%) and….'.

But the statisticians were not talking about defence spending, but rather the contribution of defence investment to something called 'fixed capital formation'. Checking through the spreadsheets, it turns out that defence-related 'fixed capital formation' for the December quarter was 15.1% higher than the corresponding figure a year before. So, almost certainly, the minister was referring to defence fixed capital formation.

Now if you take defence-related fixed capital formation to be a proxy for Australian defence industry (I'll explain later why it's not) the minister's claim begins to make sense. Crunching the numbers, defence-related fixed capital formation contributed 0.15% to the quarterly GDP growth of 1.1%. But that does not mean that defence industry was 'a major reason for the increase in [economic] growth'. To understand why, we need to look at how GDP is calculated in the National Accounts:

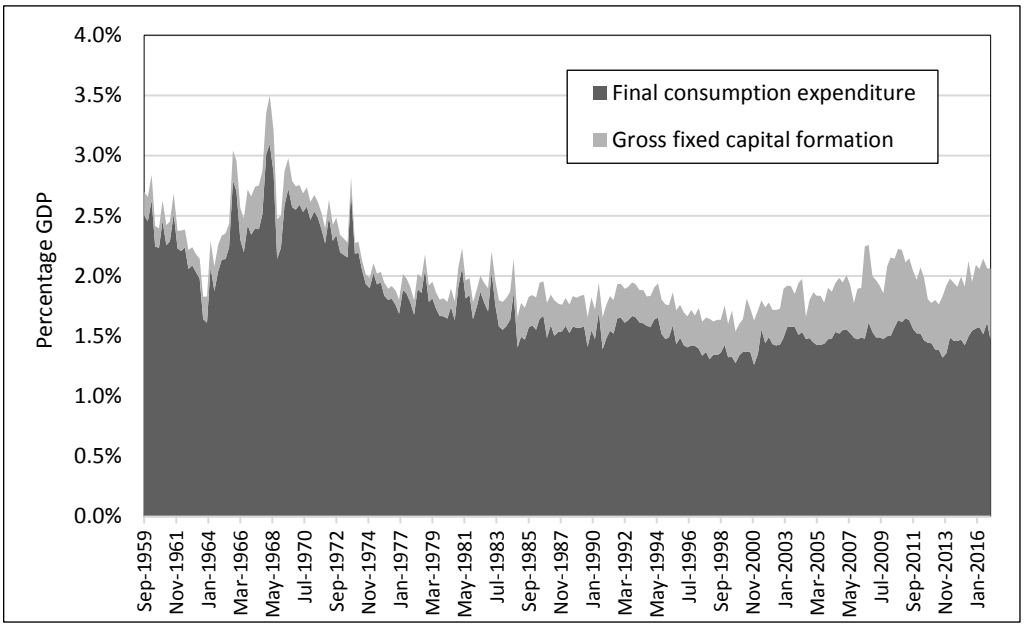
> GDP = Final Consumption Expenditure + Gross Fixed Capital Formation + Exports of goods and services – Imports of goods and services

Final Consumption Expenditure is the value of everything that's purchased in Australia for consumption (food, clothing, medical services, etc.). Gross Fixed Capital Formation is the value of everything that's purchased as an asset (building, railways, fighter aircraft, etc.).

Imports and Exports are simply the value of everything that flows into and out of the country. It makes sense; what's produced must be equal to everything that's purchased (consumption and capital formation) plus the value of exports minus the value of imports.

The ABS provides figures for defence-related final consumption and fixed capital formation (but not for exports and imports). Figure 7.8 shows the seasonally adjusted results going back to 1959. Not surprisingly, the total roughly tracks the share of GDP spent by the government on defence—you can see the rearmament programs initiated by Menzies and Howard in the data. Note that the bulk of the contribution comes from final consumption. That's made up of the military and civilian wages paid by Defence, along with the various goods and services they purchase, including rations, fuel, uniforms, consultants, and equipment maintenance.

Figure 7.8: Defence related contributions to GDP in the national accounts, 1959 to 2016.



Source: ABS national accounts, December 2016

Note also that fixed capital formation has been growing as a share of GDP since at least the early 1970s. Fixed capital formation includes the construction of defence facilities and the purchase of new equipment. It's been growing because (1) increases to the price of military equipment have outpaced inflation, and (2) the ADF has been becoming more capital intensive (including through the post-2000 defence build-up).

So far, no surprises: you spend a couple of percent of GDP on defence and it shows up as a couple of percent of GDP in the National Accounts. You'd worry if that was not the case.

But what about defence industry 'driving the economy'? There are two problems with the minister's statement.

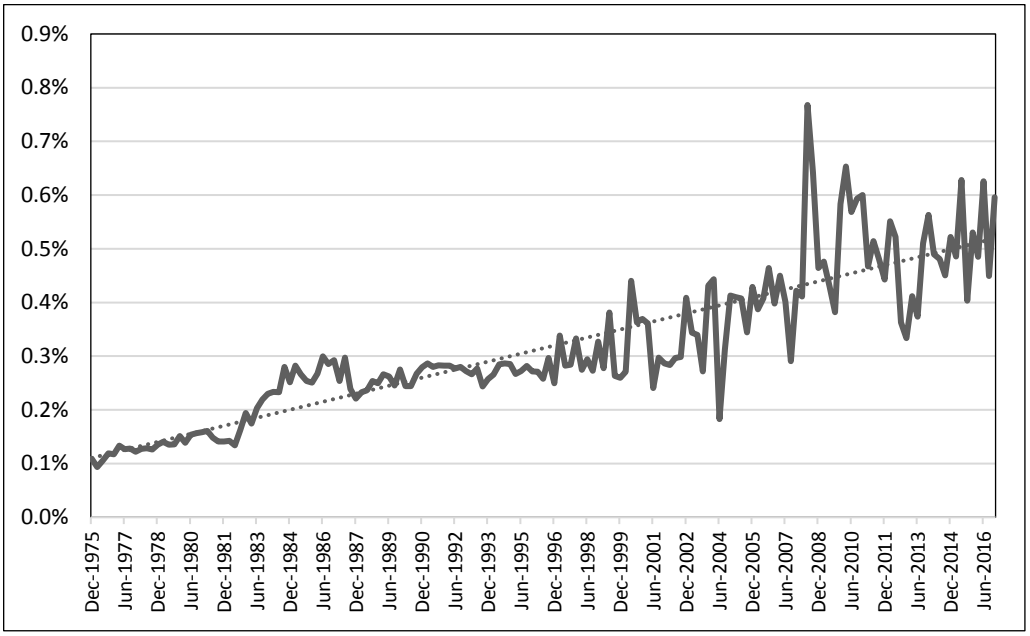
First, the quarterly figures for defence fixed capital formation are too volatile to deduce anything from either a quarterly or annual quarter-to-quarter figure. The figures for the past eight quarters (working backwards) were: 34.2%, -28.6%, 30.0%, -7.4%, 32.2%, -35.3%, 29.6% and -5.1%. You can't reasonably hope to extract a trend from such volatile data over a brief

time—it's like looking for evidence of global warming by comparing today's temperature with yesterday's.

If you want to know whether the economic importance of defence fixed capital formation is growing, it's the long-term shifting share of GDP that matters. On that basis, shown in Figure 7.9, there's no short-term trend to be seen—certainly nothing that could be attributed to the government's defence industry policy. The long-term trend is an increase of a mere one-hundredth of one-percent of GDP per annum.

Second, as already mentioned, defence-related fixed capital formation is a poor proxy for defence industry. To start with, it includes the value of imported defence equipment (which is why the equation for GDP subtracts imports). It's entirely possible that the 34.2% jump referred to by the minister came from a surge in defence imports. In recent years, less than 40% of Defence's procurement budget was spent in Australia. Once that's considered, the 0.5% of GDP attributed to defence fixed capital formation falls to 0.2% of GDP. And, yes, defence exports add a further boost but it's too small to worry about in the national accounts. In addition, defence-related fixed capital formation includes facilities construction, which is both substantial ($1.5 billion this year) and entirely unrelated to defence industry.

Figure 7.9: Defence-related fixed capital formation as a share of GDP, 1975 to 2016.



Source: ABS national accounts, December 2016

Conversely, defence industry's also a strong contributor to defence final consumption expenditure; materiel sustainment by defence industry resulted in around $4 billion of local expenditure in 2015-16, compared to only $2.4 billion for equipment purchases. But the money spent on local sustainment was always going to happen, irrespective of the government's 'buy Australian' defence procurement policy. The tyranny of distance means that there's usually no practical alternative to supporting defence assets locally.

To recap, far from 'driving the economy', defence industry contributes modestly to the national accounts. That's to be expected; the National Accounts are roughly a case of 'what you put in, you get out'. Moreover, the quoted growth 34% in fixed capital formation comes from data

that's far too volatile to sensibly extract short-term trends—even if that were not the case, defence-related fixed capital formation is a decidedly poor proxy for defence industry.

Further, according to the government's own figures, there's only around 25,000 people employed in the sector, representing 0.25% of the ten-million strong Australian workforce. Even the $90 billion naval construction program is promised to deliver only 5,800 jobs—a drop in the ocean.

Given the government's emphasis on the jobs and growth impact of defence production, you'd think that the government's decisions on defence acquisitions were being informed by rigorous economic analysis. Yet, as this example shows, the best that the Defence and minister's staff could come up with were misleading figures taken out of context from the national accounts. It must be asked; is the economic analysis underpinning the looming wave of 'nation building' defence mega-projects any better?

How many jobs?

In the 13 months since the release of the DIPS, the government has made a series of announcements about the number of jobs being created through past, current and future defence initiatives. The announcements pertaining to procurement and sustainment are listed in Tables 7.5 and 7.6 respectively.

Table 7.5: Procurement contracts and associated jobs announced 2016-17

Media Release	Initiative	Contract Value ($m)	Jobs Announced	Estimated Duration (years)	Job-years	$ per Job-years	Notes
13-Apr-17	Aviation refueling vehicles	47	60	6	360	130,556	'growing its workforce by more than 60 staff '
8-Mar-17	Replacement Pacific Patrol Boats	306	207	5	1,032	295,652	'... more than 120 jobs for Western Australia.' [since revised]
30-Nov-16	Collins Sonar Upgrade	100	50	5	250	400,000	'… around 50 Australian jobs in Sydney and Perth.'
14-Nov-16	Hawkei vehicle--construction	1,300	230	10	2,300	565,217	'… 170 jobs in the Bendigo region' plus '... 60 additional jobs [in the] supply chain'
31-Oct-16	Frigate	25,000[2]	2050	20	41,000	609,756	'… directly create over 2,500 jobs for Australians and will indirectly support the jobs of many thousands more'
31-Oct-16	OPV	2,800[2]	450	10	4,500	622,222	
29-Sep-16	Future Submarine	30,800[2]	2,800[1]	27	75,600	407,407	'… 2,800 jobs associated with the broader Future Submarine Program'
TOTAL/AVERAGE		60,353 (a)	5,847 (b)	21.4 (c/b)	125,045 (c)	482,650 (a/c)	

[1]*1,100 direct plus 1,700 supply chain,* [2]*Out-turned cost estimates converted to 2016$*

Source: Government media releases and publications

Each initiative is listed once only, irrespective of how many times it was mentioned. The duration of contracts has been either sourced from public reporting or estimated based on likely production schedules. Neither table should be seen as comprehensively capturing the likely future impact of the White Paper; they just collate what's been announced over the past financial year.

The job numbers announced are 'direct jobs', exclusive of the supply chain, unless otherwise noted. Direct jobs are those created within the firm executing the prime contract. Supply chain jobs are those generated in firms supplying and subcontracting to the prime, and so on down the supply chain. There's no fixed ratio between direct and supply chain job numbers. It's a management choice on whether work is done in-house or sub-contracted out to suppliers of intermediate products.

Table 7.6: Sustainment contracts and associated jobs announced 2016-17

Media Release	Initiative	Contract Value ($m)	Jobs	Duration (years)	Job-years	$ per job-year	Notes
9-Dec-16	Air Warfare Destroyer Sustainment	70	50	5	250	280,000	'… provide approximately 50 full-time Australian jobs in Sydney with additional work during extended maintenance periods.'
2-Dec-16	Super Hornet engine maintenance	230	40	7.5	300	766,667	'… will support more than 40 jobs'
8-Nov-16	F-35 JSF support	80 to 100	tbd				'… create and sustain hundreds, if not thousands, of Australian jobs'
14-Nov-16	Hawkei vehicle--maintenance	tbd	35	7-			
25-Oct-16	Chinook helicopter maintenance	50	18	5	90	555,556	'… will create 18 highly skilled jobs'
24-Aug-16	Lead-in-Fighter support contract extensions	200	300	2	600	333,333	'… ensuring ongoing work for approximately 300 people'
24-Aug-16	Air Combat Training Services Support Contract for Air Combat Group	100	50	5	250	400,000	'… will sustain approximately 50 jobs'
TOTAL/AVERAGE		650 (a)	458 (b)	3.25 (c/b)	1,490 (c)	436,242 (a/c)	

Source: Government media releases and publications

The accuracy of the job estimates in Tables 7.5 and 7.6 is likely to vary greatly. In instances where a contract has just been awarded for, say, aircraft maintenance, the estimate is likely to have come from the contractor and is therefore relatively robust. For projects such as the

future submarine and frigate programs, which are still in the early planning stages, much greater uncertainty prevails.

For sustainment projects, it's reasonable to assume that the job figures represent the additional workforce that will be needed each year for the duration of the contract. The figures given for procurement projects are less clear; they could be either the peak number of jobs achieved during the project, or the average annual number of jobs generated over the duration of the project. For the purposes of analysis, we'll assume the latter. Doing so will overestimate the extent of job creation relative to the former possibility, and is a conservative assumption for the argument being developed.

For each initiative, the number of job-years (i.e. positions created for 12-month duration) is calculated, along with the number of dollars per job-year created. At the bottom of each table, total and weighted average values are calculated as per the formula therein. Because of the differing duration of projects, the total number of jobs created is potentially misleading. Some of the jobs will not occur concurrently, so that total is almost certainly an overestimate. A much better metric is the number of job-years created. Using job-years means that ten people employed for ten years counts the same as five people employed for twenty years.

Because 'expenditure per job-year' is equivalent to 'annual revenue per employee', we can compare the figures in Table 7.5 and 7.6 with those calculated earlier in Table 7.2 and 7.3. The average weighted cost per job-year of both procurement ($482,650) and sustainment ($436,242) are substantially higher than both the revenue per employee estimated for Australian defence industry ($268,000) in Table 7.2 and the average reported revenue per employee from the ADM Top-40 ($369,000) in Table 7.3.

Several factors probably help explain why the figures from Table 7.5 and 7.6 are larger than earlier estimates for Australian defence industry. To start with, the procurement and sustainment contracts listed above will often include the cost of foreign parts and components, which may not be included in the earlier figures. (The varying proportion of foreign sourced parts and components also helps explain the substantial variation from one project or sustainment contract to another.) Also, the newer figures are based on additional positions exclusive of corporate and administrative overheads, whereas the earlier figures captured the firm's entire workforce.

For the several large naval construction projects in Table 7.5, the nominal out-turned (i.e. including anticipated inflation) cost figures have been converted back to 2016 dollars assuming 2.5% inflation and what is known about likely construction schedules. For example, the nominal $50 billion to be spent on submarines from the mid-2020s until the late-2040s translates to around $30.8 billion today

Note that both the newer figures are in the range of $400-500k per person year, which is consistent with the corresponding figure for the Australian manufacturing sector ($447,487). Taking that into account, the estimated number of jobs claimed in recently announced defence projects seems entirely reasonable—with several important caveats.

First, just because a person is employed, say, building a submarine, that doesn't mean that a net additional job has been 'created' across the Australian economy. Skilled workers are not

an inexhaustible resource. In general, a government project will at least partially displace alternative private sector economic activities and employment by drawing resources from other areas of the economy, including the deadweight loss from taxation. The extent of such 'crowding out' will depend upon many factors, including the point in the business cycle.

Second, only a limited amount of additional industry activity occurred in 2016-17. Many of the sustainment contracts announced over the past year were either extensions of existing contracts, or contracts for platforms replacing recently retired assets (which were previously supported under contract). And while the procurement projects are unambiguously 'additional', in the sense that fewer jobs would probably have been created if the assets had been purchased from overseas, the vast bulk of the jobs announced will not be seen until the 2020s.

Finally, to put matters in perspective, even if 10,000 jobs are eventually created because of the Government's preference to build major defence platforms in-country—which is more jobs than Defence has announced during 2016-17—that will still only amount to less than 0.1% (or one-thousandth) of the Australian workforce.

Global supply chains

There is another channel of job creation to be taken account of; Australian exports into global defence supply chains. Since establishment in 2007, the Global Supply Program has expanded to include seven prime contractors and many local firms. No statistics are available for the total program, but Australian involvement in the F-35 program is frequently highlighted as an exemplar of what can be achieved.

In March 2017, to coincide with the arrival of two F-35 fighters at the Avalon Air Show, the Defence Minister announced the results of a report from PwC (PricewaterhouseCoopers). She said that the 'Joint Strike Fighter program will create 2,600 extra defence industry jobs by 2023, more than doubling the current associated workforce of 2,400.' In addition, she said that by 2038, 'an additional 6,300 jobs will be supported across the Australian economy'. Given that export contracts with Australian firms under the F-35 program amount to only around $900 million to date, those are encouraging numbers. (Note that the activities referred to in the minister's announcement are separate from the US decision to assign regional sustainment and warehousing responsibilities to Australia.)

Consider: the submarine project will produce 2,800 direct and supply chain jobs at a cost of $31 billion, (the rough value of the submarine project in today's dollars) whereas the modelling says that the F-35 program has already created 2,400 jobs for less than a billion dollars. Or, looking at it on an annual basis, you get 2,800 jobs by spending around $1 billion a year on submarine construction, but 2,400 jobs by exporting $168 million worth of F-35 components. The PwC report highlights the results for 2016, 2023 and 2038, see Table 7.7. All US dollar contract figures have been converted to Australian dollars assuming 1AUD = 0.75USD.

The PwC report provides detailed results that can be averaged over the duration of the program. Across the program's 33 years, you get more than 24 jobs for every $1 million of JSF-related exports. That corresponds to just over $41k per job, compared to the $400k-500k

per job calculated for procurement projects. (The figure for the submarine project is $407k per job.)

Table 7.7: Key results from the PwC report

	In-year contract value $(m)	Tax Revenue $(m)	Net Impact on GDP A$(m)	Extra Jobs in Economy	A$ revenue per job	Jobs per A$m in exports	Years into program	Accumulated contract value $m (nominal)	Accumulated Job-years
2016	168	126	470	2,400	70,000	14.3	11	$910	15,688
2023	284	328	1,026	5,000	56,800	17.6	18	$2,681	42,427
2038	32	-	1,151	6,300	5,079	169.9	33	$5,334	129,975

Source: ASPI analysis of information found in PwC report of the economic impact of Australian F-35 exports.

Clearly an explanation is called for. What makes exports so much more effective at creating jobs than domestic defence spending?

The first difference between the government's other announcements and the analysis by PwC is that the former are (mostly) desktop estimates of direct jobs, whereas the latter employs a Computable General Equilibrium (CGE) model. So, it's not an apples-to-apples comparison.

I don't pretend to understand the technical aspects of GCE modelling, but here's what I know. Rather than just looking at direct and supply chain jobs, a GCE model estimates the impact across the Australian economy. In doing so, such models take account of (1) the reallocation of resources and flow-on activities within the economy due to the project, and (2) the additional economic activity resulting from labour income going to savings and flow-on consumer activity.

If all we had was the PwC report, we might conclude that the higher rate of job creation predicted from JSF-related exports is entirely an artefact of the more sophisticated modelling. We might even extrapolate and conclude that the government is *underselling* the economic benefits of its 'buy Australian' defence industry policy. But we have another data point.

As it happens, Defence produced an economic impact analysis of building submarines in Australia back in 2015, also using a GCE model. In fact, the F-35 and submarines studies each used different variants of a model developed by Monash and Victoria Universities.

The 2015 Defence analysis is based on spending $15.1 billion to build six Collins-like submarines over 16 years. Assuming no cost premium compared to a foreign purchase, it found that the Australian economy would be $65 million per annum larger for the 16 years of the project. In terms of employment, it predicted that the national economy would add around 733 positions for the duration of the project. That's despite assuming 1,000 direct and 1,900 indirect jobs.

In other words, of the roughly 2,900 people assumed to be working on the project, almost 2,200 of them would have found work in other industries that were 'crowded out' by the decision to build locally. With a net employment forecast far below the government's figures for the submarine project, it's easy to see why the analysis was only released under FOI.

The contrast between the two forecasts is substantial. The PwC model forecasts an average of 3,939 additional jobs over the 33 years of the project based on average annual F-35 exports of $162 million a year. The submarine model forecasts an average of 733 extra jobs over the 16 years of the project based on annual expenditure of $938 million a year. Taken together, the two studies imply that every dollar of defence exports generates 31 times more jobs than a dollar spent building defence equipment in-country.

Even though both studies use GCE models, there's a significant difference between the two situations. While the submarine project results in additional taxation, the JSF-related exports do not. Because CGE models take account of taxation, that may help explain the differing results. Indeed, all other things equal, additional taxation would be expected to subtract from economic activity. Other factors that might be relevant are the differing geographic locations of the two programs—SA versus mainly Vic and NSW—and differences in the calibration and implementation of the GCE models.

Taken at face value, there's a policy-relevant conclusion to draw; defence exports are more than 30 times more effective at creating jobs and growing the economy than domestic production of our own equipment. If that's correct, a renewed emphasis on defence export facilitation and global supply chain agreements is called for—the potential benefits could be massive.

In some circumstances, the maximum economic benefit might be gained by foregoing domestic production in favour of securing access for local firms into global supply chains. Remember, the F-35 exports only came about because we are purchasing the aircraft from US factories. If we are going to use defence spending to grow the economy, we should get the most out of it, and that might mean importing more equipment to maximise access into global supply chains.

Of course, two isolated studies are a fragile basis to build a policy on. Without further work, we can't be sure how much of the difference between the two studies came from the export nature of F-35 program, as opposed to other differences in what was modelled, and how the modelling was conducted.

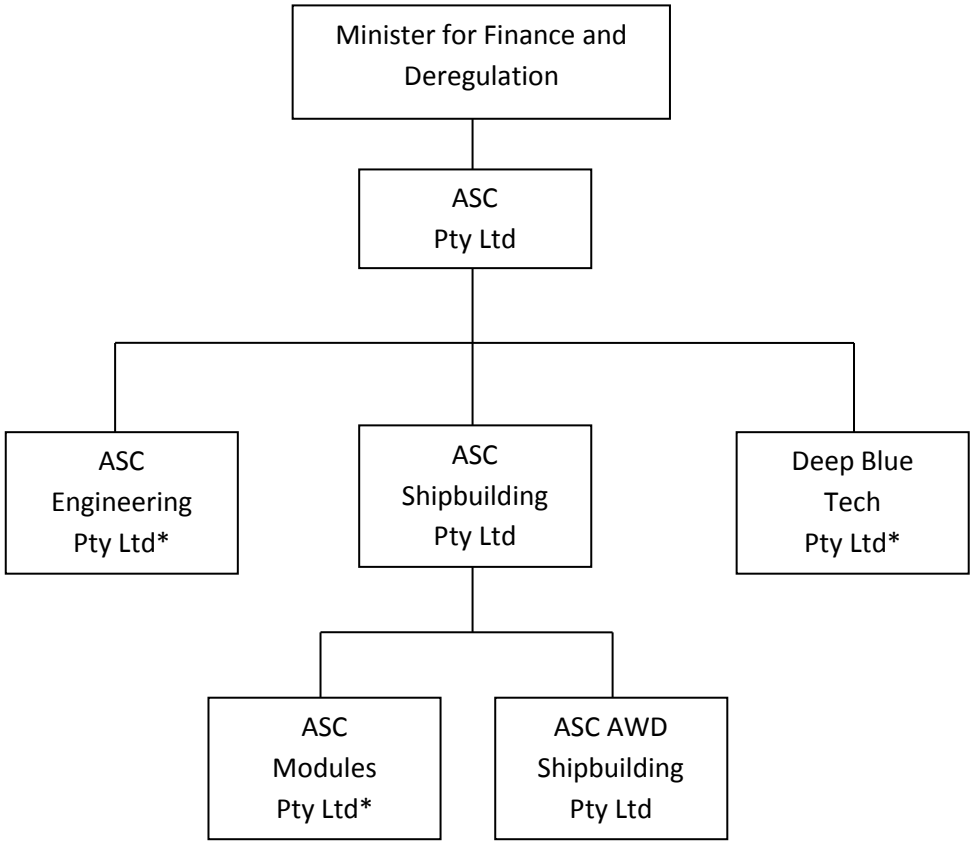
As a priority, the government should commission CGE modelling to properly and systematically determine how Australian defence spending can best be harnessed to create jobs and growth in the economy—including both exports through global supply chains and local production. A good first step would be to have a third-party repeat the 2015 submarine and 2016 F-35 economic impact studies on a common CGE model. Then we might properly understand what's behind the dramatically different results.

ASC Pty Ltd (formerly the Australian Submarine Corporation)

The Australian Submarine Corporation was formed in 1985, and in 1987 was awarded the contract to build six Collins class submarines. Initially, ownership of the corporation was shared between the Australian Government, submarine designer Kockums of Sweden, Wormald International and Chicago Bridge and Iron, but by 1991 only Kockums and the government remained shareholders. In 2000, the Australian Government bought out Kockums and became the sole owner.

Overview

At present, ASC is operated as a Government Business Enterprise (GBE) under the *Commonwealth Authorities and Companies Act 1997* with the Minister for Finance as sole shareholder. Consistent with its status as a GBE, the company has a board made up of executive and non-executive members. Pending a corporate separation announced in October 2016, ASC is structured as shown below.



*Dormant entities

The three direct subsidiaries of ASC reflect the diversification of ASC into areas beyond the construction, upgrade and maintenance of the Collins class. *ASC Engineering* was established to undertake the design, construction and project management of civil heavy engineering projects. At present, *ASC Engineering* isn't an active entity. *Deep Blue Tech* was established to secure a role in the design of the Collins class replacement, which did not eventuate, so it too is dormant. The largest of the three entities, A*SC Shipbuilding,* was established to bid for what has become the $9.1 billion Air Warfare Destroyer project for the RAN. Its two

subsidiaries, *ASC Modules* and *ASC AWD Shipbuilding*, were created to operate within the *AWD Alliance*, which we explore in detail in the next section. ASC also runs a submarine training school for the RAN in WA (presumably within submarine sustainment).

Following last year's announcement (by the Prime Minister and no fewer than three cabinet ministers in tow), ASC is going to be separated into three new government-owned companies focusing on shipbuilding, submarine sustainment and infrastructure:

The decision to break-up ASC was made after a 'strategic review' of the firm in 2015. According to the government, 'separation of ASC will deliver a more flexible approach to managing the investment required in shipbuilding infrastructure to support the Government's historic continuous shipbuilding program'. It's envisaged that the new separate entries will commence operations prior to the end of 2017. We explore how the new structure fits into emerging plans for naval shipbuilding later.

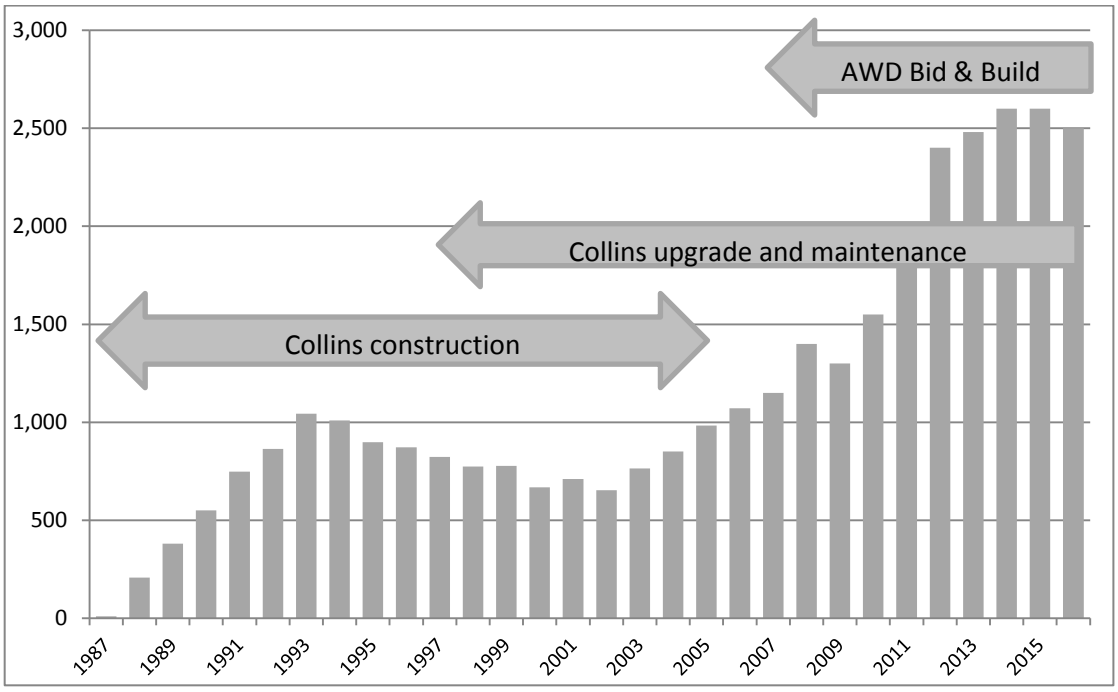
At present, there are two major projects underway at ASC: the construction of the AWD, and sustainment and upgrade of the Collins fleet. The former occurs at the 'ASC South' facility at Osborne SA, while the latter occurs at the (original) 'ASC North' facility, also at Osborne, and at 'ASC West' in WA near the RAN submarine homeport. ASC South and ASC North are separated by the SA Government's taxpayer-funded Common User Facility which includes the massive ship-lift and hardstand being used for the consolidation and launch of the three AWDs by ASC. (In May 2017, the federal government announced it had purchased the Common User Facility from the SA government).

There are two ways to track the scale of activity at ASC over time: financial turnover and personnel numbers. As shown in Figure 7.10, the ASC workforce grew during the construction of the Collins fleet, and then fell before rising again as the full impact of Collins class remediation, upgrade and maintenance work was felt. In recent years, the ASC workforce peaked at around 2,600 when the AWD workload reached its maximum.

But with work ending on the AWD, it's inevitable that employment will decline. In late 2015, ASC announced the first redundancies (45 workers) from the draw-down of the AWD program, and 640 positions are expected to be lost by the end of 2017. Consistent with that projection, ASC announced the loss of 175 positions in August 2016, another 130 in January 2017, and 22 more in March 2017.

Only a small number of personnel were employed by ASC on the AWD project prior to 2006 (and even in that year the AWD workforce was only about 60 staff). Consequently, by the middle of the last decade the size of the ASC workforce engaged in submarine post-construction work was close to the peak reached during the Collins construction program twelve years earlier. That demonstrates the commensurate labour demands of Collins through-life-support and construction.

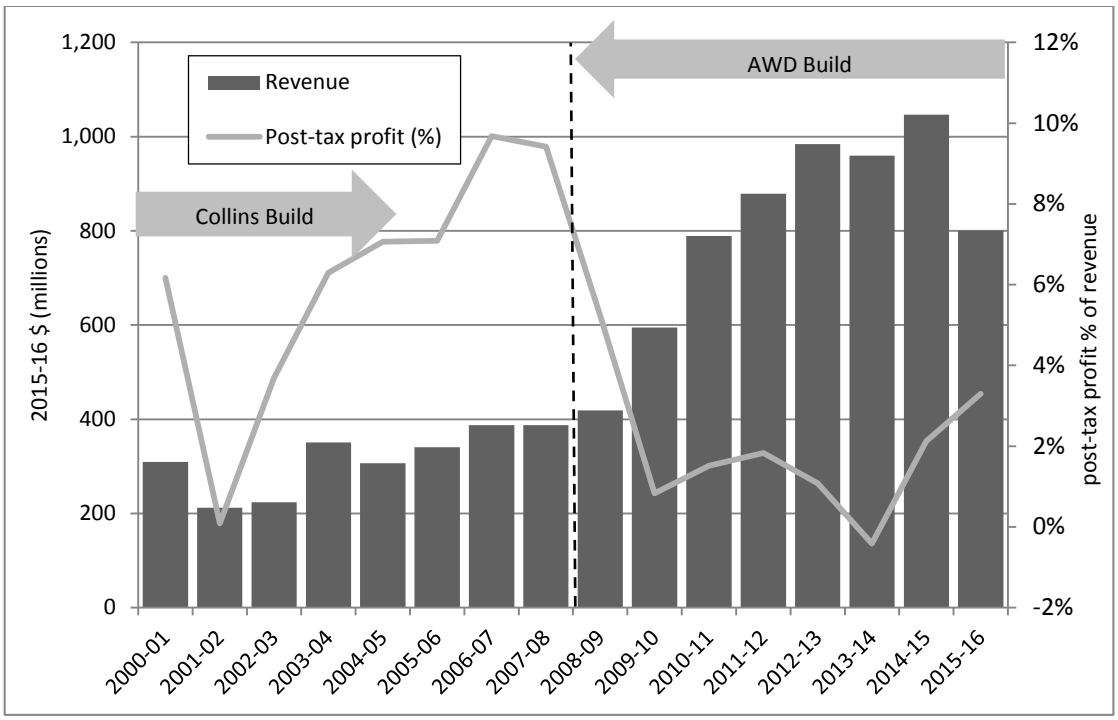
Figure 7.10: ASC workforce 1987 to 2016



Source: ASC Pty Ltd Annual Reports

The consolidated corporate turnover and profit for recent years is shown below in Figure 7.11, where the increase in revenue after the commencement of AWD construction in mid-2007 is clear. Note, however, that ASC's after-tax profit as a share of revenue (commonly known as net profit margin) fell from 9.7% in 2007 to 1.1% in 2013. In at least the first part of the period, that reflects a decision to reinvest profits back into the business, including into facilities and *Deep Blue Tech*.

Figure 7.11: ASC Key Financial Results



Source: ASC Pty Ltd Annual Reports

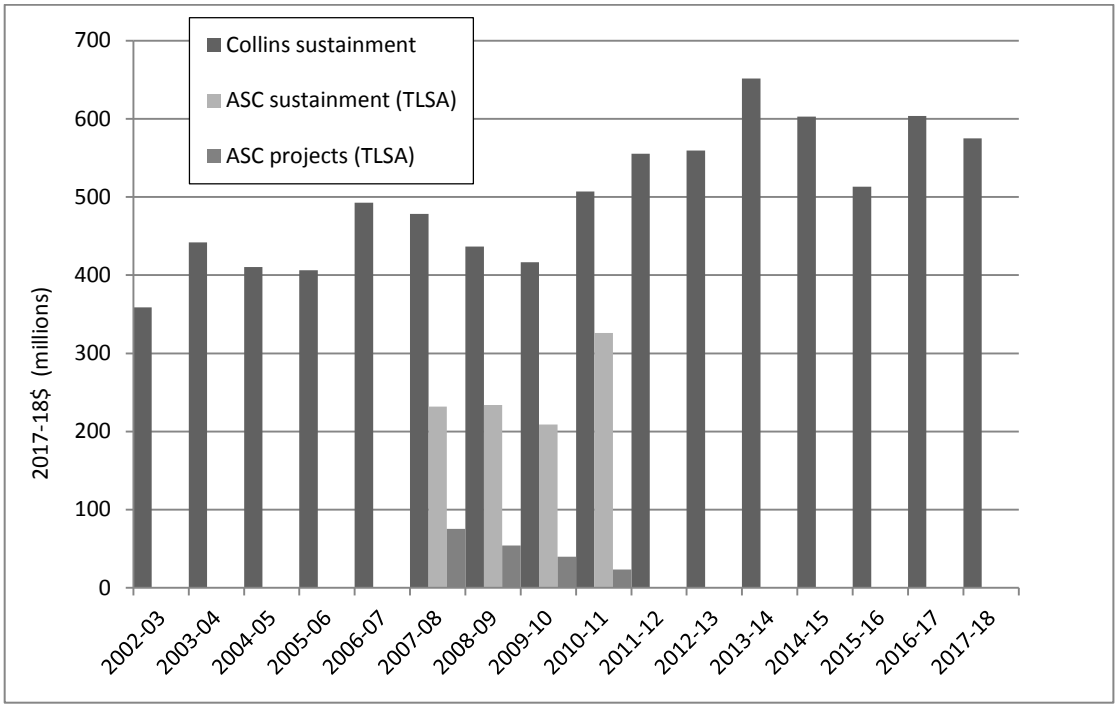
We now turn to examine, in Dickensian fashion, the various activities of ASC.

The ghost of submarines past—Collins through-life support

For reasons that aren't clear, Defence failed to have a through-life-support strategy or sustainment contract in place for the Collins class at the end of the construction program. Instead, ASC undertook piecemeal work as requested to maintain, repair and upgrade the fleet. In 2003, a long-term Through Life Support Agreement (TLSA) was established. Nominally a 15-year $3.5 billion agreement, the TLSA was essentially a cost-plus contract with limited options for incentives and sanctions.

Because we don't know the price paid each year to ASC to maintain the Collins, we have to rely on the reported total sustainment costs for an indication. Note that total sustainment costs include many things that don't result in payments to ASC (such as fuel and government furnished equipment). Sustainment of mission system items such as sonar, combat system and electronic warfare is provided separately by other suppliers, administered through CASG (previously DMO). Total sustainment costs for the Collins fleet are given in Figure 7.12, beginning with 2002-03, the first year for which data is available. To allow a comparison over time, historical costs have been inflated using the 2.5% deflator applied to the Defence budget. Known payments to ASC under the TLSA for sustainment and projects have also been included.

Figure 7.12: Total annual Collins class sustainment costs



Source: Defence Annual Reports, 2014-15 PAES, 2015-16 to 2017-18 PBS, FAD&T QoN 19, 17 October 2012, QoN196, 28/29 May 2012, QoN 129, 20 November 201, QoN 66, 26 February 2014 and QoN 170, 22 October 2014.

Caution must be exercised when inferring anything from Figure 7.12. Large year-to-year fluctuations naturally arise due to the timing of full-cycle-dockings, spares purchases, and the RAN's operational activity level.

Notwithstanding those uncertainties, the overall cost of sustaining the Collins fleet is perceived to be high. Coupled with long-standing problems with the availability and reliability of the vessels, that led to the Collins Class Enterprise Transformation Program. The Program aims to 'improve performance by increasing availability, reliability and cost performance (benchmarked against similar platforms)'. There are three key initiatives reshaping the sustainment of the fleet and ASC's role therein.

First, ASC has a comprehensive program to boost labour productivity, and recent ASC Annual Reports have confirmed substantial productivity improvements. As a government-owned entity working under what are effectively cost-plus contracts, it'd be surprising if inefficiency hadn't crept in over time.

Second, in June 2012 Defence and ASC agreed to a performance-based In-Service Support Contract. By moving away from cost-plus reimbursement for work, ASC was given stronger incentives to continue productivity and performance improvements within its business.

Third, the government is six years into implementing the recommendations of the review of Collins sustainment undertaken by an independent expert, Mr John Cole. The phase one report, delivered in December 2011, identified a host of problems within and between Defence, DMO (now CASG), Navy and ASC that contributed to poor and/or costly outcomes for Collins class sustainment. The phase two report was delivered in December 2012 and suggested the following target levels for the Collins fleet:

- 2 boats available 100% of the time
- 3 boats available 90% of the time
- 4 boats available 50% of the time.

The report made 25 recommendations for achieving that, including reducing the length of full-cycle dockings from three to two years, moving to a cycle involving a one-year mid-cycle docking and six-month intermediate dockings, and appointing a Transformation Manager to implement the report's recommendations.

A follow-up report released in April 2014 concluded that 'submarine availability has improved significantly, with the submarine force achieving usually two and frequently three submarines materially available on any one day' as measured over successive financial years. The improvement was attributed to a combination of 'greatly enhanced availability of spares, [fewer] planned maintenance over-runs, few breakdowns and faster repairs to operational boats'.

The most recent follow-up report *Beyond Benchmark* was released in May 2016. It reported still further improvement in the Collins class submarine enterprise. Key points included:

- Collins class performance has graduated from 'mediocre to excellent in less than four years at almost level funding'. Availability is improving, while maintenance overruns, days lost to defects, and planned maintenance duration are decreasing.

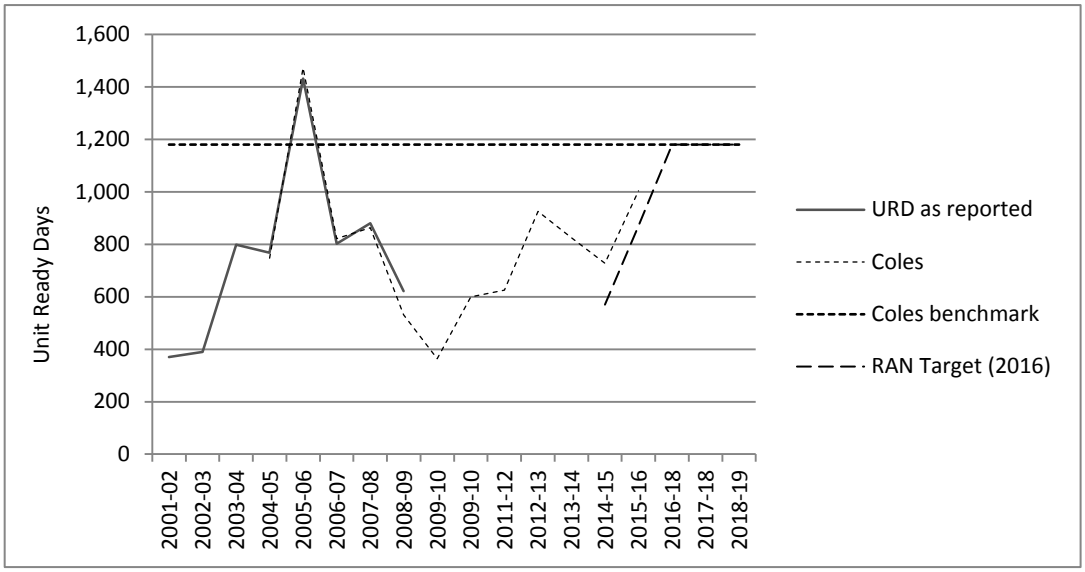
- The first two-year Full-Cycle Docking under the new maintenance regime commenced in June 2014 (HMAS *Farncomb*) and was completed ahead of schedule. Note that it's critical that major refits are completed in two years if the targeted availability of the vessels is to be met.

- In early 2016, the 12 month rolling average two-boat availability was greater than 90% and three-boat availability was greater than 50%.
- The cost per Mission Ready Day has fallen from $1.3 million per day in 2009-10 to less than $0.7 million per day in 2015-16.
- '… there is a reasonable level of confidence that benchmark performance will be achieved or bettered during financial year 2016/17'.

Although the Navy ceased disclosing Collins availability in 2008-09, it's easy to reverse engineer other available data to recover a full and reasonably accurate time series, see Figure 7.13. Reported improvements are apparent in the data.

The latest Coles follow-up report also investigated the prospects of keeping the Collins-class operational through the transition to the Future Submarine fleet. While identifying several challenges to be overcome, the Report seems confident that the Collins-class Submarine Enterprise (essentially ASC, CASG and Navy) understand the issues and can coordinate an effective response. Overall then, it looks as though the arrangements for sustainment of the Collins class through to the end of its service-life are finally on a solid technical and commercial basis.

Figure 7.13: Total annual Collins Unit Ready Days: reported and estimated



Source: DAR, Coles Review reports, FAD&T Question on Notice No 63, 25 February 2015.

The ghost of ships present—the Air Warfare Destroyer project

In October 2001, the last of the RAN's three Charles F Adams class DDG destroyers, HMAS *Brisbane*, was decommissioned, leaving a capability gap in the area of fleet air defence. The 2000 Defence White Paper included Project SEA 4000 *Air Warfare Destroyer*, intended to redress the shortfall. After preliminary studies in the first half of the decade, the project effectively gained first-pass approval in mid-2005 when two companies, *ASC Shipbuilding* and *Raytheon Australia,* were selected as alliance partners to work with Defence to take the proposal forward to second pass. A third firm, *Gibbs and Cox,* was designated as the preferred designer*,* with Spanish builder *Navantia* also engaged as a design partner.

Two options were developed for second-pass consideration: an Australianised (and smaller) version of the US DDG-51 Arleigh Burke destroyer, the so-called 'baby Burke', and the 'military-off-the-shelf' Spanish F-100 frigate with an Australianised combat system. In each case, the core of the combat system was to be the Lockheed Martin Aegis system with its associated phased array radar. Purchase of the combat system commenced in 2006 under a Foreign Military Sales (FMS) program with the US Government.

Some people were surprised when the F-100 was announced as the winner in June 2007. Gibbs and Cox, the designer of the DDG-51, had been designated as the 'preferred designer' of the evolved option back in 2005 and many perceived the F-100 as a 'stalking horse' that was included only to put commercial pressure on the US option. As it happened, the extra cost and risk associated with a scaled-down but on-paper-only DDG-51 tipped the balance in favour of the smaller pre-existing Spanish vessel.

From the commencement of the project through to second pass, a total of $227 million was spent, excluding long lead-time purchases for the Aegis combat system. Most of the money (roughly $186 million) was spent in the two years between mid-2005 and mid-2007. It remains to be explained how so much money was spent simply to decide between two designs.

The *AWD Alliance,* as it's known, involves three parties in a contractual arrangement, which is novel for Australian Defence (see Figure 7.14). ASC is the designated shipbuilder, Raytheon Australia is the combat system integrator and DMO acts as both the customer on behalf of the RAN (and ultimately the Commonwealth) and as a full participant in the alliance. Governance is exercised by a Board consisting of representatives of the three parties, with a commitment to consensus decision-making.

The alliance is predicated upon an 'equitable sharing of risks and rewards' between the three participants. In practice, sharing revolves around achieving a Target Cost Estimate (TCE) for the project that was developed back in 2007. The TCE was around $4.5 billion for the work covered by the alliance. That includes the direct recovery cost of planned activities by the participants and their respective subcontractors. The remainder of the $8 billion (as originally planned) project involved other expenses to be covered directly by Defence, including government furnished equipment such as the Aegis combat system.

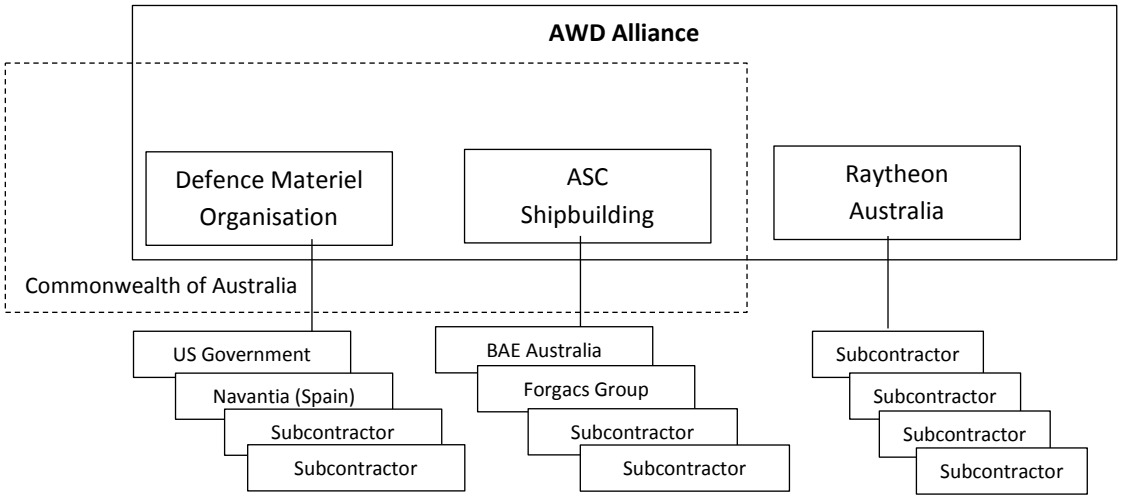
In the 2013-14 Budget Brief, we included an extensive discussion of the alliance contracting framework and its incentives (perverse and otherwise). Rather than repeat that material this year, we turn now to look at how the project has been going.

The build phase of the project is expected to have spent $7,902 million by June 2018, from an approved project budget of $9,090 million, thus representing about 87% of available funds, see Figure 7.15. Some care needs to be taken in inferring progress from aggregate expenditure because a significant share of the budget is allocated to the combat system and weapons purchases, which are somewhat unrelated to the progress in physical construction.

According to ASC Ltd, the AWD build was 50.5% complete in June 2012, and 69.6% in June 2013, 73% in June 2014, 78.5% in June 2015, and 85.2% in June 2016 (as measured in

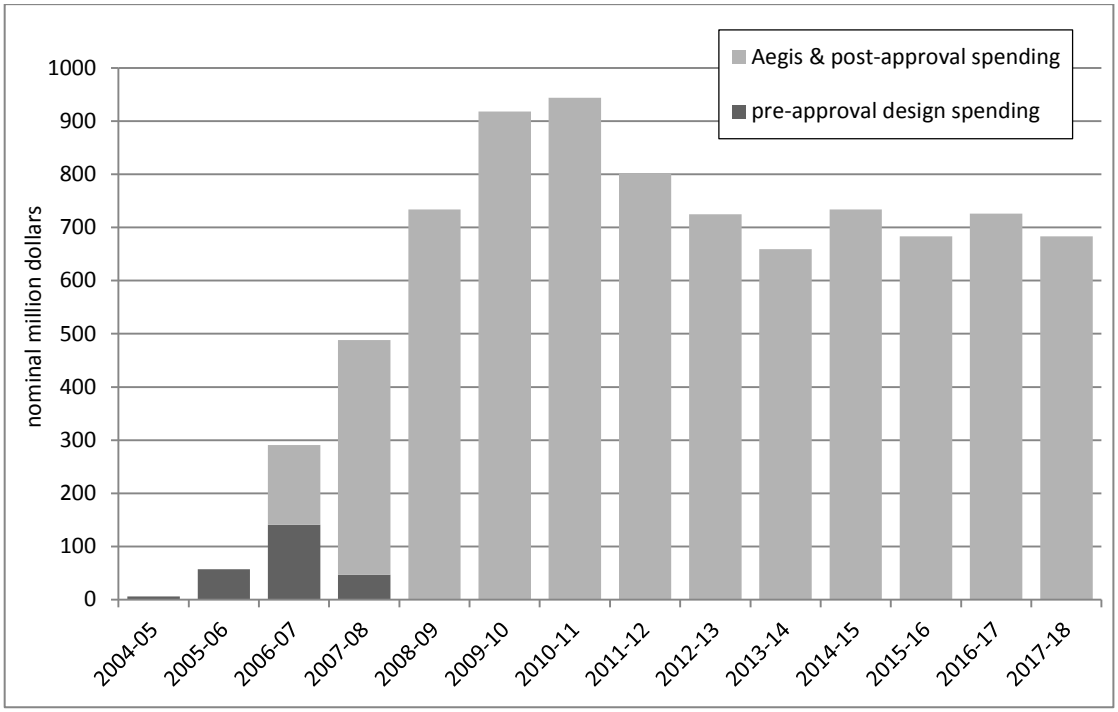
December 2006 base dollars). In comparison, expenditure on the project up to June 2016 was 73% of approved project budget.

Figure 7.14: The AWD Alliance



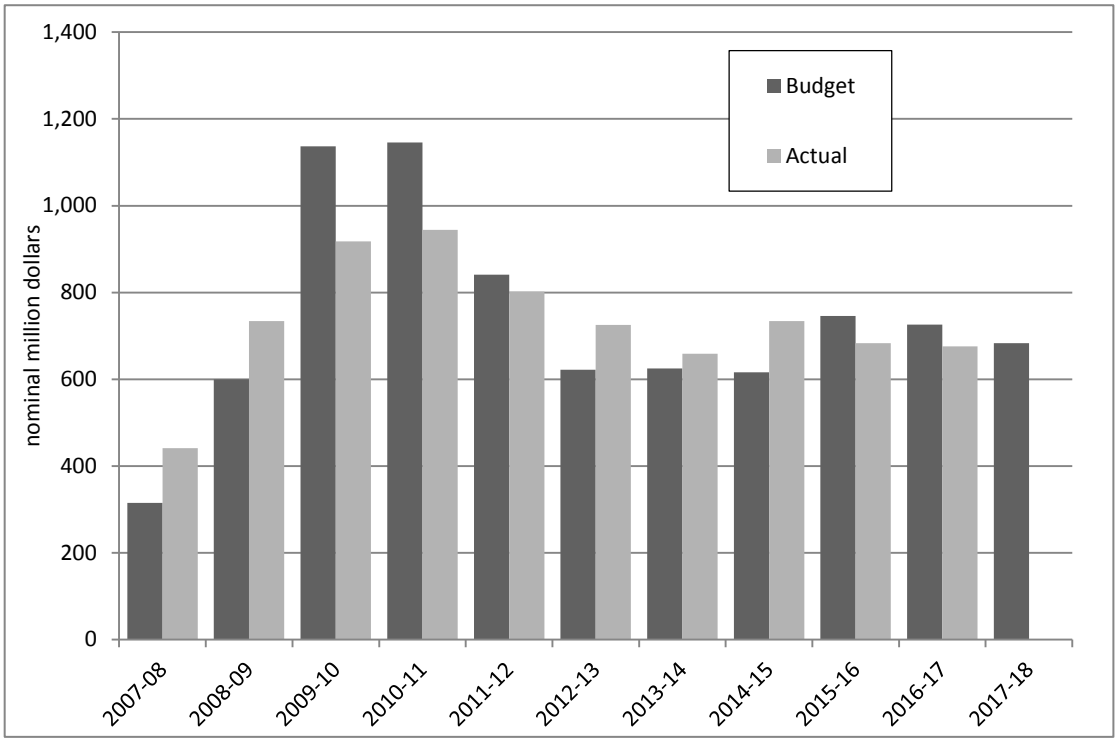
Planned and actual expenditure are compared on a year-by-year basis in Figure 7.16, which shows that the project exceeded its spending targets for the first two years, then fell well short for the next two. Until last year, planned expenditure targets have been exceeded three years in a row. However, as we'll see, it would be wrong to interpret this as a sign of greater than expected progress.

Figure 7.15: AWD expenditure ($m)



Source: Defence Annual Reports 2016-17 PAES and 2017-18 PBS

Figure 7.16: Planned and actual expenditure ($m)



Source: Defence Annual Reports, PBS and PAES

Trouble at the docks

At the time of second-pass approval, the first AWD was scheduled to be delivered in December 2014, the second in March 2016 and the third in June 2017. Due to early problems with the construction of modules, the schedule for the delivery of the first AWD was soon slipped by twelve months to December 2015.

Specific issues included the difficulty of activating new, and reactivating long unused, fabrication operations as well as problems with learning to work with the style of drawing provided by the Spanish designer. As a result, responsibility for fabricating 18 of the 90 modules was reallocated among subcontractors in May 2011. Then, in March 2012, a further reallocation of modules occurred, resulting in additional work going offshore to Spain.

When the module work was reallocated it was hoped that the changes, coupled with refinements within the consolidation yard, would be sufficient to make the revised schedule feasible. Indeed, by mid-2012 work was well underway on the fabrication of the first two vessels and work had commenced on modules for the third.

However, in September 2012 it was announced that there would be a further delay to AWD delivery. The formal announcement was unhelpfully ambiguous about the reasons for the delay. On one hand, it said that the 'revised AWD plan will reduce peak demand on project critical resources and facilities, and reduces project risk'. On the other, it said that 'the delay will help avoid a decline in naval shipbuilding skills before the commencement of Australia's largest and most complex naval project—the Future Submarine'.

It's unlikely the preservation of naval shipbuilding skills was a significant factor in bringing about the delay. As Figure 7.17 shows, most of the workforce was planned to have

dissipated well prior to the delivery of the final vessel so, even with the additional nine-month delay for the final vessel, most of the workforce would have moved on from the maritime sector by 2016 under the revised plan.

What's more, the skills needed at the end of a shipbuilding project are different to those needed at the start of a submarine project. Add to that that the Future Submarine project isn't likely to commence work until the early 2020's, and it's clear that maintaining skills in the sector for that purpose was largely irrelevant to the reschedule.

According to DMO's 2013 *Future Submarine Industry Skills Plan* (FSISP), the financial consequence of the delays to the AWD project were in the order of $200 million at that stage, which it attributed to a 'lack of experience across production engineering and production supervision'. An alternative measure of the impact of the delays can be garnered from the shipbuilding workforce profiles provided in the FSISP for the periods prior and subsequent to the delays (Scenario 2 versus Scenario 5). The charts represent the workforce demands from the LHD and AWD projects, but since the LHD project was apparently going well, the difference must be due to the extension of the AWD schedule. With a sharp pencil and a little care, the additional workload can be measured. The result is around an additional 2,153 person work-years (representing 19% of the total) to complete the project (as at mid-2013).

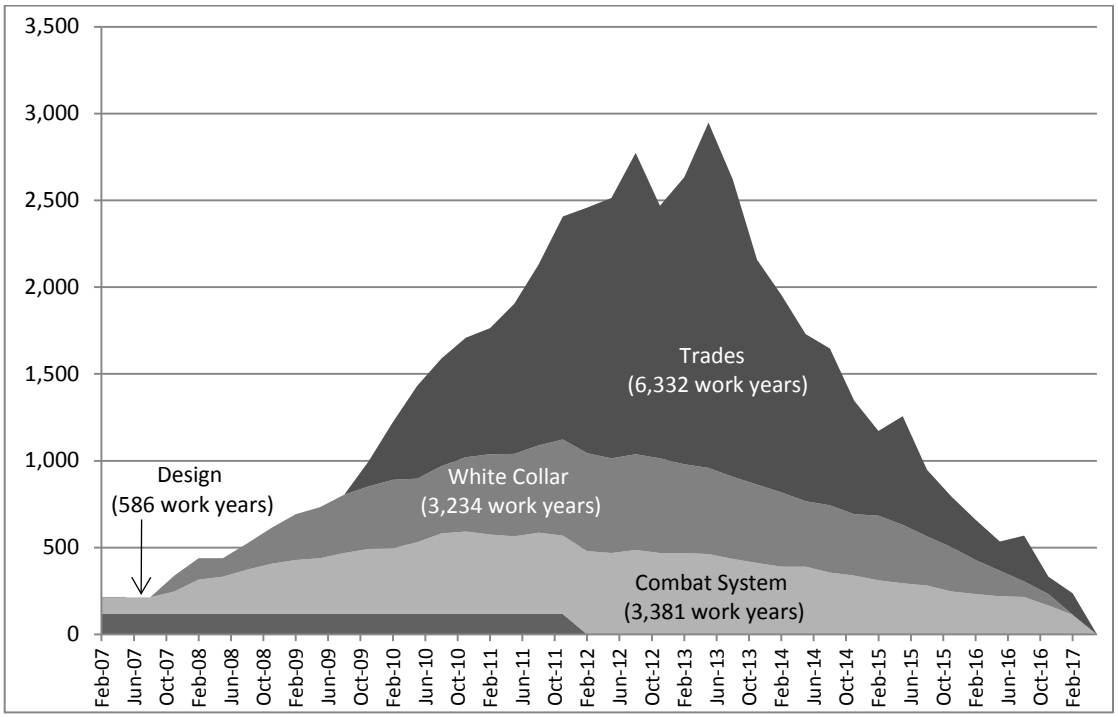
According to an ANAO report released in March 2014, it was estimated in November 2012 that 'the contract for the construction of the DDGs would be completed at an estimated cost of some $302 million or 6.8% more than the Target Cost Estimate'.

According to the same ANAO report, the project had experienced a range of difficulties including 'immaturity in detailed design documentation and block construction problems leading to extensive, time consuming and costly re-work', and 'substantially lower than anticipated construction productivity'. On the latter issue, by November 2013 it was costing $1.60 to produce work originally estimated to cost $1.00.

It would be a mistake to blame the problems experienced with the 'immaturity in detailed design documentation' solely on Navantia. In the period leading up to selection of the design and final government approval, the three members of the alliance had every opportunity to assess the suitability of Navantia as a supplier of design documents and to test the ability to make use of those documents.

Similarly, it would be a mistake to accept the claim by industry and Defence that productivity is low because of having to recommence shipbuilding after an extended hiatus. In the final analysis, the delays to the project reflect a failure by the alliance to understand what could be achieved with the workforce it knew would be available. Nonetheless, for a long time, problems with the AWD were depicted as the result of externalities beyond the control of Defence or Industry.

Figure 7.17: Original AWD workforce demands – alliance plus local contractors



Source: presentation by Defence official, January 2012

A rescue plan

Government announced an external review of the AWD program in December 2013. The delivery of the resulting 'White-Winter report' was announced in June 2014. Although the report hasn't been publicly released, the government said it identified problems with: the initial program plan, inadequate government oversight, the alliance structure's capacity to manage the project, and the performance and capabilities of ASC and major subcontractors.

The recommended remediation plan was to have three parts:

- improve shipbuilding productivity at ASC and its subcontractors
- urgently insert an experienced shipbuilding management team into ASC
- reallocate modules between shipyards to make the program more sustainable.

By any measure, the second of the three steps was the most decisive—putting a new management team into ASC. At first, this seemed to be what would happen, after the government engaged advisors with 'mergers and acquisitions' experience to help with the process. In a case of history repeating itself, it looked as though a private sector shipbuilder would be brought in to save the ailing project, just as had happened back in the 1980s, when the long-troubled FFG project at the then government-owned Williamstown shipyard was turned over to the private sector to complete. The fact that one of the authors of the report (John White) had been involved in the FFG rescue is noteworthy.

Initially, the government baulked at taking such radical action. Instead, it announced that it would 'insert additional shipbuilding expertise' into the AWD program—a far cry from

inserting ‘an experienced shipbuilding management team’ into the project. Thus, following a competitive process, BAE Systems, Navantia SA and Raytheon Australia were given ‘increased roles in the Air Warfare Destroyer program for an interim period’. At the time, the thinking appeared to be that the project had until the end of the year to demonstrate substantial improvements in productivity. Indeed, the implicit deal was that the green light for building the future frigates in Australia depended on things being turned around.

But the government lost patience. Following the completion of a ‘forensic audit’ of the project in May 2015, the government finally moved to more fully adopt the White-Winter recommendations. How fully we cannot say—the report remains under wraps.

The new sense of urgency was likely prompted by the sobering results of the forensic audit, which forecasts further delays and the requirement for an additional $1.2 billion to complete the program—more than twice the cost blow-out previously disclosed. As the Minister for Finance observed, ‘these ships are costing $3 billion a ship when equivalent ships in other parts from the world would have cost us $1 billion a ship’.

In May 2015, the government said it would undertake a limited tender process ‘to either insert a managing contractor into ASC for the remainder of the AWD build or to further enhance ASC capability through a partnering agreement’. What it meant by ‘managing contractor’ or ‘partnering agreement’ isn’t clear. In any case, in December 2015, the government announced that, because of the limited tender process ‘Navantia SA has been selected to bring an experienced shipbuilding management team into ASC Pty Ltd (ASC) to maximise program performance through to the end of the three ships’ construction. Navantia will also locate a design team in the Osborne shipyard’. It is not clear how accountability and control were apportioned between the new ‘management team’ and the existing executives and engineers at ASC. Nor is it understood how the new team relates to the remainder of the AWD alliance, and the private sector participant Raytheon.

On the positive side, the government reported in December 2015 that productivity had improved by around 35% in the yard and that the second and third vessels were expected to be delivered ‘up to 3 months earlier’ than anticipated in May 2015. Table 7.8 shows the progressive slippage in the schedule and the recent positive revision.

Table 7.8: Progressive delivery schedule for the AWD project

	Original (2007) delivery date	2011 reschedule	2012 reschedule	May 2015 reschedule	Dec 2015 revision*
HMAS *Hobart*	December 2014	December 2015	March 2016	June 2017	June 2017
HMAS *Brisbane*	March 2016	March 2017	September 2017	September 2018	June 2018
HMAS *Sydney*	June 2017	June 2018	March 2019	March 2020	December 2019

*Source: Various Ministerial Media Releases. *’up to 3 months earlier’*

ASC’s latest annual report outlines its efforts to control costs and improve productivity. As evidence of progress, they note a 38% cost improvement on Ship 2 compared with Ship 1, and a more than 30% improvement on Ship 3 compared with Ship 2. In one example, the installation of the mast on Ship 2 was completed in 10,000 fewer hours—a 50% cost saving

and 4 months earlier than for Ship 1. As a further encouraging sign, HMAS *Hobart* commenced sea trials in September 2016 (completed in March 2017), and HMAS *Brisbane* was launched in December 2016.

Finally, before leaving the AWD project, there's the long-term question of through-life support. Successive naval platforms have been delivered to the RAN without a coherent sustainment plan or contract in place. The Collins class is perhaps the most visible failure of this type, but other classes of vessel have suffered similarly. It's pleasing, therefore, that the government finally awarded an initial sustainment contract for the AWD fleet. Valued at $70 million over five years, the new contract with BAE Systems Australia Ltd will employ 50 permanent staff in Sydney.

The ghost of submarines future—replacing the Collins

Just prior to the 2012 May budget, the government announced the next steps in the process of replacing the Collins class submarine. In broad terms, the goal was to achieve first-pass approval in late 2013 or early 2014, and second-pass approval in 2017. The options being considered were (verbatim):

- An existing submarine design available off-the-shelf, modified only to meet Australia's regulatory requirements.
- An existing off-the-shelf design modified to incorporate Australia's specific requirements, including in relation to combat systems and weapons.
- An evolved design that enhances the capabilities of existing off-the-shelf designs including the Collins Class.
- An entirely new developmental submarine.

Concurrent with the release of the 2013 Defence White Paper in May 2013, the government announced that it would:

> *'…suspend further investigation of the two Future Submarine options based on military-off-the-shelf designs in favour of focusing resources on progressing an 'evolved Collins' and new design options that are likely to best meet Australia's future strategic and capability requirements'.*

Also in May 2013, the government identified the USN's AN/BYG-1 as the reference combat system for the development of the Future Submarine and announced the results of a study of the service life of the Collins:

> *'The study found there is no single technical issue that would fundamentally prevent the Collins Class submarines from achieving their indicative service life or a service life extension of one operating cycle for the fleet, which is currently around seven years, excluding docking periods'.*

Given the extended time necessary to execute either of the two options then under consideration, the extension of the Collins life-of-type by an additional operating cycle had seemingly become a foregone conclusion—and a feasible one given the encouraging news from the most recent Coles Review.

Change of plan

In April 2014, at an ASPI conference about the future submarine, it rapidly became clear that Defence and the government hadn't yet compared their respective approaches to the project. While Defence was still marching to the beat of the previous government's drum, the new government had some very different ideas. At issue wasn't just the type of submarine to be acquired, but the size of the fleet and location of their construction. The long-promised goal of building 12 new boats in South Australia was far from certain. Almost overnight, the purchase of fewer than twelve foreign-built boats was firmly on the cards. By the time of the mid-2014 DMO-Industry conference, the word was on the street; the government was interested in purchasing submarines from Japan.

While in opposition, the government often repeated the mantra of '12 boats built in South Australia', but a close reading of the Coalition's defence policy going into the election showed that their thinking had shifted. There was no mention of numbers, and the commitment to SA left some wiggle room: '… work on the replacement of the current submarine fleet will centre around the South Australian shipyards.' Of course, that does not guarantee that there'll be much work to do.

Rumours about 'Option J', as it became known, continued, and the government soon disclosed that the option was under consideration. Commentators (me included) expressed concern that in the absence of a rigorous tender process, we wouldn't be able to make a well-informed decision, let alone secure a good deal in either cost or capability terms. Some expressed concern, and others were positive, about the geopolitical consequences of a closer Australia–Japan strategic partnership.

Matters were brought to a head in February 2015, when a deal was apparently struck between the then Prime Minister and some South Australian members of the party room in the context of a looming leadership spill. After some confusion, the government announced that a 'competitive evaluation process' would be held, with potential suppliers asked to bid on the basis of three possible approaches: a foreign build, local build and/or hybrid approach. The government also advised Australian industry players that they would need to work with an international partner. To the surprise of many, Sweden was excluded from the process, leaving the potential suppliers narrowed to France, Germany, and Japan.

The competitive evaluation process sought proposals addressing:

- pre-concept designs based on meeting Australian capability criteria
- options for design and build overseas, in Australia, and/or a hybrid approach
- rough order of magnitude costs and a schedule for each option
- positions on key commercial issues, for example intellectual property rights and the ability to use and disclose technical data.

In announcing the process, the government said that the new submarines must be replaced 'in time to avoid a capability gap in the mid-2020s when the Collins Class submarine is scheduled to be retired from service', which—if taken at face value—appears to avoid work on a life-of-type extension for the Collins. In terms of capability, the government said it wanted (1) range and endurance like the Collins Class, and (2) sensor performance and stealth characteristics superior to the Collins Class.

Unsurprisingly, the combat system and heavyweight torpedo combination developed jointly between Australia and the US was designated as the government's preferred fit-out for the new boats. Although the process was slated to take ten months, which would have meant an announcement in December 2015 or January 2016, the announcement was delayed until April 2016, when French firm DCNS was declared the winner.

Problems emerged a few months later in August, when it was reported that 22,000 pages of documents from DCNS's Scorpene-class submarine venture with India had leaked into the public domain. However, the government released a statement saying that Defence had advised it that the reported events had 'no bearing on the Australian Government's Future Submarine Program.'

Consistent with that 'nothing to see here, move on' message, in September the government signed a Design and Mobilisation contract with DCNS to 'enable Australia, in partnership with DCNS and Lockheed Martin Australia, to design a submarine that meets [Australia's] unique capability requirements'. At the same time, Lockheed Martin Australia was announced as the Combat System Integrator for the Future Submarine. In December 2016, an Inter-Governmental Agreement was signed between France and Australia for the Future Submarine.

The overall value of the Design and Mobilisation contract with DCNS was not initially disclosed, but the PBS lists the project at $935 million, with $127 million to be spend by June 30 this year, and another $319 million to be spent next year. Hopefully, there are already hundreds of French engineers dropping croissant crumbs onto blueprints at a DCNS design centre in France.

We now turn to examine the government's emerging plan for Australian naval construction.

The emerging plan for Australian naval shipbuilding

In August 2014, the Abbott government announced that:

- The replacement of the Anzac frigate would be brought forward by three years, with work to begin in 2020, and the vessels to be built in Adelaide as part of a continuous build program.
- Commencement of the build of the planned new class of Offshore Patrol Vessel (OPV) would be brought forward by two years to 2018 to preserve elements of the Adelaide ASC workforce presently engaged on the AWD, with the goal of ensuring that the frigate program does not have a 'cold start'.
- Decisions on design partners on both the OPV and Frigate program will be progressed via Competitive Evaluation Processes (CEPs).

Subsequent announcements by the Turnbull government included;

- at least the first two OPVs will be built in Adelaide, with the remainder of the 12 vessels to be built in Henderson WA
- WA firm Austal will build up to 21 Pacific Patrol Boats
- DCNS will be the Commonwealth's design partner for the Collins replacement

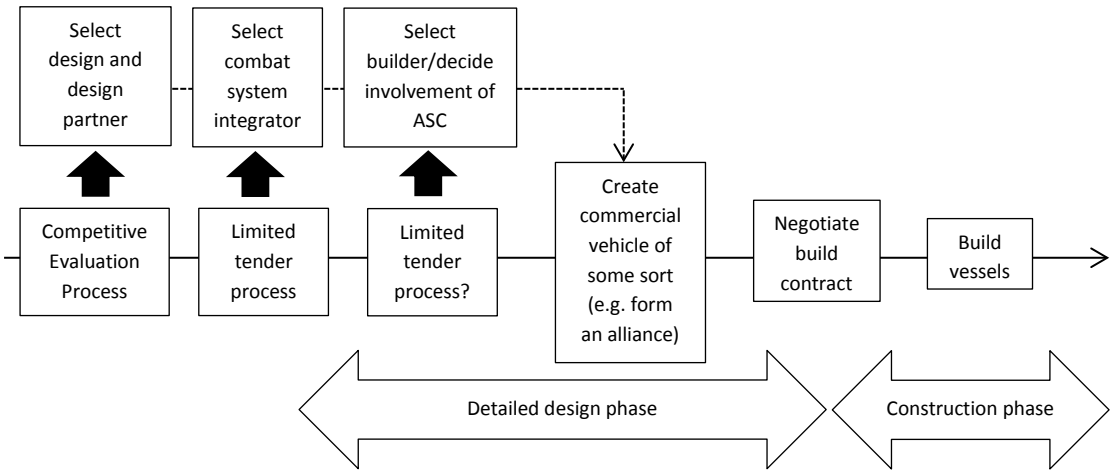
- Announcement of the three designs down-selected for each of the OPV and Frigate programs. Requests for Tender were released in November 2016 and March 2017 respectively for the two projects.
- Purchase of the Osbourne Common User facility from the SA government in May 2017.
- A $25 million investment in a Maritime College based in Adelaide to 'deliver world class training across the country in key areas such as steel fabrication, welding and naval engineering'.

Last year's Budget Brief analysed (1) the split-build strategy for the OPV and, (2) the continuous-build strategy for the Future Frigates and minor war vessels. Rather than reproduce the analyses again this year, it is enough to recount the conclusions:

- The government is taking a big gamble by splitting the production of OPVs between Adelaide and Henderson in pursuit of uncertain schedule and cost savings promised in a report from the RAND Corporation. The question of schedule slippage has been rendered largely irrelevant because the interval between vessels consistent with continuous production will delay the delivery of vessels to the point where a life-of-type extension for the Anzacs is necessary anyway (hence the future sensor, weapons and combat system upgrades for the Anzacs in the 2016 Integrated Investment Plan). And even if the savings are as large as promised, they only amount to around $120 million, or 0.3% of the $38 billion program.
- A continuous build of either the major surface combatants or submarines will cost the taxpayer hundreds of millions of dollars extra every year—forever. As for the minor combatant, they can be produced more quickly, so even combining minehunters and hydrographic vessels with the OPV it's hard to see how to deliver an economic life-of-type.

Key elements of the various programs are listed in Table 7.9.

Figure 7.18: Generic acquisition strategy for planned major naval projects



Apart from the Pacific Patrol Boats, which are being purchased though a routine competitive tender process, the three larger programs each involve a staged acquisition strategy like that used for the AWD program—with the difference that this time the design is being selected first. Specifics will likely vary between the three projects, and steps may be omitted, but Figure 7.18 depicts the generic process. The OPV project may take a simplified path without an extensive design phase or combat system integrator.

Table 7.9: What we know and don't know about naval shipbuilding plans

	Submarines	Frigates	Offshore Patrol Vessels	Pacific Patrol Boats
Number:	12	9	12	Up to 21
Designer:	DCNS	BAE Systems (GB), Fincantieri (IT) or Navantia (ES) (RFT issued March 2017) Decision due 2018	Damen (NL), Fassmer (DE) or Lurssen (DE) (RFT issued Nov. 2016) Decision due ?	Austal
Builder:	ASC facilities in Adelaide will be used.	ASC facilities in Adelaide will be used.	unknown in Henderson WA, but will use ASC facilities and workforce in Adelaide	Austal
Combat system integration:	Lockheed-Martin	limited tender anticipated	limited tender anticipated	n/a
Location:	Adelaide SA	Adelaide SA	Henderson WA and Adelaide SA	Henderson WA
Build strategy:	rolling production (but not necessarily continuous production)	continuous production (with AWD and follow-on classes)	continuous production (with other minor war vessels)	non-continuous
Displacement:	4,500 tonnes	~5,500 tonnes	~1,800 tonnes	~250 tonnes
Cutting steel:	2022-2023	2020	2018	2017
First vessel delivered:	early 2030s	2027-2030	~2020[1]	2018
Last vessel:	early 2050s	2043-2046[1]	by 2030	2023[1]
Price:	>$50 billion	$35 billion	$3-4 billion	$306 million
Labour demand (jobs):	1,100 (+ 1,700)[2]	~2,050	~450	207

[1] ASPI estimate only, [2] Supply chain jobs

Many things remain unclear, such as the nature of the commercial entity that Defence will contract with in each case. The designer could be the prime contractor, or the shipbuilder, or a special purpose vehicle could be formed from the two (with possible third parties). We also don't know how the split production of OPV will be managed. In several ways, the three large projects will intersect at the ASC facility in SA at the end of this decade. That makes the announced split of ASC interesting.

As Andrew Davies and I wrote at the time of the ASC split; irrespective of what the government's plans are today, the move manifestly creates the option of selling some of the businesses down the track, while keeping the infrastructure in government hands. On that latter count, the federal government seems determined. The Finance Minister was

> '… very clear. This is a strategic asset of national significance and it is explicitly the Government's intention to maintain the infrastructure business and infrastructure assets in Commonwealth ownership'.

By owning the infrastructure, the government can then sell the other businesses, leasing out the facilities to users as required. That's smart, since it allows the government to retain the option of competition for future projects, rather than granting monopoly control of core naval maintenance and construction assets to a single commercial entity in perpetuity. That's why the Commonwealth retained ownership of the facilities at Garden Island in Sydney, and which it is now upgrading at a cost of $213 million.

Consistent with such a strategy, the government announced in December 2016 that Danish firm Odense Maritime Technologies of Denmark was working with Defence 'on the infrastructure upgrades needed for the delivery of the Government's continuous naval shipbuilding program'. That sounds all well and good. But the design of the shipyard cannot be divorced from the production engineering approach of the shipbuilder. With the frigate design and builder yet to be selected, it might be premature to be rearranging the shipyard.

Curiously, the government's plans for breaking up ASC make no mention of submarine building. That's probably because there won't be any submarine construction until the early 2020s. But, by retaining ownership of the infrastructure in Adelaide, the government has the option of simply letting space to DCNS for the build, if it chooses not to once more go into the submarine building business itself. And it can also opt to move the now separate submarine sustainment business to Western Australia (where ASC already has a maintenance facility) if space at Osborne is at a premium.

Competitive evaluation processes are underway for the Future Frigate and Offshore Patrol Vessel (OPV) programs. Challenges lie ahead, and it's not simply a matter of choosing designs—that's the easy part. The real challenge will be to put together an industrial and commercial package that delivers value-for-money to the taxpayer (that's also true for the submarines). To help sort through the complications, the government has appointed a Naval Shipbuilding Advisory Board, chaired by Professor Donald Winter (ex US SECNAV) and which includes a selection of business luminaries, academics, retired public servants and a triumvirate of ex-USN admirals.

One of the clear complications is the split-build of OPVs between SA and WA. Workforce continuity would most easily be achieved by either awarding the gap-fill OPV and Future Frigate contracts to the newly created ASC shipbuilding spin-off, or selling the newly created shipbuilding spin-off to whichever firm wins the Frigate contract.

At last, a plan

Two rumours were doing the rounds at budget time this year. First, there were whispers about the imminent release of the long-awaited naval shipbuilding plan. Second, not long

after the frigate RFT was released, rumours emerged of a two-year delay to the commencement of the frigate program, from 2020 to 2022. The two rumours came together with the release of the Naval Shipbuilding Plan on 16 May.

It's a useful document. It draws together recent announcements into a credible narrative, and provides some useful additional information about infrastructure, workforce and schedules. Yet it leaves some questions unanswered and raises others.

At the heart of the plan is a four-part strategy, focusing on infrastructure, workforce, industry and national coordination. Of course, it's not that concise, and no positive adjective was left behind in its drafting. In the veil of management-garble used throughout the report, 'workforce' becomes 'a highly capable, productive and skilled naval shipbuilding and sustainment workforce'.

On infrastructure, some of the recent machinations surrounding ASC and infrastructure are finally explained. The government has decided to retain ownership of the shipyard infrastructure that was formerly owned by ASC at Osborne in South Australia and Henderson in Western Australia. One of the component parts of last year's ASC split, now named Australian Naval Infrastructure Pty Ltd, will take ownership of those properties. And the Commonwealth will also buy out the infrastructure built at Osborne by the SA government.

Consistent with the earlier discussion, that makes sense. If the shipyards and associated infrastructure had been sold off to the builder of the future frigates, it would've created an effective monopoly that would have been hard to break in the future. With the infrastructure in Australian government hands, the build contract for future classes can be subject of a competitive process, providing at least a modicum of competition. The Williamstown dockyard in Melbourne only rates a mention as an historical note and looks set to play no role in future naval construction or sustainment. And there's no mention of the Forgacs yard in NSW at all. Consistent with the theme of consolidation, there's no mention of subcontracting ship module builds in the plan—vertically integrated monopolies seem to be the order of the day for construction.

There's a lot in the plan about the workforce required to realise the vision. The bottom line is that the government isn't prepared to leave the development of the workforce to the market players who will design and build the ships and submarines. The government is going to intervene by providing the educational equivalent of shipyard infrastructure, in the form of a new Naval Shipbuilding College based in Adelaide. Under that approach skilled workers will be government furnished equipment.

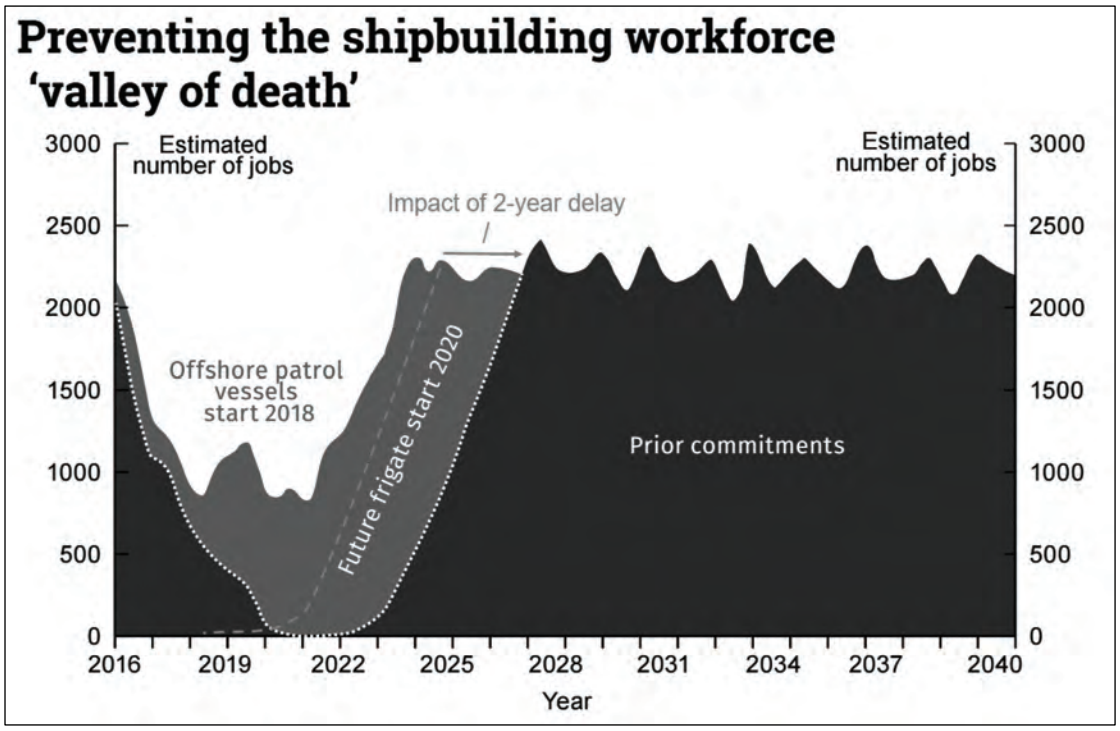
The Plan proposes 'a national approach to the Naval Shipbuilding Plan' and establishes a national consultative body to that end. Of more interest, the Plan gives indicative timetables and explains the sequencing of planned projects. As useful as those data points are, they raise several questions.

The first is the confusing and inconsistent use of the terms 'continuous' and 'rolling' production to describe the submarine program. We know for certain that the frigates and minor vessels will be built in continuous production runs, with the build of a new class of vessel commencing as the previous one concludes. Until now, most observers have assumed

that the White Paper use of the term 'rolling production' signified that there would be substantial breaks in the submarine program. But in various places the Plan refers to submarine production as being either continuous or rolling. To make matters worse, a diagram in the Plan (Figure 1.2) shows submarine work continuing long after the 12th boat is due to be delivered. Why not just say what's planned?

As expected, the Plan maintains a 2018 start for the Offshore Patrol Combatants and a 2020 start for the Future Frigates—though the term 'cutting steel' has been dropped. More importantly, the in-service date of the first Future Frigate is given as 2027-30. That's one to four years later than cited in the RAND shipbuilding report (upon which the government's plan is based), which also assumed a 2020 start date. It looks as though the rumoured late start to the frigate program has been quietly slipped into the plan.

A delay to the start of the frigate program wouldn't be surprising. As recently as mid-2014, Defence's own planning documents show an intent to commence construction in 2022—with the intervening period fully used adapting the chosen design to carry the designated Australian radar. A 2020 start date was only imposed in August of that year, with the goal of averting the dreaded 'valley of death' at the ASC shipyard in Adelaide. The image below (released alongside the 2016 budget) has been annotated to highlight the impact of shifting the start date back to 2022. If the frigate program commences in 2022, rather than 2020, the jobs between the dashed and dotted line surrounding 'Future Frigate start 2020' will disappear. Clearly, a 2022 start date would mean that the ASC shipbuilding workforce would dwindle to a couple of hundred people in the period immediately prior to 2022.



Source: Treasury 2016 Budget Booklet 'Our National Economic Plan', indicative 2-year delay annotated by ASPI.

As explained in the 2015-16 edition of the Budget Brief, the RAND Corporation shipbuilding report (upon which the government's plans are built) presents a less than compelling case for the strategy adopted. Be that as it may, averting the valley of death is important to the

voters of South Australia. So, what can the government do? One option would be to shift the construction of another two OPVs from WA to SA. But that would then make the voters of Western Australia unhappy.

Another option would be to build a fourth AWD to fill the gap. Because it would create additional jobs in SA earlier than the present plan, it might allow all 12 OPVs to be built in WA. That way, a fourth AWD could keep voters happy in both states—albeit at some additional cost. But that's the political economy of naval shipbuilding in a nutshell: investment decisions are driven by a small number of vested interests who gain a lot, and costs are spread across millions of taxpayers who each pay a little.

Finally, there's the option of make-work activity under the fig-leaf of 'prototyping'. That would be cheaper, because you don't need to put a billion-dollar combat system on a prototype, but it would still be wasteful.

Elsewhere the plan exhibits a disappointing lack of attention to detail. For example, it has the ninth Future Frigate arriving in 2038 and talks about a two-year drum-beat of production. While they are described as 'indicative' dates, on face value they defy arithmetic. Similarly, it appears to overstate the number of direct jobs produced by counting 1,700 submarine supply chain jobs as direct jobs. And the estimate of total costs uses a ratio of 30% acquisition to 70% sustainment costs—whereas the conventional 70/30 split is based on acquisition versus all other ownership costs, including not just sustainment, but also personnel and training costs (which are appreciable).

Finally, on arguably the most critical issue of all—how to drive productivity in the resulting monopoly shipyards—the Plan says that 'robust and complementary performance frameworks must be developed and reported against regularly through the National Security Committee of Cabinet'. That's good, but then it goes on to say that the reporting will be 'informed by advice from the independent Naval Shipbuilding Advisory Board'. It's doubtful that a part-time board, half of whom live in the United States, is not going to be adequate. What's needed is a full-time naval shipbuilding authority.

Conclusion

The staged approach that the government has adopted for its naval projects is neither all good nor all bad. Like any acquisition strategy, it comes with benefits and risks. Two benefits are immediately clear. First, a staged approach gives Defence the option of choosing what it considers to be the best combination of designer, integrator and builder from what's available, rather than have to pick from what might arise if the various parties were to be asked to form teams and bid for the project. Second, it allows Defence to work closely with the designer (and perhaps also the integrator and builder) to refine the vessel design while making cost-capability trade-offs. By doing so, the Navy is much more likely to get the sort of vessels it wants

On the downside, the selection of industry partners shifts greater responsibility back onto the Commonwealth. Even if the result is a single prime contractor (as opposed to an alliance or consortium), the Commonwealth can't evade responsibility for the performance of the subcontractors it selects. As the Macintosh-Prescott review into the Collins project observed;

'by imposing its selection of the combat system contractor on the principle contractor the Commonwealth started out on the wrong foot with ASC …'.

But the greatest drawback to the staged approach is that Commonwealth will enter contract negotiations with zero leverage. With the clock ticking on both the submarines and frigates, there'll be no going back. The risk isn't that the suppliers will seek egregious profits; that possibility can easily be prevented through open book accounting. Instead, the risk is that suppliers will have few incentives to plan efficient production with no competition on the horizon. To the contrary, they'll have every reason to build fat into the negotiated price. That's true irrespective of whether the contract is fixed price or some sort of gain-share pain-share incentive arrangement based around a target price.

The challenge of achieving efficient production will be even more acute under continuous production, which applies to the frigates, OPVs and perhaps even the submarines. Under such an arrangement, the resulting power of the firms, unions and host state government would preclude any credible threat of going offshore for future builds. With commercial pressures all but absent, the task of achieving and maintaining productivity would be very difficult.

On the bright side, a bloated project will allow the supplier to devote more than adequate resources to the task. The combination of higher staff numbers, better pay and top notch infrastructure will reduce the risk of missing schedule, cost and performance milestones. And if the contract has an agreed fixed profit margin, higher costs will automatically translate into higher profits. Even from the view of the Navy and Defence—who are potentially awash with money from the White Paper—it would be a good day at the office. Two very rare events would coincide; the Navy would get its vessels on time, and the acquisition folks in Defence would get a pat on the back. If not for the taxpayer, it would be a victimless crime.

A fuller discussion of the challenges to achieving efficient naval construction in Australian, including strategies for managing monopoly supply arrangements, can be found in, *An enterprise-level naval shipbuilding plan*, Andrew Davies and Mark Thomson, ASPI, July 2015.

Chapter 8 – Australia's Foreign Aid

Australia's foreign aid was administered by the Australian Agency for International Development (AusAID), until that department was absorbed into the Department of Foreign Affairs and Trade (DFAT) in late 2013. As a result, new budgeting arrangements for Australia's Official Development Assistance (ODA) program were put in place in the 2014 Budget. Further changes have occurred over the past three years.

Unfortunately, the new arrangements make it difficult to compare post-2013 budgets for ODA with those from previous years. To make matters worse, the long-standing *Ministerial Statement on International Development Assistance* ('Blue Book') was discontinued in 2014. Fortunately, it was replaced last year by the *Australian Aid Budget Summary* ('Orange Book').

Australia's approach to foreign aid

One of former Prime Minister Tony Abbott's first acts after being sworn in on 18 September 2013 was to announce that, along with some other administrative changes, the agency known since 1995 as AusAID would be integrated back into DFAT. The aid organisation had been an 'autonomous agency' within the foreign affairs portfolio from 1973, and an even more independent 'executive agency' from 2010. Although the Coalition's pre-election foreign affairs policy had indicated it was unsatisfied with the strategic priorities and governance of Australia's aid program, and Coalition frontbenchers had signalled a shake-up was likely, few observers expected such a quick or comprehensive re-amalgamation.

Consistent with developing a new approach, the foreign minister Julie Bishop commissioned a series of reviews, including on aid benchmarks, the role of the private sector in promoting growth and poverty reduction, and some key bilateral relationships. In June 2014, Bishop released the government's new aid policy and performance framework via a National Press Club speech entitled *The new aid paradigm*. Key points from the accompanying press release included:

- Australia's ODA will henceforth focus on ways to drive economic growth in developing nations and create pathways out of poverty.
- Strict performance benchmarks will ensure aid spending is accountable to tax payers and achieve results.
- New aid investments will consider ways to engage the private sector and promote private sector growth.
- Aid for trade investments will be increased to 20 per cent of the aid budget by 2020.
- Australia's ODA will focus on the Indo-Pacific region, with over 90 per cent of country and regional program funding spent in our neighbourhood, the Indo-Pacific.
- A new development innovation hub will be established in DFAT.
- Australia will continue to be one of the world's most generous aid donors with a responsible, affordable and sustainable aid budget of over $5 billion a year.

As we'll see, the last dot-point was soon abandoned.

Budgeting arrangements

Following the absorption of AusAID into DFAT, Australia's aid program is funded through DFAT under Outcome 1:

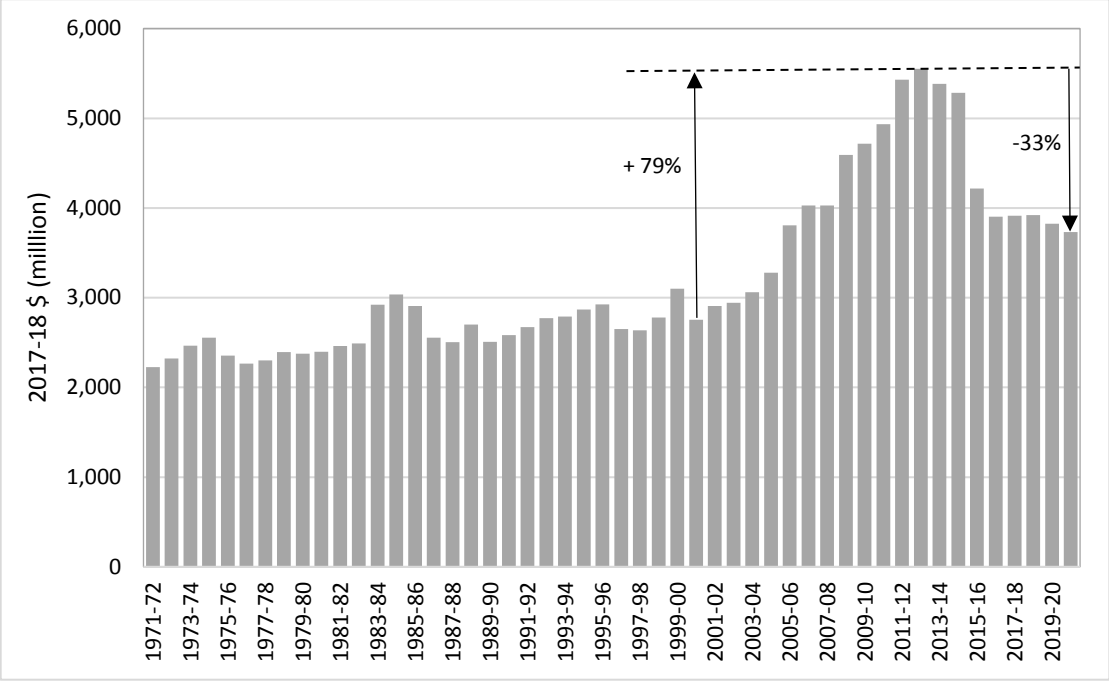
> *The advancement of Australia's international strategic, security and economic interests including through bilateral, regional and multilateral engagement on Australian Government foreign, trade and international development policy priorities.*

Funding relevant to Australia's aid program is mentioned in several places in the DFAT PBS but the Orange Book provides a clearer picture of what's happening. Where it falls short—for example by not providing time-series of past ODA levels—the Development Policy Centre at the Australian National University completes the picture. The Development Policy Centre website is https://devpolicy.crawford.anu.edu.au/.

How much does Australia spend on foreign aid?

In 2016-17 Australian foreign aid will amount to $3.9 billion representing 0.22% of Gross National Income (GNI). Just as defence spending is often expressed as a share of GDP, foreign aid is traditionally expressed as a share of GNI. Funding is about $12 million more than last year (in 2017-18 $) representing a nominal 0.2% real increase. In 2015-16, the aid budget was cut by around 20%, from $5.3 billion down to $4.2 billion. Figure 8.1 shows actual and planned ODA expenditure from 1971 to 2020-21.

Figure 8.1: Australian spending on foreign aid 1971-72 to 2020-21

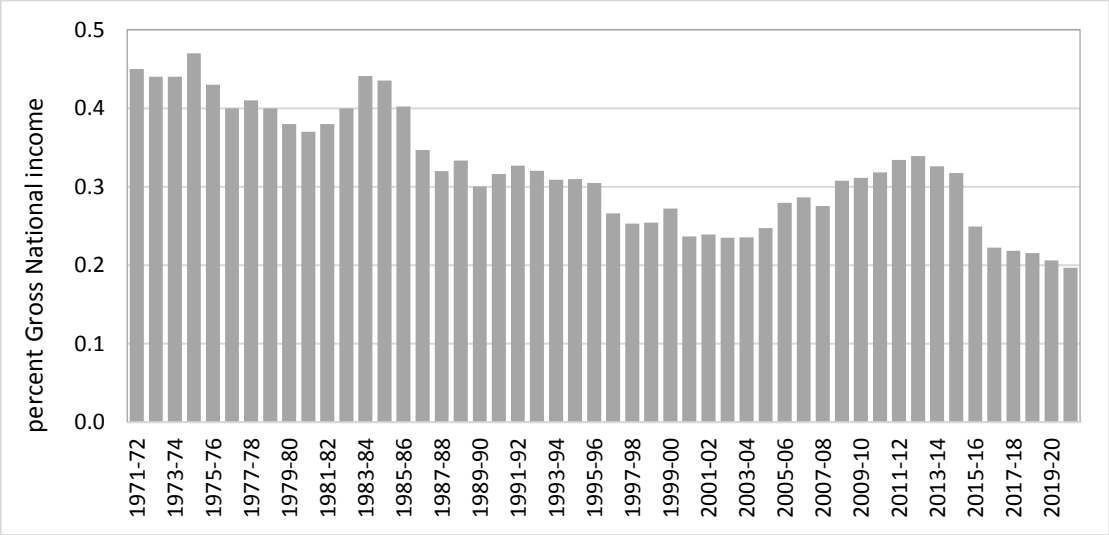


Source: DevPol analysis of 2017-18 DFAT PBS and Orange Book.

In addition to omitting historical data for comparison, the new Orange Book fails to express Australia's foreign aid as a percentage of GNI. In fairness, the Defence PBS does not express

the defence budget as a share of GDP either. In any case, the nice folks at the ANU Development Policy Centre provide the necessary data, see Figure 8.2.

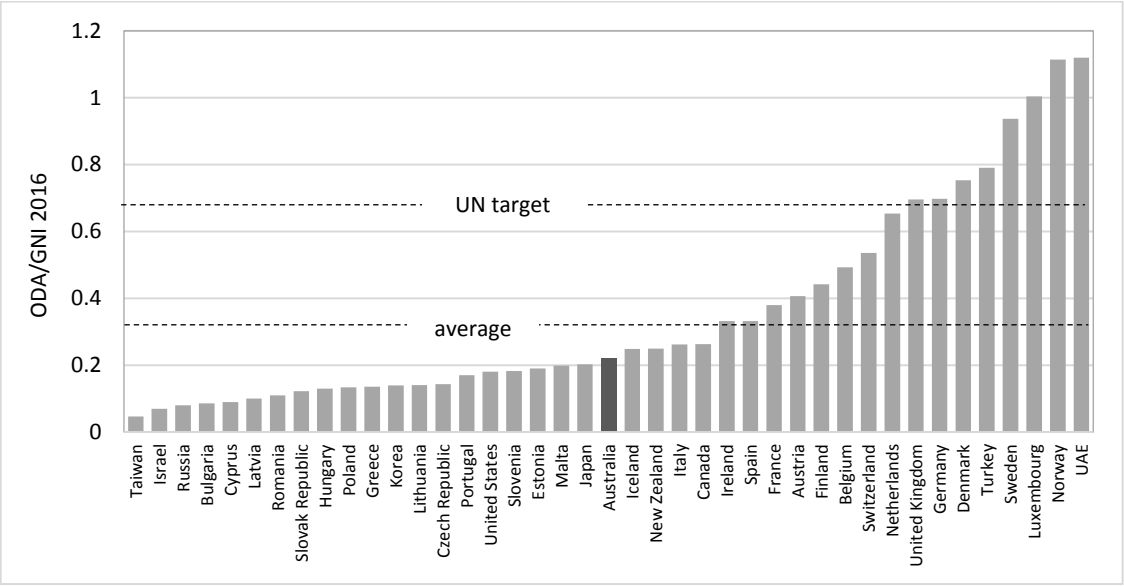
Figure 8.2: Australia's foreign aid as a share of GNI 1971-72 to 2020-21



Source: DevPol analysis of 2017-18 DFAT PBS and Orange Book.

Even before the recent cuts, Australian foreign aid spending wasn't especially impressive in international terms. In 2012, Australia ranked 13th out of 23 OECD countries for aid as a share of GNI. In the latest figures (see Figure 8.3), we rank 21st out of 41 Development Assistance Committee (DAC) members. Not only do we fall below the average for DAC nations, but our budgeted GNI figure of 0.22% for 2016 is less than half the agreed United Nations target of 0.7%. Australia's position is set to fall further as our spending drops as, (1) global aid expenditure rebounds with DAC countries recovering from the Global Financial Crisis, and (2) 'non-traditional donors' that operate outside OECD guidelines, such as China, increase their development spending.

Figure 8.3: Comparison of ODA from OECD nations



Source: OECD website 2017, The DAC reports on aid provided by OECD members and other participant countries.

A brief history of Australia's foreign aid

A bipartisan consensus from the late Howard era to the first Rudd government to increase Australia's foreign aid to 0.5% of GNI by 2015-16 was faltering by 2012 as the then government grappled for an elusive surplus—abruptly reallocating hundreds of millions of dollars within the aid budget to meet domestic asylum-seeker costs, and deferring the timetable to meet the 0.5% target out to 2017-18. In 2013-14 ODA was only budgeted to be 0.37% of GNI.

The Coalition's pre-election foreign affairs policy recommitted to the 0.5% target as a benchmark but announced it would 'stabilise the aid budget' by reducing previously planned growth to just rises in the consumer price index over the forward estimates, so that only nominal increases in funding could be expected in the immediate term. Before the election, the Coalition signalled it intended to make significant cuts to the aid budget for each of the next several years, and in January 2014 the new government cut $650 million spending for the remainder of 2013-14.

The 2014 budget capped aid spending at $5.03 billion for two financial years, after which it was planned to grow in line with the CPI. That was $1 billion more than promised by the Coalition at the time of the 2013 election. However, further cuts were made in December 2014 and confirmed in 2015's budget. As a result, nominal aid spending fell by around $1 billion to reach $4 billion. Last year's cut of $0.2 billion took us down to a budgeted level of $3.8 billion. This year, aid grew slightly in real terms, but CPI indexation has been abandoned for 2019-20 and 2020-21.

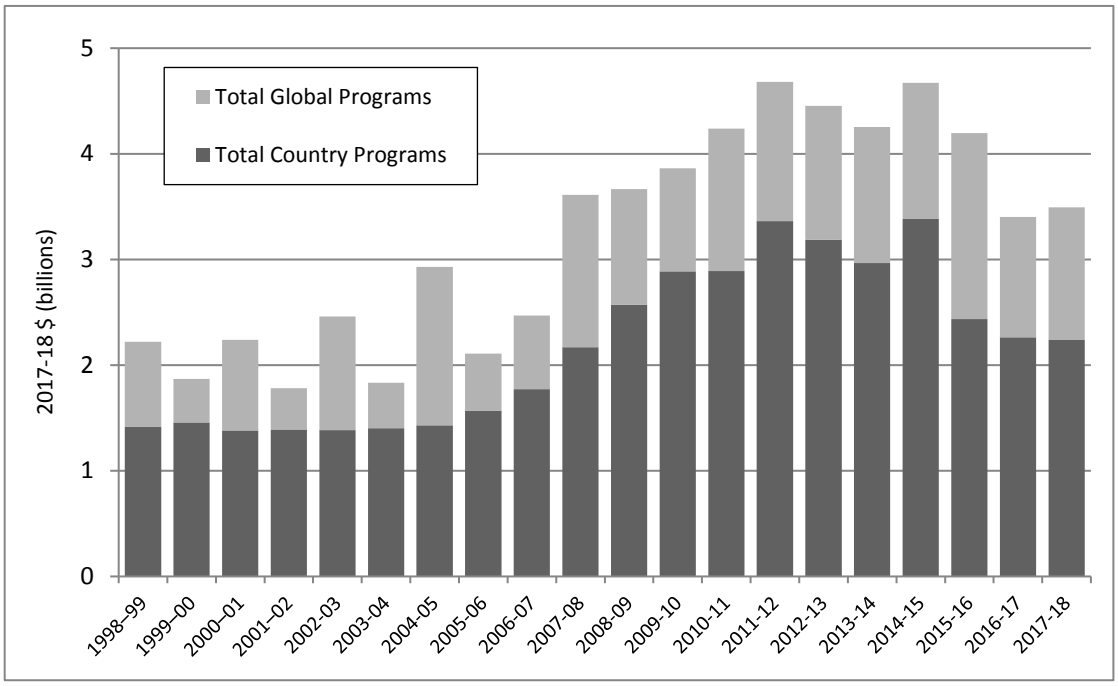
Where does the money go?

The annual aid budget is composed of a country-specific program and a global program, see Figure 8.4. The latter includes payments to various development banks and UN and Commonwealth agencies, including emergency aid through the World Food Program. Because of multi-year payments, the global program can vary greatly from one year to the next (accrual accounting smooths the payments in reporting).

Australian country-specific aid is mostly focused on Asia and Pacific island states, although locations further afield also benefit. Figure 8.5 shows the amount of country-specific aid by region since 1998. As noted, PNG and regional programs stand out as beneficiaries of Australia's aid.

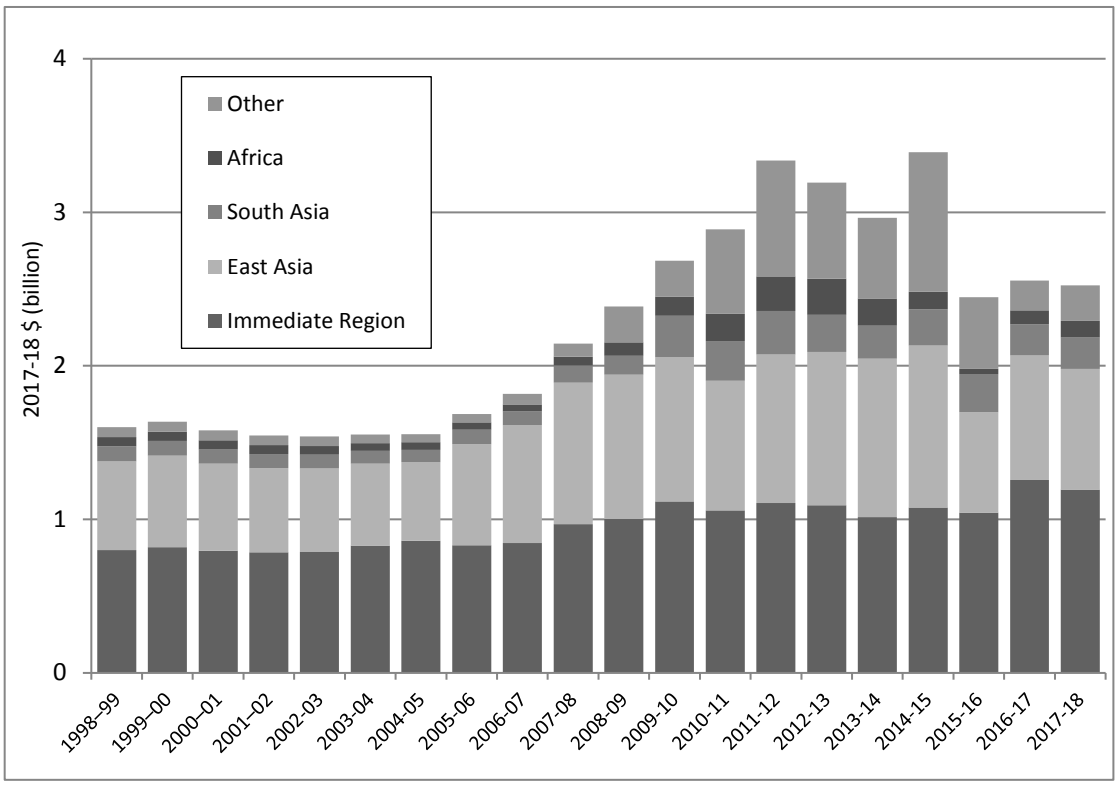
Traditionally, Australian aid tended to be overwhelmingly focused on countries close to Australia. This priority is still apparent in Figure 8.5 where the category of 'immediate region' includes PNG, East Timor and the island states of the Pacific. This focus was strengthened in the 2015-16 budget and beyond. Though not shown, most of the aid to East Asia goes to Southeast Asia and especially Indonesia.

Figure 8.4: Australia's aid — Global and Country Programs, 1998-2017



Source: AusAID annual reports and 2017-18 Australian Aid Summary

Figure 8.5: Australia's aid — Country Programs, spending by region, 1998-2017



Source: AusAID annual reports and 2017-18 Australian Aid Summary

Table 8.1 lists Australia's total budgeted ODA by value for 2016-17 and 2017-18 (including apportionment from global programs where possible and including non-Australian Government aid programs). Additional funds are provided through core contributions to

multilateral organisations. Although it is not apparent from the two-year snapshot, there has been a significant fall in funding for countries beyond our immediate region in recent years, see Figure 8.5.

Table 8.1: Australia's aid — spending by partner country/region 2017-18

	2016-17 Revised Estimate ($m)	2017-18 Budget Estimate ($m)		2016-17 Revised Estimate ($m)	2017-18 Budget Estimate ($m)
Papua New Guinea	558.3	546.3	Palestinian Territories	43.6	43.8
Indonesia	365.7	356.9	Laos	40.7	42.3
Solomon Islands	162.0	142.2	Samoa	37.8	37.2
Pacific Regional	131.6	127.3	Nepal	34.0	31.9
Timor-Leste	93.7	96.1	Tonga	30.2	29.6
Cambodia	90.0	87.4	Kiribati	28.7	30.9
Sub-Saharan Africa	89.5	108.2	Sri Lanka	27.5	27.7
Vietnam	83.6	84.2	Nauru	25.5	25.4
Afghanistan	82.7	80.9	South /West Asia Regional	62.3	53.8
Philippines	81.9	85.0	Caribbean & Latin America	11.0	5.9
Fiji	76.9	65.6	Mongolia	10.0	10.9
Vanuatu	62.5	69.8	North Pacific	9.8	8.0
East Asia Regional	62.3	53.8	Tuvalu	9.2	8.7
Myanmar	59.8	66.4	Bhutan	7.3	9.2
Bangladesh	56.1	57.9	Maldives	5.3	3.8
Middle East / North Africa	51.8	101.6	Cook Islands	3.4	3.2
Pakistan	47.0	47.1	Niue and Tokelau	3.1	2.9

Source: 2017-18 Australian Aid Summary

How does aid further Australia's national interests?

Aside from making us feel better about ourselves, foreign aid furthers our national interests in two ways. First, bilateral aid to countries establishes a *quid pro quo* that facilitates access to, and influence with, foreign governments. Second, aid can bolster the institutions, infrastructure and human capital necessary for economic development and political stability. The rationale for the first category is self-evident; the second furthers our national interest by improving the stability of countries important to our security.

Much of Australian aid is of the first sort. Until recently, for example, we gave a small amount of aid to China each year, which had no significant impact on its 1.3 billion people or its economic development. Other aid, like that to Solomon Islands, is directly focused on achieving tangible improvements in governance, human security and economic development. Beyond seeking to address severe deprivation and inequality as potential sparks for violence and instability in nearby countries, aid's direct security dimensions include: stabilising fragile states (whether in regional interventions such as RAMSI, or by supporting ODA-eligible police and other preventive security partnerships before challenges reach crisis-point); assisting security sector reform to help demobilise, disarm and reintegrate ex-combatant groups and prevent violence re-emerging once stabilisation missions wind-down; and civil-military cooperation to provide planning, logistics, transport, communications, and medical equipment and skills following disasters and emergencies.

An informative picture emerges by examining the ratio of Australian aid to a recipient country's GDP. High ratios indicate a real effort to make a difference in a country; small ratios reflect largely diplomatic gestures that will hopefully be repaid through access and influence. Table 8.2 lists Australian aid recipients in ascending order of the ratio of Australian aid to national GDP. The figures for smaller nations are unreliable.

Table 8.2: Australian aid as a share of GDP

Country	Ratio of Australian aid to GDP (PPP)	2016-17 Australian Aid ($m)	2015 per capita (PPP)	Country	Ratio of Australian aid to GDP (PPP)	2016-17 Australian Aid ($m)	2015 per capita (PPP)
Nauru	24.09%	26	7,350	Afghanistan	0.09%	83	2,932
Tuvalu	16.05%	9	5,268	Maldives	0.07%	5	20,513
Kiribati	9.67%	29	2,563	Bhutan	0.07%	7	13,003
Solomon Islands	9.27%	162	2,911	Laos	0.07%	41	8,407
Vanuatu	5.91%	63	3,845	Nepal	0.03%	34	3,784
Tonga	3.74%	30	7,701	Mongolia	0.02%	10	18,626
Samoa	2.42%	38	8,011	Myanmar	0.01%	60	8,261
PNG	1.73%	558	4,084	Vietnam	0.01%	84	9,428
Cook Islands	1.26%	3	13,377	Indonesia	0.01%	366	17,147
Timor-Leste	0.87%	94	8,267	Sri Lanka	0.01%	28	17,496
Fiji	0.64%	77	13,446	Philippines	0.01%	82	11,345
Palestinian Territories	0.45%	44	4,091	Bangladesh	0.01%	56	5,673
Cambodia	0.10%	90	5,474				

Sources: 2016-17 Australian Aid Summary, IMF World Economic Outlook December 2015.

Not surprisingly, Pacific island states head the list followed by other countries in the immediate region. Note that some smaller Pacific countries have been omitted because economic data wasn't available. For comparison, the latest GDP per capita in PPP dollars has been included as a measure of the relative level of poverty in recipient countries. Clearly, Australian aid is only partially directed on the basis of need. The ratio of aid to GDP at which aid becomes an entirely diplomatic gesture is impossible to define, though it's hard to argue that figures below 0.5% of GDP reflect a serious effort to have a significant impact—except perhaps in a limited area like governance. Conversely, it's clear Australia is trying to make a real difference in those countries where aid approaches or exceeds 5% of GDP. As Table 8.2 shows, this category is entirely within our immediate region.

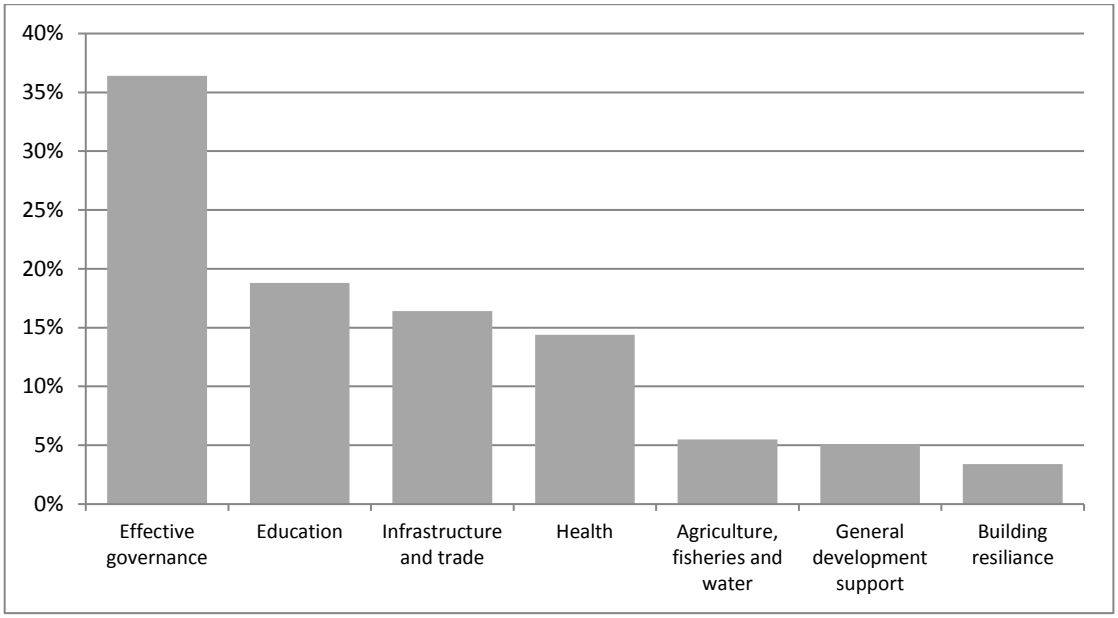
How is Australian aid spent?

There are seven investment priority areas for Australian ODA; effective governance, education, building resilience, infrastructure and trade, health, agriculture, fisheries and water, and general development support. The percentage apportionment of ODA to these priorities is displayed in Figure 8.6. Geographically, more than 90% of Australian ODA goes to the Indo-Pacific region.

In 2017-18, fully 19.7% of Australian ODA will be spent on 'aid for trade', including supporting developing countries to focus on trade and investment policy, trade facilitation, global value chains, infrastructure, private sector development, economic empowerment of women, knowledge and skills development, agriculture and services. Further information on

recent developments in Australian aid policy can be found in *Strategy for Australia's Aid Investments in Private Sector Development* (May 2016) and the *Ministerial Statement on Engaging the Private Sector in Aid and Development* (August 2015).

Figure 8.6: Australian ODA by investment category



Source: 2017-18 Australian Aid Summary

Australia's military cooperation program

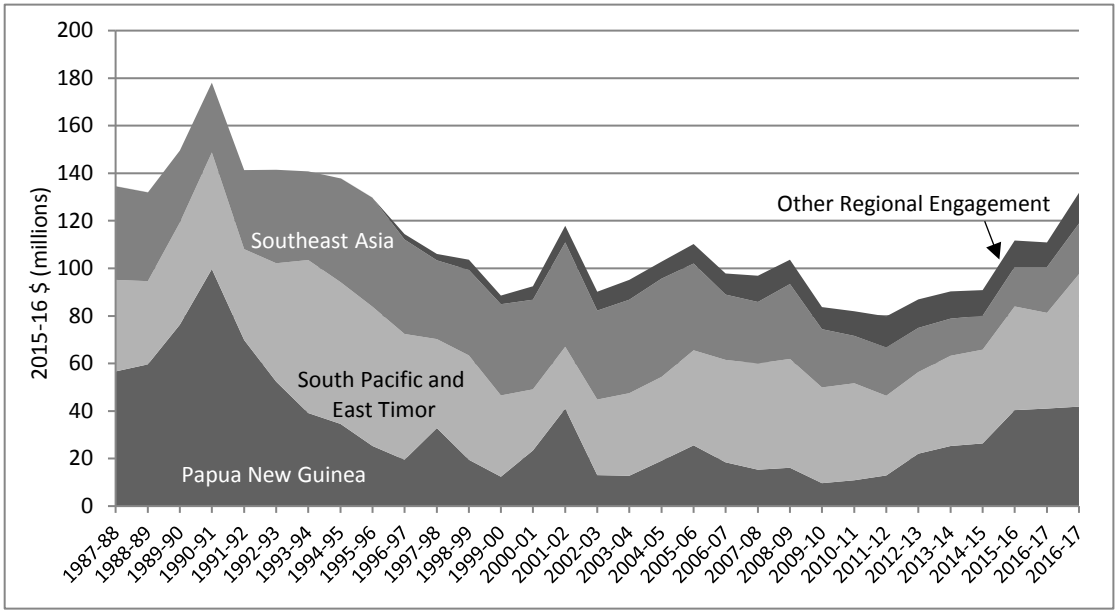
Allied to Australia's international aid effort is the $107 million a year Defence Cooperation Program run and funded by the Department of Defence. According to the 2015-16 Portfolio Budget Statements, the objective of the Defence Cooperation Program 'is to maximise Australia's security through developing close and enduring links with partners that supports their capacity to protect their sovereignty, work effectively with the ADF and contribute to regional security'. The program:

- promotes the capacity of partners
- improves Australia's capacity to work with partners in response to common security challenges
- builds strong people-to-people links with regional militaries at the tactical, operational and strategic levels.

In practice, the Defence Cooperation Program provides assistance to regional security forces through military advisors, training initiatives, bilateral exercises, capacity building, and equipment and infrastructure projects. A long-standing part of the Defence Cooperation Program is the Pacific Patrol Boat (PPB) Program, which provided 22 Patrol Boats along with ongoing training and technical support to 12 Pacific island countries. These vessels allow the countries involved in the Program to independently police their maritime territories. A contract for 22 new vessels was signed in May 2016 at a cost of $305 million.

Figure 8.7 sets out the spending on the Defence Cooperation Program over the past 20-odd years. For ease of display, individual country spending has been aggregated into convenient categories. Country specific data for 2016-17 and 2017-18 appears in Table 8.3.

Figure 8.7: Defence Cooperation Program—1987 to 2016



Source: Defence Budget Papers and Annual Reports

Table 8.3: Defence Cooperation Program—2016-17 and 2017-18

Country	2016-17 ($'000) estimated	2017-18 ($'000) budget	Country	2016-17 ($'000) estimated	2017-18 ($'000) budget
South Pacific			**Southeast Asia**		
Timor-Leste	4,381	5,975	Singapore	-	-
Vanuatu	740	858	Philippines	3,241	3,182
Solomon Islands	537	954	Thailand	2,993	3,182
Tonga	2,165	2,700	Malaysia	3,429	4,426
Samoa	139	238	Indonesia	5,238	5,462
Cook Islands	197	276	Vietnam	2,322	2,636
Fiji	2,254	8,487	Cambodia and Laos	1,322	1,664
Marshall Islands	366	406	Brunei	124	328
Micronesia	202	207	Myanmar	317	398
Tuvalu	345	350	***Sub-total***	**18,925**	**21,380**
Kiribati	291	427	Other regional activities	5,534	8,196
Palau	456	629	Defence International Training Centre	4,575	4,625
DCP Support	3,894	5,389	**Total**	**108,901**	**131,722**
Pacific Patrol Boats	23,660	28,818			
Sub-total	**39,628**	**55,714**			
Papua New Guinea	40,239	41,808			

Note: Singapore is considered part of Defence Engagement from 2016-17 onwards *Source: 2017-18 PBS.*

Chapter 9 – New Zealand Defence Economics

This chapter examines New Zealand's defence economics. What follows is divided into three parts. The first quantifies New Zealand defence spending and sketches the size and shape of the New Zealand Defence Force (NZDF). The second examines the sustainability of the NZDF and affordability of the investment plans announced in the June 2016 New Zealand Defence White Paper (NZDWP). The third discusses New Zealand defence policy from an economic perspective.

Defence spending

Estimates of New Zealand defence expenditure varies widely. Table 9.1 provides recent estimates from a range of authoritative sources. As best we can determine, all the figures are wrong—at least in terms of any usual or sensible definition of defence expenditure. The problem arises because New Zealand takes a particularly purist (and easily misunderstood) approach to financial accounting and reporting.

Table 9.1: Recent estimates of NZ defence expenditure, NZ$ (billion)

	International Institute for Strategic Studies (IISS)	Stockholm International Peace Research Institute (SIPRI)	Australian Defence Intelligence Organisation (DIO)	New Zealand Defence Force Annual Report
2014	3.40	2.84	3.70	2.25
2015	3.45	3.10	-	2.33

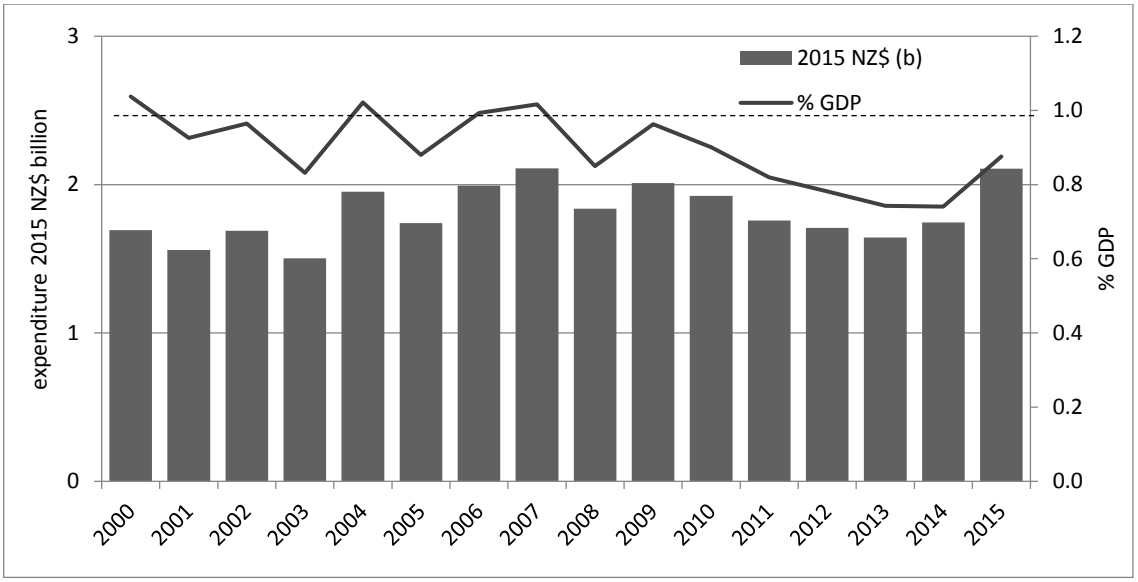
Sources: IISS The Military Balance 2015 & 2016, SIPRI Defence Expenditure Database, DIO Defence Economic Trends in the Asia-Pacific 2015, NZDF Annual Reports 2015.

It takes a little work to extract an accurate measure of New Zealand defence spending from publicly available information. Since few readers are likely to have an interest in the arcane subtleties of New Zealand government accounting, the details have been relegated to an appendix. But the bottom line is easy to understand: New Zealand spends a lot less than the usual sources indicate. Figure 9.1 plots real defence expenditure and GDP share from the start of the century onwards. Note that spending has rarely exceeded NZ$2 billion and GDP share has only breached 1% on three occasions over the past 16 years. In comparison, the most recent estimates from IISS, SIPRI and DIO are 1.4%, 1.2% and 1.6% respectively.

At the prevailing exchange rate, NZ$2 billion is worth around US$1.4 billion, so it's not surprising that New Zealand fields a relatively modest defence force of only 8,954 permanent uniformed personnel plus a full-time civilian component of 2,760. There's also a part-time reserve force of around 2,216 plus around 100 civilians in the separate New Zealand Ministry of Defence (NZ MoD). Compared with Australia, New Zealand has about the same ratio of civilian personnel to permanent uniformed personnel, but a proportionally smaller reserve force (25% versus 32% of the size of the permanent force). In terms of defence spending per permanent member, New Zealand spends $234,532 per head, compared with Australia's $547,214. Although different wage levels and purchasing power probably play a role, a key driver of the disparity is that Australia maintains a relatively larger

proportion of advanced equipment and capabilities in its order-of-battle. The main force elements of the NZDF are listed in Table 9.2.

Figure 9.1: Real NZ defence expenditure and GDP share, 2000 to 2015



Source: see Appendix. 2015 = 2014-15 etc.

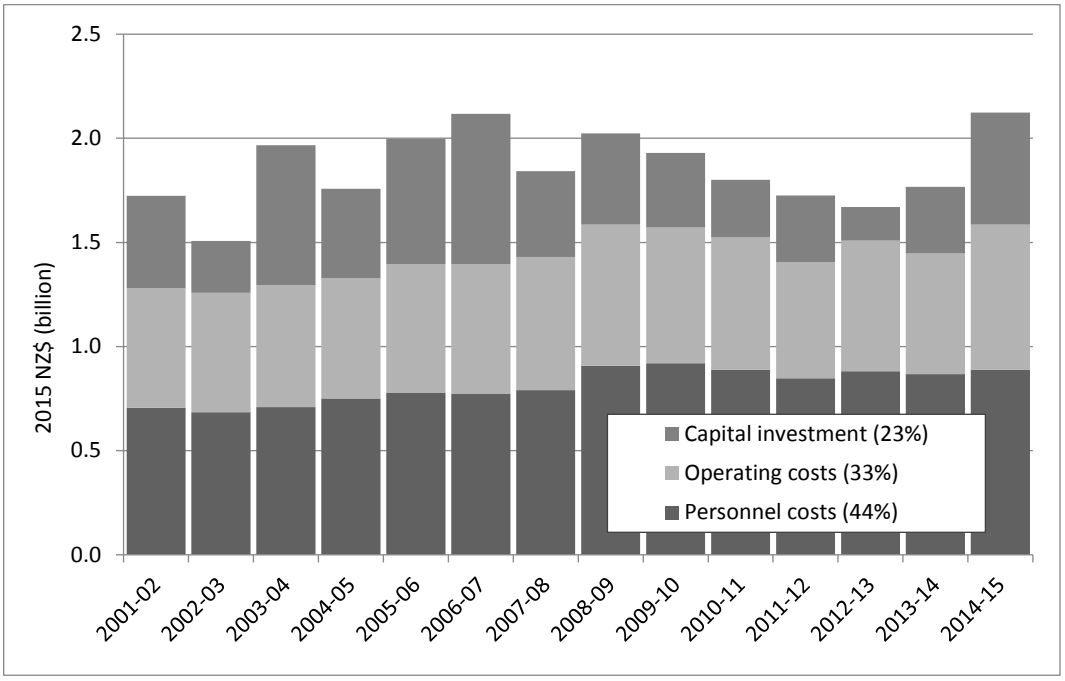
Table 2: NZ Defence Force at a glance, circa 2015

	Royal NZ Navy	NZ Army	Royal NZ Air Force
Personnel	2,132 permanent 438 reserve 98 civilian	4,584 permanent 1,671 reserve 427 civilian	2,403 permanent 212 reserve 270 civilian
Key Assets	2 frigates 1 oiler 1 landing ship 2 offshore PV 4 inshore PV 1 dive tender 1 survey team 1 dive team 1 mine counter team	2 infantry battalions 1 light armoured regt. 1 field regt. 1 signal regt. 1 engineer regt. 1 combat support regt. 1 health battalion 1 military police unit 1 SAS regt.	10 SH-2G helicopters 6 P-3 Orion 5 C-130H Hercules 2 Boeing 757 8 NH90 helicopters 5 A109 light helicopters 4 B200 11 Beechcraft T-6C

Source: 2016 NZ Defence White Paper

Over the past fourteen years (the period for which data is available), the NZDF has spent 44% of its budget on people, 33% on operating activities and only 23% on capital investment (see Figure 9.2). In comparison, the most recent Australian defence budget was divided into 36% personnel, 31% operating and 33% investment. The lower proportion spent on investment by New Zealand is consistent with the earlier observation about the relatively less advanced equipment used by the NZDF compared with the Australian Defence Force (ADF).

Figure 9.2: NZDF personnel, operating and investment expenditure, 2002 to 2015



Source: see Appendix.

Sustainability and Affordability

The 2016 NZDWP includes a NZ$20 billion, 15-year investment plan for the NZDF. Although new capability is planned in several areas, it appears that most of the money will be used to replace aging assets, such as C-130 transport aircraft, Anzac frigates and P-3 maritime patrol aircraft. Given that the NZDF only spent NZ$6.2 billion on capital investment over the past 15 years, the plan entails a more than three-fold increase in the value of annual equipment purchases.

With so much money needed to address the looming 'block obsolescence' of a range of key assets, it's clear that the NZDF is not sustainable in its present form without additional funds. And, even when the present wave of investment subsides, the higher operating costs of the new equipment will increase the long-term cost of maintaining the NZDF.

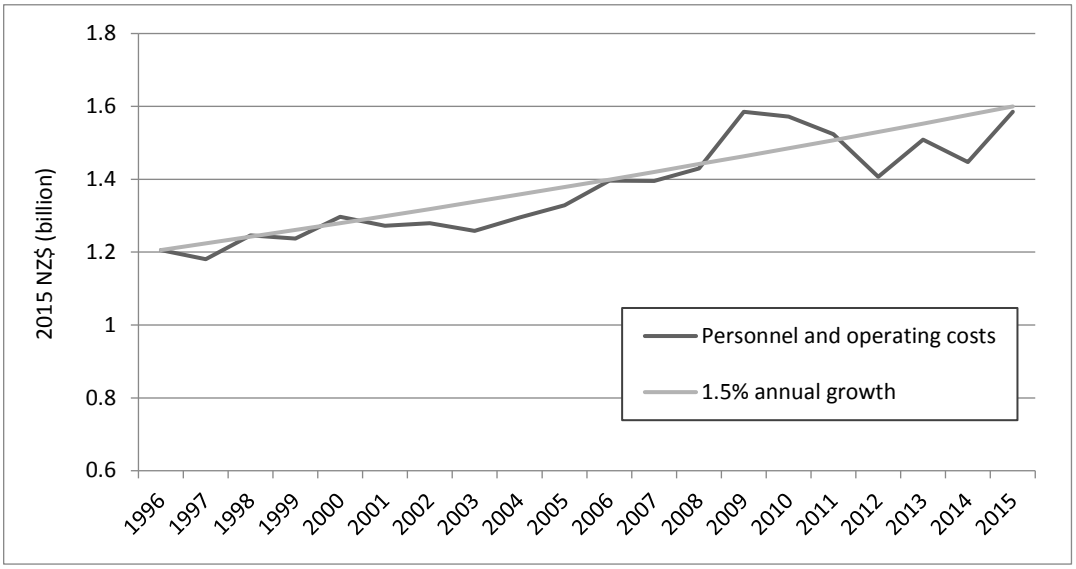
The broad trend, established over decades internationally, is that the cost of acquiring and operating each successive generation of equipment outpaces inflation by roughly 3% per annum. The resulting budgetary pressure has seen the size and scope of defence forces slowly decline around the globe. It's been a long time since the United States dreamt of a 600-vessel navy, and even longer since Australia operated an aircraft carrier. Without the

promised injection of investment funds, one or more of the aging major NZDF capabilities would share the fate of the RNZAF's fast jet capability.

It's impossible to say whether the promised NZ$20 billion will be adequate for the task—a lot depends on specific but yet-to-be-made decisions about replacement assets, and forex movements. The best that can be said is that the scale of funding appears commensurate with the scale of the recapitalisation planned. So, the question becomes; will the funding be forthcoming?

An indicative cost for the White Paper plan can be estimated by extrapolating historical trends in personnel and operating costs and adding the NZ$20 billion investment budget. Over the past twenty years, personnel and operating costs have increased by around NZ$199 million per decade, consistent with 1.5% annual real growth (Figure 9.3). But because the sophistication of new capabilities is likely to grow, the 1.5% figure arguably represents the minimum real growth to be expected. For modelling purposes, we'll assume that the upper limit is reflected by 2.5% growth (broadly consistent with US and Australian experience with maintaining a modern defence force).

Figure 9.3: NZDF personnel and operating expenditure, 1995 to 2015



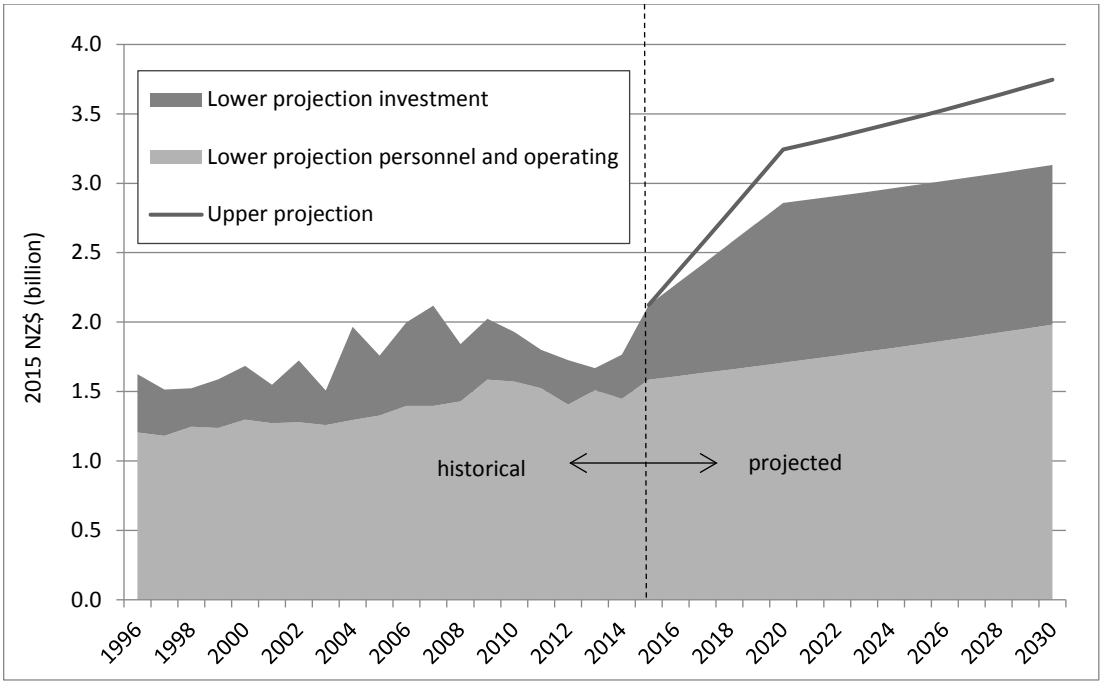
Source: NZDF Annual Reports and NZ Parliamentary Library Background Note 2005/1.

The impact of the NZ$20 billion investment budget depends on both the timing of the expenditure and whether the figure represents real 2015 dollars or out-turned dollars, including anticipated inflation. Politicians tend to favour the latter because it boosts the apparent size of announcements. In the absence of further detail, we assume that the investment will ramp up linearly over the next five years and then remain constant for the subsequent ten. If the NZ$20 billion figure represents real 2015 dollars, investment will rise to NZ$1.4 billion in 2020 (as measured in 2015 NZ$) and remain constant thereafter. If out-turning is assumed, the calculated amount reduces to NZ$1.15 billion (as measured in 2015 NZ$), based on 2.5% inflation.

Combining the two estimates we have for each component of the budget allows an upper and lower projection of what's required to deliver the 2016 NZ Defence White Paper. Figure

9.4 shows the details of the lower projection and the total for the upper projection, historical data has been included for comparison.

Figure 9.4: Projected funding needed to deliver 2016 NZ Defence White Paper plan

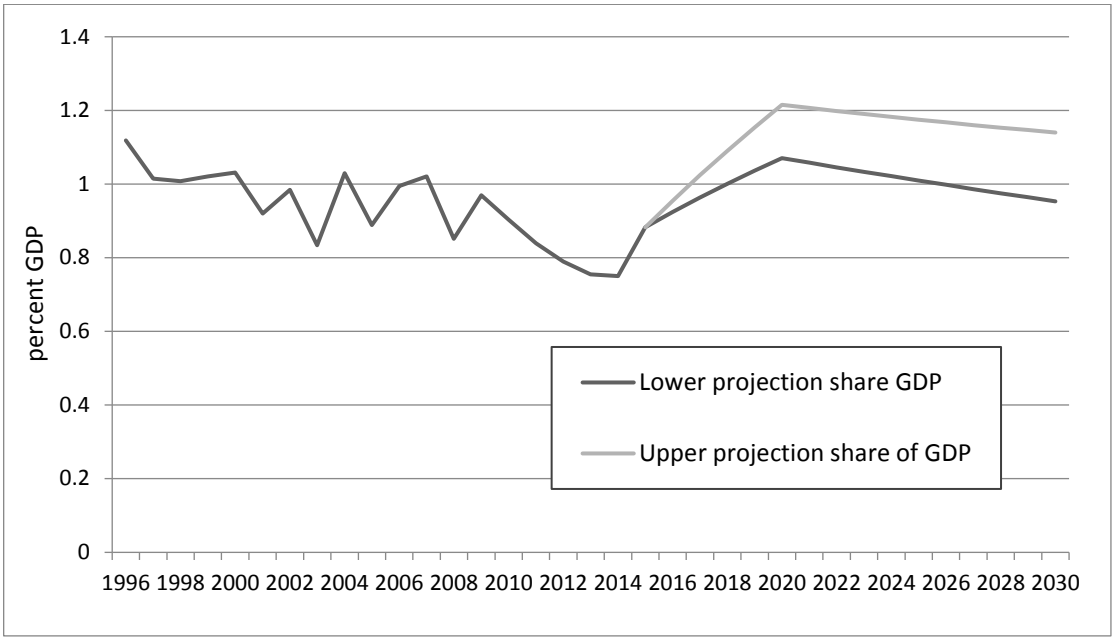


As expected, the planned package of investment results in a substantial increase to defence expenditure. In terms of our specific modelling, the real increase over 15 years is between 47% and 76% of the 2014-15 spending level.

The NZ Treasury 2013 report on long-term fiscal affordability, *Affording our Future*, assumed that real GDP growth will be 'consistent with historical trends' and will average 2.1% between 2013 and 2060. Using that assumption, it's possible to estimate the future GDP share for our lower and upper projections. The results appear in Figure 9.5. As shown, even with the upper projection, the impost on NZ government finances is modest in terms of GDP share.

Like most other developed economies, New Zealand will face mounting fiscal pressures due to growing health and pension expenditure. Nevertheless, peak defence expenditure of between 1.1% and 1.2% is modest by international standards and should be manageable—especially give the country's low net debt of less than 30% of GDP.

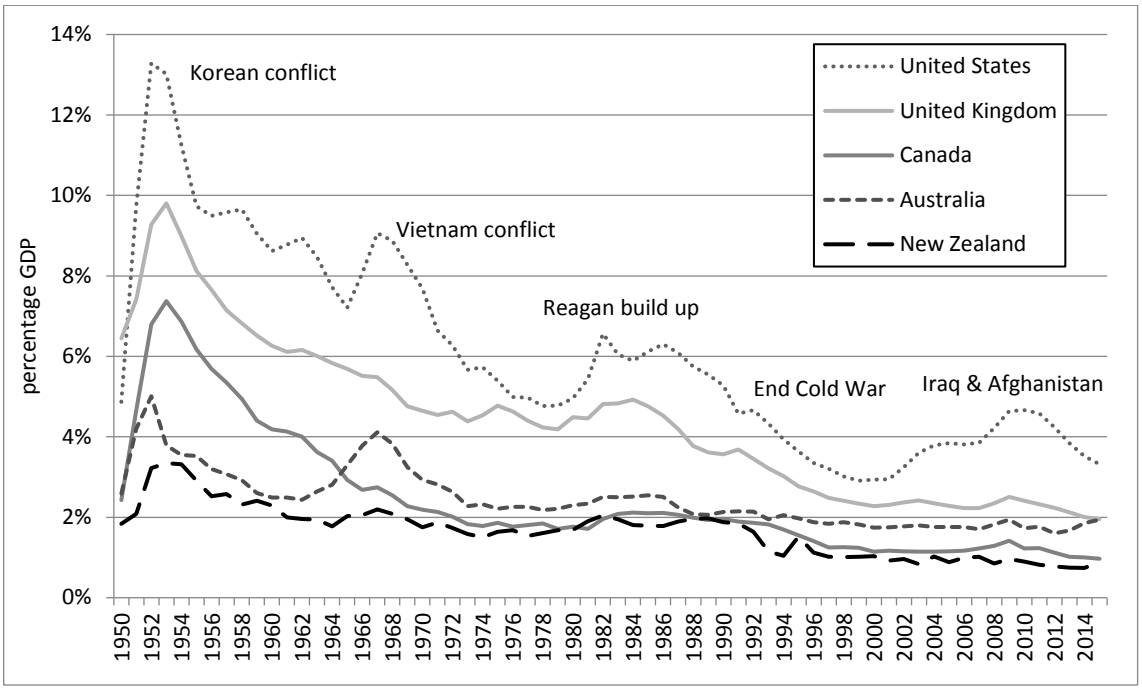
Figure 9.5: Projected GDP share needed to deliver 2016 NZ Defence White Paper plan



The economics of New Zealand's defence and strategy

Economics predicts that the smaller countries in an alliance or security partnership will contribute disproportionately less to the common defence than larger countries. The post-WWII record of the so-called 'five-eyes' community starkly bears out this prediction in times of both conflict and peace; see Figure 9.6.

Figure 9.6: GDP share for Australia, Canada, New Zealand, United Kingdom, and United States



Source: SIPRI defence expenditure database, ASPI Cost of Defence 2016 and the Appendix to this paper

As the smaller members of the partnership, Australia, Canada and New Zealand free-rode on the efforts of the United Kingdom and United States during the Cold War. In the post-Cold War era, Canada and the United Kingdom have become all but irrelevant to Asia-Pacific security, leaving Australia and New Zealand to free-ride on the efforts of the United States. In terms of the stability of smaller nations in the South Pacific, about which the United States cares very little, New Zealand free-rides on Australia's efforts.

The logic of free-riding is compelling. Smaller members of partnerships have little hope of making a difference—they can unilaterally increase their costs but it will make little difference to their security. Accordingly, smaller nations tend to do as little as the sufferance of their larger partners will permit, or only as much as their unique interests require. For example, Australia's defence effort through the 1980s and 90s was in large part motivated by the (not unfounded) fear that the United States might not support it in a conflict with Indonesia.

Contemporary events continue to confirm the cascading pattern of free-riding. While the United States runs the gauntlet in freedom-of-navigation exercises in the South China Sea, Australia expresses its support but declines participation, and New Zealand looks at its shoes. The same descending hierarchy applies the three countries' public positions on China issues more generally. That was demonstrated, for example, by the silence in Wellington following the Chinese announcement of an Air Defence Identification Zone in the East China Sea.

The question for Australia and New Zealand, along with other regional countries, is how much confidence can be had that the United States will continue to identify strategic stability in the Western Pacific as a core interest? In the age of Donald Trump, the answer is not as clear as it once appeared.

Conclusion

New Zealand's defence effort is smaller than many people believe and, even with the boost from the 2016 White Paper, it will remain proportionately smaller than its neighbour Australia.

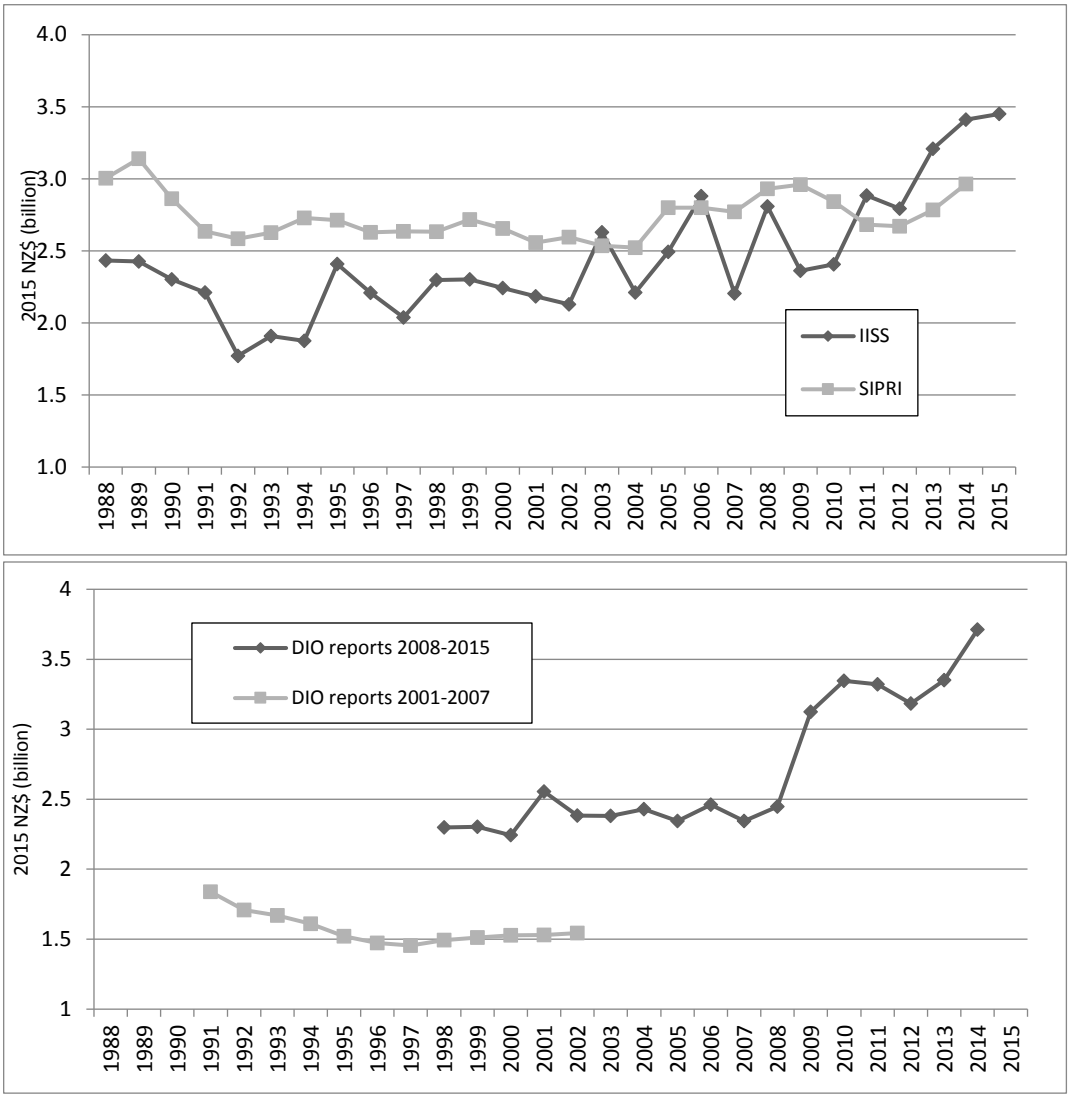
On the bright side, there's no economic reason why New Zealand can't afford to deliver the modest plans set out in the 2016 Defence White Paper. If the plans fall by the wayside, it will be because domestic political support has been lost.

Appendix: Understanding New Zealand defence expenditure

The extent of confusion surrounding New Zealand defence expenditure can be gauged from Figure 9.A.1, which shows the time-series for New Zealand defence expenditure from the International Institute for Strategic Studies (IISS), the Stockholm International Peace Research Institute (SIPRI) and the Australian government's Defence Intelligence Organisation (DIO). The difference between the series cannot be accounted for by the minor differences in definition adopted by the sources.

The two incompatible DIO time-series understate the degree of confusion. Over the past 16 years, DIO has published 13 editions of its *Defence Economic Trends in the Asia-Pacific* report. Over that time, as many as five different figures have been reported for a single year. The two DIO series in Figure 9.A.1 simplify the picture by displaying the broad disjuncture between indicative pre-2007 and post-2007 reporting. Table 9.A.1 presents the raw nominal figures from the three sources.

Figure 9.A.1: Estimated real New Zealand defence expenditure 1988 to 2015



Sources: Real expenditure calculated using NZ Consumer Price Index (CPI).

Table 9.A.1: Nominal New Zealand defence spending as reported by IISS, SIPRI and DIO

	IISS CY $b	SIPRI FY $b	SIPRI CY $b	DIO 2015	DIO 2014	DIO 2013	DIO 2011	DIO 2010	DIO 2009	DIO 2008	DIO 2007	DIO 2004	DIO 2003	DIO 2002	DIO 2001	DIO 2000
1988	1.3	1.769	1.605													
1989	1.37	1.794	1.773													
1990	1.38	1.752	1.715													
1991	1.36	1.677	1.621												1.09	1.13
1992	1.1	1.564	1.604											1.13	1.13	1.06
1993	1.2	1.644	1.652										1.05	1.05	1.05	0.97
1994	1.2	1.66	1.747									1.03	1.03	1.03	1.03	0.97
1995	1.6	1.834	1.802									1.01	1.01	1.01	1.01	1.06
1996	1.5	1.769	1.786									1.00	1.00	1.00	1.00	1.10
1997	1.4	1.803	1.811								1.00	1.00	1.00	1.00	1.00	1.10
1998	1.6	1.819	1.834							1.60	1.04	1.04	1.04	1.04	1.04	1.07
1999	1.6	1.848	1.89						1.60	1.60	1.05	1.05	1.05	1.05	1.05	1.08
2000	1.6	1.931	1.895					1.60	1.60	1.60	1.09	1.09	1.09	1.09	1.09	
2001	1.6	1.859	1.872				1.90	1.87	1.87	1.60	1.12	1.12	1.12	1.12		
2002	1.6	1.885	1.951				1.80	1.79	1.79	1.60	1.16	1.16	1.16			
2003	2.01	2.017	1.939			1.80	1.80	1.82	1.82	2.00	1.32	1.18				
2004	1.73	1.861	1.974		1.90	2.30	2.30	2.33	1.60	1.70	1.42					
2005	2.01	2.087	2.258	2.00	2.00	1.90	1.90	1.89	2.33	2.01	1.60					
2006	2.4	2.428	2.332	2.00	2.00	2.00	2.00	2.05	1.89	2.09	1.78					
2007	1.88	2.236	2.364	2.20	2.20	2.00	2.00	2.00	2.05	2.30						
2008	2.49	2.491	2.598	2.80	2.80	2.20	2.20	2.17	2.00							
2009	2.14	2.706	2.68	3.20	3.20	2.80	2.80	2.83								
2010	2.23	2.654	2.633	3.10	3.10	3.10	3.10									
2011	2.78	2.612	2.586	3.20	3.20	3.20										
2012	2.72	2.559	2.602	3.10	3.10	3.10										
2013	3.16	2.646	2.743	3.30	3.30											
2014	3.4	2.841	2.956	3.70												
2015	3.45	3.07														

Source: IISS, SIPRI, DIO.

The easiest way to understand how such disparate estimates can arise is to analyse the reported expenditure for 2014-15. In doing so, it's necessary to combine the reported expenditure of the New Zealand Defence Force (NZDF) and the New Zealand Ministry of Defence (NZ MoD).

The figures in Table 9.A.2 represent the estimated accrual consumption of resources over the year rather than the actual expenditure of cash. For example, personnel expenses include the accumulation of leave entitlements, and operating expenses include the consumption of inventory that may have been purchased in a previous reporting period. Similarly, depreciation represents the diminished value of aging assets, such as building and military equipment, according to some arbitrary accounting rule. Most perversely, the capital charge is levied on the NZDF and NZ MoD to account for the opportunity cost of the public assets they use. But because they are funded by the taxpayer, the two agencies are each appropriated funds for the capital charge which they promptly pay back to the government.

Table 9.A.2: Reported New Zealand defence expenditure 2014-15

	NZDF	NZ MoD	Total
Personnel expenses	902,464	7,444	909,908
Operating expenses	623,019	3,778	626,797
Depreciation	365,004	363	365,367
Finance costs	304		304
Capital charge	435,663	237	435,900
Total	**2,326,454**	**11,822**	**2,338,276**

Source: 2014-15 NZDF Annual Report and 2014-15 NZ MoD Annual Report

Although the accrual representation arguably captures the true economic cost of activities, it is at odds with the cash based approached routinely used in international comparisons—and the differences can be substantial. In any given year, there's no reason for personnel and operating expenses to equate with the cash spent on personnel and operating activities. More importantly, neither the expenses hypothecated to depreciation nor the capital charge represent cash expenditure of any sort. To make matters worse, the focus on accrual expenses ignores investment in capital equipment, land and buildings. In 2014-15 the NZDF reported capital expenditure of NZ$532 million and the NZ MoD reported capital expenditure of NZ$386 million. Adding the total expenditure from Table 9.A.1 to one or both investment figures results in estimates of around NZ$3 billion or more, which are broadly commensurate with the figures from IISS, SIPRI and DIO.

However, adding accrual expenses to capital investment results in double counting because capital investment is largely funded through the funds appropriated for depreciation. In addition, the capital equipment purchases undertaken by the NZ MoD are funded through the NZDF investment budget, thereby introducing a second layer of double counting if the

two figures are combined. All this is above and beyond the NZ$436 million capital charge, which is an entirely paperwork transfer that nets to zero. The bottom line is that the recent figures reported by IISS, SIPRI and DIO substantially overstate the amount New Zealand spends on defence.

No amount of adjustments to accrual expenses will reveal how much is being spent. Fortunately, the NZDF and NZ MoD annual reports include cash flow statements that track the movement of funds into and out of the agencies. Defence expenditure can be estimated by calculating either the net flow of funds from government sources (including bank movements and capital sales) or the outwards flow of funds to non-government parties. As Table 9.A.3 shows, by construction, the two approaches yield the same result. Note that third-party operating revenues have been subtracted from the external transactions to net out the churn of funds which delivers no capability to the NZDF, for example, the sale of fuel to third-party navies.

Table 9.A.3: Reported New Zealand cash defence expenditure 2014-15

	NZDF	NZ MoD	Total
Government transactions			
Receipts from Crown	2,525,780	11,165	2,536,945
Capital injection	20,100		20,100
Capital receipts	3,515		3,515
Interest revenue	14		14
Change to money at bank	33,602	854	34,456
Goods and services tax	2,296	-102	2,194
Repayment of surplus	-54,134	-22	-54,156
Capital charge	-435,663	-237	-435,900
Total	**2,095,510**	**11,658**	**2,107,168**
External transactions			0
Payments to employees	881,543	7,682	889,225
Payments to suppliers	692,065	3,966	696,031
Purchase of tangible assets	527,644	482	528,126
Purchase of intangible assets	10,339	2	10,341
Receipts from other	-16,081	-474	-16,555
Total	**2,095,510**	**11,658**	**2,107,168**

Source: 2014-15 NZDF Annual Report and 2014-15 NZ MoD Annual Report.

Using the methodology of Table 9.A.3, New Zealand defence expenditure can be estimated for those years where annual reports are available (the early 2000s). Another decade of data

is available from a 2005 New Zealand Parliamentary Library publication, albeit without the small contributions from 'receipts from other' or expenditure by the NZ MoD. The same source also includes an informative discussion of the difference between accrual and cash reporting in a New Zealand context. In addition to the accrual and cash figures available from the NZDF and NZ MoD annual reports, the New Zealand Treasury and Statistics New Zealand (the official government statistics agency) also provide historical time series. The coverage and methodology of these two sources are detailed in Table 9.A.4.

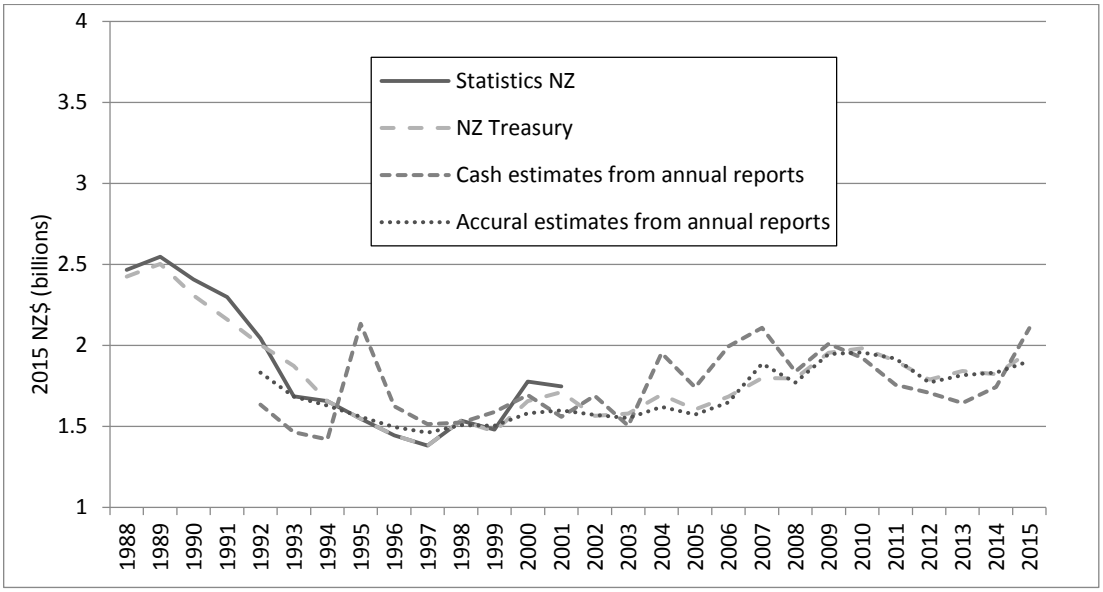
Table 9.A.4: Official historical defence expenditure statistics

	NZ Treasury		**Statistics NZ**	
Source	Fiscal Time Series Historical Fiscal Indicators 1972-2016		Long-term data series-Government	
Years covered	1972 to 2015		1880 to 2002	
Methodology	1972 to 1993	Cash	1880 to 1992	Cash
	1994 to 2015	Accrual net of Capital Charge	1993 to 2002	Accrual net of Capital Charge

Note: 2010 = 2009-10 etc.

For the period 1971-72 to1988-89, the *NZ Treasury* and *Statistics NZ* figures agree to within around 2%. In all but one instance, the *Statistics NZ* figures are higher throughout the period—perhaps due to the inclusion of NZ MoD expenditure. For the period 1989-90 to 2014-15, there are significant but not substantial differences between the *NZ Treasury* and *Statistics NZ* figures, and similarly between those two series and the accrual figures (excluding Capital Charge) taken from the annual reports. Figure 9.A.2 displays the *NZ Treasury* and *Statistics NZ* figures alongside the accrual and cash figures from the annual reports.

Figure 9.A.2: Comparison of various estimates of NZ defence expenditure 1988 to 2015



Two things are noteworthy in Figure 9.A.2. First, apart from the pre-2008 DIO series, all the estimates fall substantially below those from IISS, SIPRI and DIO in Figure 9.A.1. Second, and as expected, there are significant differences between the accrual and cash figures. The limited concordance between cash and accrual figures reflects the accidental compensation from including depreciation and excluding capital investment in the accrual numbers. For the reasons explained already, the cash figures are a better representation of actual expenditure than the accrual figures. Note that the volatility in the cash figures reflects the lumpy nature of capital investment rather than any error in the data.

Our best estimate of NZ defence expenditure from 1980 to 1915 is listed in Table 9.A.5 and plotted in Figure 9.A.3, where:

- *Statistics NZ* data has been used for defence expenditure prior to 1991-92.
- Cash figures for the NZDF have been used for the period 1991-92 to 1998-99 (which probably results in a roughly 0.5% underestimation due to the exclusion of NZ MoD expenditure).
- Cash figures for the NZDF and NZ MoD have been used for the period 1999-00 to 2014-15.
- Real dollars have been calculated using the NZ Consumer Price Index (CPI) as given by the NZ Reserve Bank for the period 1987-88 to 2014-15, and as given by *NZ Statistics* for prior years.
- Defence burden (% GDP) has been calculated using nominal GDP as given by NZ Treasury for the period 1971-72 to 2014-15. Prior years' figures are due to *NZ Statistics.*
- 1996 = 1995-96 etc.

Figure 9.A.3: Long-term NZ defence expenditure 1880 to 2015

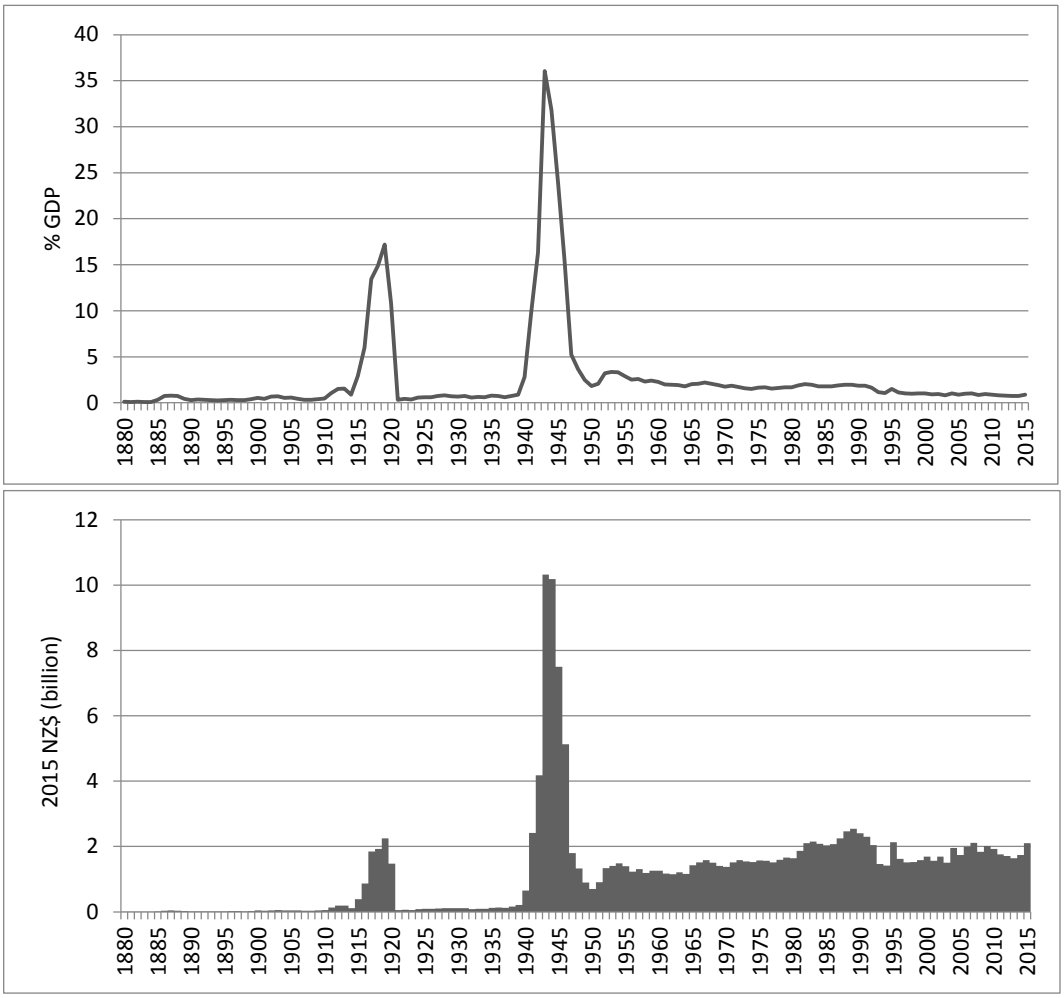


Table 9.A.5: Best estimate of NZ defence expenditure 1880 to 2015

Year	Nom $m	Real $m	% GDP	Year	Nom $m	Real $m	% GDP	Year	Nom $m	Real $m	% GDP	Year	Nom $m	Real $m	% GDP
1880	0.07	5	0.11	1917	29.80	1,844	13.46	1954	56	1,488	3.32	1991	1,404	2,299	1.85
1881	0.05	4	0.09	1918	35.00	1,925	14.90	1955	55	1,398	2.91	1992	1,263	2,044	1.64
1882	0.07	5	0.11	1919	44.00	2,253	17.21	1956	50	1,235	2.52	1993	916	1,464	1.15
1883	0.06	4	0.09	1920	32.70	1,472	10.79	1957	54	1,305	2.58	1994	899	1,419	1.04
1884	0.05	4	0.08	1921	1.20	52	0.34	1958	52	1,195	2.31	1995	1,397	2,134	1.52
1885	0.20	16	0.33	1922	1.40	67	0.44	1959	56	1,260	2.41	1996	1,091	1,625	1.12
1886	0.44	35	0.75	1923	1.00	50	0.36	1960	57	1,259	2.29	1997	1,037	1,513	1.01
1887	0.46	40	0.79	1924	1.70	81	0.56	1961	54	1,173	2.00	1998	1,056	1,523	1.01
1888	0.43	37	0.74	1925	1.90	91	0.60	1962	55	1,156	1.96	1999	1,105	1,588	1.02
1889	0.25	22	0.42	1926	2.00	96	0.61	1963	58	1,215	1.94	2000	1,189	1,694	1.04
1890	0.20	18	0.31	1927	2.20	105	0.74	1964	58	1,166	1.78	2001	1,131	1,559	0.93
1891	0.22	20	0.35	1928	2.40	115	0.82	1965	73	1,425	2.03	2002	1,255	1,690	0.96
1892	0.21	19	0.32	1929	2.30	110	0.71	1966	80	1,518	2.06	2003	1,142	1,503	0.83
1893	0.18	17	0.28	1930	2.20	109	0.68	1967	89	1,585	2.19	1996	1,091	1,625	1.12
1894	0.16	15	0.26	1931	2.20	117	0.76	1968	87	1,504	2.08	1997	1,037	1,513	1.01
1895	0.17	16	0.28	1932	1.40	83	0.58	1969	86	1,408	1.95	1998	1,056	1,523	1.01
1896	0.22	20	0.34	1933	1.50	93	0.66	1970	90	1,373	1.75	1999	1,105	1,588	1.02
1897	0.21	20	0.31	1934	1.60	95	0.63	1971	109	1,514	1.87	2000	1,189	1,694	1.04
1898	0.21	19	0.30	1935	2.10	120	0.77	1972	121	1,579	1.73	2001	1,131	1,559	0.93
1899	0.29	28	0.41	1936	2.30	131	0.73	1973	128	1,543	1.58	2002	1,255	1,690	0.96
1900	0.42	40	0.56	1937	2.40	127	0.62	1974	141	1,523	1.50	2003	1,142	1,503	0.83
1901	0.36	32	0.44	1938	3.20	164	0.75	1975	167	1,578	1.63	2004	1,510	1,952	1.02
1902	0.55	48	0.68	1939	4.20	208	0.90	1976	194	1,562	1.68	2005	1,382	1,740	0.88
1903	0.64	55	0.71	1940	14	654	2.80	1977	215	1,519	1.54	2006	1,638	1,994	0.99
1904	0.53	46	0.55	1941	54	2,417	9.91	1978	252	1,594	1.61	2007	1,779	2,109	1.02
1905	0.55	47	0.56	1942	96	4,185	16.33	1979	300	1,666	1.68	2008	1,599	1,838	0.85
1906	0.47	40	0.42	1943	243	10,328	36.05	1980	346	1,642	1.68	2009	1,806	2,010	0.96
1907	0.42	35	0.33	1944	240	10,188	31.81	1981	456	1,870	1.90	2010	1,760	1,923	0.90
1908	0.47	39	0.34	1945	182	7,500	23.77	1982	594	2,099	2.05	2011	1,670	1,758	0.82
1909	0.51	42	0.40	1946	124	5,128	15.44	1983	652	2,147	1.95	2012	1,659	1,708	0.78
1910	0.60	49	0.45	1947	45	1,798	5.22	1984	673	2,087	1.81	2013	1,610	1,644	0.74
1911	1.60	129	1.05	1948	36	1,329	3.68	1985	756	2,035	1.79	2014	1,733	1,744	0.74
1912	2.40	188	1.51	1949	25	895	2.49	1986	871	2,068	1.78	2015	2,107	2,107	0.88
1913	2.50	191	1.56	1950	20	701	1.83	1987	1,096	2,248	1.89				
1914	1.50	113	0.89	1951	29	907	2.08	1988	1,279	2,466	1.96				
1915	5.50	389	2.92	1952	47	1,342	3.22	1989	1,391	2,547	1.97				
1916	12.80	864	6.00	1953	51	1,405	3.34	1990	1,410	2,408	1.88				

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Glossary

ADF	Australian Defence Force
AEW&C	Airborne Early Warning & Control
ANAO	Australian National Audit Office
APS	Australian Public Service
AWD	Air Warfare Destroyer
CDF	Chief of the Defence Force
CIOG	Chief Information Officer Group
CSP	Commercial Support Program
DAR	Defence Annual Report
DCP	Defence Capability Plan
DFRB	Defence Force Retirement and Death Benefits
DHA	Defence Housing Authority
DIO	Defence Intelligence Organisation
DMO	Defence Materiel Organisation
DRP	Defence Reform Program
DSG	Defence Support Group
DSTO	Defence Science and Technology Organisation
EWSP	Electronic Warfare Self Protection
FADT	Foreign Affairs Defence and Trade
FBT	Fringe Benefits Tax
FMA	*Financial Management and Accountability Act 1997*
GDP	Gross Domestic Product
GNI	Gross National Income
GST	Goods and services tax
IISS	International Institute for Strategic Studies
NZDF	New Zealand Defence Force
NPOC	Net Personnel and Operating Costs
OPA	Official Public Account
NZDWP	New Zealand Defence White Paper
NZ MoD	New Zealand Ministry of Defence
PAES	Portfolio Additional Estimates Statements
PBS	Portfolio Budget Statement

SES	Senior Executive Service
SIPRI	Stockholm International Peace Research Institute
WRA	Workplace Remuneration Arrangement

The Cost of Defence

ASPI Defence Budget Brief 2017–2018

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