Part 2. Defence Major Projects Report

Secretary's Foreword

I am pleased to present the 2017-18 Major Projects Report, which provides an update on 26 major Defence capability acquisition projects.

The 11th annual Major Projects Report provides transparency on the progress of some of Defence's most expensive and complex acquisition projects. It is a valuable tool to inform the Parliament and Australian public on Defence capability and related expenditure.

Throughout the 2017-18 financial year, Defence has made further progress on our reform agenda. Reform takes time, commitment and hard work. As a testament to this commitment and hard work, Defence has now implemented the majority of the recommendations from the First Principles Review. The Defence senior leadership is committed to One Defence — a more unified and integrated organisation that can deliver and sustain capability, and maintain the Australian Defence Force's capability edge.

Defence has achieved an increased number of project approvals under a tailored, risk-based approach to capability development. Our organisation's ability to continue to deliver capability and embrace reform is an indication of the improved culture of collaboration – within Defence, with central agency partners and with industry.

At 30 June 2018, Capability and Acquisition Sustainment Group was managing 198 major and minor capital equipment acquisition projects, with a total value of \$103.5 billion. The major capability projects within the 2017-18 Major Projects Report have a combined total approved budget of \$59.4 billion, and a total in-year budget of \$4.6 billion.

These are some of the most complex projects being undertaken, both in Australia and across the world. While most of these projects are performing well, this report identifies that a small number of specific projects have required an increased level of management and support through the Projects of Interest and Projects of Concern frameworks. These frameworks provide an escalation mechanism for increased management of capabilities under development for the Australian Defence Force. A project may be identified as a Project of Interest when scope, schedule or cost variances warrant heightened senior management attention.

The following significant project achievements, which supported the delivery of important capability for the Australian Government, the Australian Defence Force and regional partners, are particularly noteworthy:

- Joint Strike Fighter Australia has now accepted all eight Lot 10 aircraft planned for delivery in 2018. The first two Joint Strike Fighter aircraft arrived at RAAF Base Williamtown on 10 December 2018.
- Air Warfare Destroyer (AWD) The second AWD was commissioned as HMAS *Brisbane* on 27 October 2018, and the third AWD, NUSHIP *Sydney*, was launched in May 2018.
- Pacific Patrol Boat Replacement the first of Austal's 21 Guardian Class Patrol Boat was handed over to Papua New Guinea on 30 November 2018.
- Three EA-18G Growlers and the C-27J Spartan successfully participated in Exercise *Pitch Black* between 27 July and 17 August 2018 in Darwin.

The Vice Chief of the Defence Force, Chiefs of the Navy, Army and Air Force, Chief of Joint Capabilities, Chief Finance Officer, Chief Information Officer, and the major contractors involved in each project have reviewed the relevant project data and their views have been considered in finalising this report.

I would like to take the opportunity to thank the Auditor-General, Mr Grant Hehir, and his staff for their contribution to the report.

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Greg Moriarty Secretary Department of Defence

11 December 2018

Overview

Defence has continued to deliver the Integrated Investment Program through 2017–18, with the Government approving a total of \$21 billion of capital investment across major equipment, facilities, infrastructure, information and communications technology, and science and technology.

The Capability Life Cycle including Smart Buyer processes is maturing and there is greater integration of the interdependencies across the Integrated Investment Program. Permanent participation in the Investment Committee by the Department of the Prime Minister and Cabinet and the Department of Finance has strengthened Defence's capability submissions to Government.

In 2017-18 Defence managed 198 active major and minor capital equipment projects worth \$103.5 billion with a 2017–18 budget of \$6.9 billion. During this period Defence also managed 111 active Materiel Sustainment Agreement Product Schedules with an annual budget of \$5.6 billion. Twenty-five Major Acquisition Projects were closed in this period, with a total budget of 0.9 per cent less than that approved by the Government.

In this context, the Major Projects Report outlines 26 projects with a total budget of \$59.4 billion and a total in-year budget of \$4.6 billion. This accounts for 57.3 percent of the projects by total value.

Key achievements

In 2017-18 the 26 reported major projects and their contractors have worked together to progress delivery of important capability to the Australian Defence Force. There have been a number of key achievements for many projects including:

• The first additional KC-30A Multi-Role Tanker Transport aircraft, and initial spares and support equipment were delivered achieving Initial Operational Capability in April 2018.

- The Maritime Patrol and Response aircraft system including four P-8A aircraft, trained crews, Mobile Tactical Operational Centre, Mission Support System team, spares, and Ground Support Equipment achieved Initial Operational Capability one month ahead of schedule in January 2018.
- The Helicopter Aircrew Training System commenced Pilot and Aircrewman Trial Courses on schedule in January 2018, and the Aviation Warfare Officer Trial Course commenced on schedule in February 2018.
- Airservices Australia, under arrangements with Defence, signed both acquisition and support contracts with Thales in February 2018 for the Civil Military Air Management System.
- The submarine legacy projects have been combined into Collins Class Submarine Reliability and Sustainability project to create administrative efficiencies.

Entry and exit to the 2017-18 Major Projects Report

Of the 26 projects included in this report, 23 projects have carried over from last year's report.

Three projects are new inclusions:

- JP 2072 Phase 2B Battlespace Communications System
- SEA 3036 Phase 1 Pacific Patrol Boat Replacement
- SEA 1654 Phase 3 Maritime Operational Support Capability

Three projects were removed from the report having achieved Final Operating Capability:

- LAND 116 Phase 3 Bushmaster Protected Mobility Vehicle
- LAND 121 Phase 3A Overlander Vehicles (Light)
- AIR 9000 Phase 5C Additional Medium Lift Helicopters (Additional Chinooks)

AIR 87 Phase 2 Armed Reconnaissance Helicopter was also removed from the 2017-18 Major Projects Report, as it achieved Final Operating Capability with caveats. All caveats have now closed, and details of the status of each caveat can be found in the Secretary's Statement on pp. 135–137.

Appendix 1 lists all the projects that have been removed from the report since its inception, their reasons for their removal, and their expenditure to date at 30 June 2018.

For each project that has been removed from the report, the lessons learned are included at Appendix 2.

Defence's review of project performance

Cost

The Defence Chief Finance Officer provides overall financial assurance, on the actual cost and budget data of individual projects included in this report. Further, based on project manager assurance sign-off processes, Defence has ongoing confidence on whether individual projects will deliver the remaining intended scope within their approved project budgets.

When considering and approving budgets, the Government takes into account the estimated impact of inflation over the life of a project which is known as 'out-turning'. At the time of project approval, project managers estimate the impact of indices tendered (or estimated) for the life of the project. These estimates are built into the project budget as part of the out-turning process, which are revised as part of each budget review and update process.

The Department of Defence's appropriation is cash based. Accordingly, all financial data related to Defence's capital projects and capital programs provided within the Defence Portfolio Budget Statements, Portfolio Additional Estimates Statements, and Annual Report, are presented on a cash basis. For consistency across reports, Defence has reported its 2017-18 capital projects on a cash basis in the Major Projects Report. Defence manages all of its major projects as part of its Integrated Investment Program which represents a portfolio of projects across all of Defence's acquisition and sustainment activities. Adopting this approach allows for funding pressures and savings to be better managed across the entire IIP.

The total in-year budget (2017-18) for all the projects listed is \$4.6 billion and the total approved budget is \$59.4 billion. <u>Table 1</u> lists the 26 projects by total approved budget from highest to lowest.

These projects represent 13.1 per cent by number, of the projects in the Defence capital investment program and 57.4 per cent by value, so caution must be applied when extrapolating analysis to the entirety of Defence's acquisition effort.

Understanding Budget Variation

The planned risk-based returns to Government leading to project "budget variation" (outlined in Column B) includes activities such as follow-on Second Pass approvals, tranched or rolling approval processes that has been agreed by Government, or where projects have merged or transferred cost or scope to realise more efficient project management practices.

In some instances budget variation is due to unplanned cost and/or scope variation. Historically, Real Cost Increases to the project budgets are few.

<u>Table 2A</u> gives a summary of life-to-date budget approvals from Second Pass Approval to current budget including variables such as price indexation, foreign exchange and scope change impacts.

<u>Table 2B</u> and <u>Table 2C</u> provide a further detailed breakdown of the budget variance, to separate risk-based returns to Government from unplanned cost/scope variation. This is to provide a more detailed breakdown of the Department's performance in cost and scope management, and highlight the projects with unplanned cost and/or scope variation in the interests of transparency.

Project Number	Project Name	Project Name Abbreviation	2017-18 In-Year Budget \$m	Total Approved Project Budget \$m
AIR 6000 Phase 2A/2B	New Air Combat Capability	Joint Strike Fighter	1128.1	15504.0
SEA 4000 Phase 3	Air Warfare Destroyer Build	AWD Ships	522.8	9089.3
AIR 7000 Phase 2B	Maritime Patrol and Response Aircraft System (Boeing P-8A Poseidon)	P-8A Poseidon	546.0	5212.0
AIR 9000 Phase 2/4/6	Multi-Role Helicopter	MRH90 Helicopters	108.4	3771.0
AIR 5349 Phase 3	EA-18G Growler Airborne Electronic Attack Capability	Growler	206.1	3430.4
AIR 9000 Phase 8	Future Naval Aviation Combat System Helicopter	MH-60R Seahawk	243.6	3430.3
LAND 121 Phase 3B	Medium Heavy Capability, Field Vehicles, Modules and Trailers	Overlander Medium/Heavy	697.3	3428.9
JP 2048 Phase 4A/4B	Amphibious Ships (LHD)	LHD Ships	38.3	3091.7
LAND 121 Phase 4	Protected Mobility Vehicle - Light (PMV-L)	Hawkei	198.8	1952.0
AIR 8000 Phase 2	Battlefield Airlift – Caribou Replacement	Battlefield Airlifter	69.2	1433.3
SEA 1654 Phase 3	Maritime Operational Support Capability	MOSC	277.0	1066.8
AIR 5431 Phase 3	Civil Military Air Management System	CMATS	94.4	974.2
LAND 2072 Phase 2B	Battlespace Communications System	Battle Comms Sys Ph2B	145.6	920.1
AIR 7403 Phase 3	Additional KC-30A Multi-role Tanker Transport	Additional MRTT	149.4	887.8
SEA 1448 Phase 2B	ANZAC Anti-Ship Missile Defence	Anzac ASMD 2B	5.5	678.7
SEA 3036 Phase 1	Pacific Patrol Boat Replacement	PPB-R	27.7	501.2
JP 9000 Phase 7	Helicopter Aircrew Training System	HATS	93.4	481.5
JP 2072 Phase 2A	Battlespace Communications System	Battle Comm. Sys. (Land)	0.6	438.0
SEA 1442 Phase 4	Maritime Communications Modernisation	Maritime Comms	17.5	437.7
SEA 1439 Phase 4A	Collins Replacement Combat System	Collins RCS	1.0	450.5
SEA 1429 Phase 2	Replacement Heavyweight Torpedo	Hw Torpedo	8.8	427.6
JP 2008 Phase 5A	Indian Ocean Region UHF SATCOM	UHF SATCOM	17.4	419.9
SEA 1439 Phase 3	Collins Class Submarine Reliability and Sustainability	Collins R&S	6.9	411.7
SEA 1448 Phase 2A	ANZAC Anti-Ship Missile Defence	Anzac ASMD 2A	4.7	386.8
LAND 75 Phase 4	Battle Management System	BMS	30.6	367.9
JP 2048 Phase 3	Amphibious Watercraft Replacement	LHD Landing Craft	2.0	236.7

Table 1 – List of 2017-18 MPR Projects by Total Approved Budget*

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Table 2A - Projec	t Total Budget Status										
Project	Project	(a)	(q)	(c)	(p)	(e)	(f)	(g)	(H)	((g+h)/a))	(a+b+c+d+e+f+g+h)
Number		Government Approved Budget at Second Pass \$m	Subsequent Government Approvals \$m	Price Indexation \$m	Foreign Exchange Variation \$m	Real Cost / Scope Variation \$m	Transfers \$m	Budgetary Adjustments \$m	Budget Cost Savings \$m	Net Variation %	Current Budget \$m
AIR 6000 Phase 2A/2B	Joint Strike Fighter	2751.6	10515.4	351.0	1897.3	0.0	-8.4	-2.9	0.0	-0.1%	15504.0
SEA 4000 Phase 3	AWD Ships	7207.4	0.0	1173.2	-380.9	1199.5	-109.9	0.0	0.0	0.0%	9089.3
AIR 7000 Phase 2B	P-8A Poseidon	3577.7	1296.4	20.5	317.3	0.0	0.0	0.0	0.0	0.0%	5212.0
AIR 9000 Phase 2/4/6	MRH90 Helicopters	957.2	2565.6	8.679.8	-136.6	31.5	-239.0	-87.4	0.0	-9.1%	3771.1
AIR 5349 Phase 3	Growler	1155.3	1789.4	0.0	880.6	0.0	0.0	-394.9	0.0	-34.2%	3430.4
AIR 9000 Phase 8	MH-60R Seahawk	3029.6	0.0	0.1	439.8	0.0	0.0	-39.2	0.0	-1.3%	3430.3
LAND 121 Phase 3B	Overlander Medium/Heavy	2549.2	735.5	0.0	144.2	0.0	0.0	0.0	0.0	0.0%	3428.9
JP 2048 Phase 4A/4B	LHD Ships	2958.3	0.0	428.4	-304.3	0.0	9.3	0.0	0.0	0.0%	3091.7
LAND 121 Phase 4	Hawkei	1945.0	0.0	0.4	6.6	0.0	0.0	0.0	0.0	0.0%	1952.0
AIR 8000 Phase 2	Battlefield Airlifter	1156.5	0.0	0.0	276.8	0.0	0.0	0.0	0.0	0.0%	1433.3
SEA 1654 Phase 3	MOSC	1004.6	0.0	0.0	-6.9	0.0	69.1	0.0	0.0	0.0%	1066.8
AIR 5431 Phase 3	CMATS	731.4	0.0	0.0	2.1	247.5	0.0	-6.8	0.0	-0.9%	974.2
LAND 2072 Phase 2B	Battle Comms Sys Ph2B	915.7	0.0	0.0	4.4	0.0	0.0	0.0	0.0	0.0%	920.1
AIR 7403 Phase 3	Additional MRTT	681.9	187.7	0.0	23.0	0.0	0.0	-4.8	0.0	-0.7%	887.8
SEA 1448 Phase 2B	Anzac ASMD 2B	248.8	155.4	76.1	9.6-	214.7	-6.7	0.0	0.0	0.0%	678.7
SEA 3036 Phase 1	PPB-R	504.5	0.0	0.0	-3.3	0.0	0.0	0.0	0.0	0.0%	501.2
JP 9000 Phase 7	HATS	483.8	0.0	2.4	-4.7	0.0	0.0	0.0	0.0	0.0%	481.5
JP 2072 Phase 2A	Battle Comm. Sys. (Land)	436.4	0.0	0.0	27.2	0.0	-25.6	0.0	0.0	0.0%	438.0
SEA 1442 Phase 4	Maritime Comms	385.7	0.0	0.0	52.0	0.0	0.0	0.0	0.0	0.0%	437.7
SEA 1439 Phase 4A	Collins RCS	455.3	0.0	56.5	-59.6	0.0	-0.9	-0.8	0.0	-0.2%	450.5
SEA 1429 Phase 2	Hw Torpedo	238.1	213.3	99.4	-124.0	0.0	1.0	-0.2	0.0	-0.1%	427.6
JP 2008 Phase 5A	UHF SATCOM	460.9	0.0	18.0	-41.0	0.0	0.0	0.0	-18.0	-3.9%	419.9
SEA 1439 Phase 3	Collins R&S	72.0	271.2	74.4	-6.0	0.0	0.0	-0.8	0.0	-1.1%	411.7
SEA 1448 Phase 2A	Anzac ASMD 2A	449.0	0.0	101.3	-3.6	0.0	-159.8	-0.1	0.0	0.0%	386.8
LAND 75 Phase 4	BMS	319.0	8.5	0.0	40.4	0.0	0.0	0.0	0.0	0.0%	367.9
JP 2048 Phase 3	LHD Landing Craft	235.7	0.0	0.1	8.6	0.0	-7.7	0.0	0.0	0.0%	236.7
	Total	34910.6	17739.2	3081.6	3039.8	1693.2	-478.6	-537.9	-18	-51.6%	59430.0

Fable 2B – Breakdowr	of Subsequent	Government Approvals
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Project Number	Project	(b) Subsequent	Explanation
		Government	
		Sm Sm	
AIR 6000	Joint Strike	10515.4	Second Pass approval for Stage 2, acquiring an additional 58 aircraft
Phase 2A/2B	Fighter	1001011	This figure also includes some budget corrections to keep the budget
,	0		aligned with the Government approval.
AIR 7000	P-8A Poseidon	1296.4	Government Second Pass Approval to fund the acquisition of an
Phase 2B			additional four P-8A aircraft and associated support systems.
			Funding was provided under AIR7000 Phase 2D, but merged with
			AIR7000 Phase 2B for efficiencies.
AIR 9000	MRH90	2565.6	Second Pass approval of Phase 4 (Black Hawk
Phase 2/4/6	Helicopters		Upgrade/Replacement) and Phase 6 (Maritime Support Helicopter).
AIR 5349	Growler	1789.4	Government approval to change acquisition strategy to a new-build
Phase 3			aircraft, rather than modification of existing aircraft. This also
			includes the Growler Enabling capabilities and the integration of
			CEA systems into the Mobile Threat Training Emitter System.
LAND 121	Overlander	735.5	A range of programmatic decisions have been made in relation to
Phase 3B	Medium/Heavy		this project. This is aligned to the revised second pass approval.
AIR 7403	Additional	187.7	The approved scope increase associated with interim pass approval
Phase 3	MRTT		for the Government Transport and Communications modification.
SEA 1448	Anzac ASMD	155.4	This was a programmatic decision involving a transfer from SEA
Phase 2B	2B		1448 Phase 2A to replace the initial Very Short Range Air Defence
			with the Phased Array Radar System from CEA Technologies.
SEA 1429	Hw Torpedo	213.3	A range of programmatic funding decisions have been made with
Phase 2			Collins-related projects to achieve optimum capability within the
			funding provided. For full details, please see the PDSS.
SEA 1439	Collins R&S	271.2	A range of programmatic funding decisions have been made with
Phase 3			Collins-related projects to achieve optimum capability within the
			funding provided. For full details, please see the PDSS.
LAND 75	BMS	8.5	This was a programmatic decision to fund the M113AS4 design
Phase 4			effort, previously under LAND 75 Phase 3.4.
1	Fotal	17739.2	

Table 2C - Breakdown of Real Cost / Scope Variation

Project Number	Project	(e) Real Cost / Scope Variation \$m	Explanation
SEA 4000	AWD Ships	1199.5	This was a real cost increase (RCI) approved by Government in 2015.
Phase 3			Following a number of independent reports, it was evident that the
			existing budget would be insufficient to complete the full project scope.
AIR 9000	MRH90	31.5	A RCI was approved by Government in 2008 to fund the Full Flight
Phase 2/4/6	Helicopters		Mission Simulator, not included in the original scope.
AIR 5431	CMATS	247.5	A RCI was approved by Government in February 2018 to cover
Phase 3			additional costs related to the acquisition.
SEA 1448	Anzac	214.7	A RCI of \$214.7m approved by Government in 2011 to allow the full
Phase 2B	ASMD 2B		scope to be provided and installed on ships 2-8.
To	otal	1693.2	

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In-Year Cost

Overall, there was a total in-year budget underspend of \$670.0 million against the 2017-18 Portfolio Budget Statement and \$64.3 million underspend against the 2017-18 Final Plan.

Of the 26 projects, six overspent against the final plan, 17 projects had underspends, and three delivered to their budget. A summary of in-year project budget expenditure against the Portfolio Budget Statements and the Portfolio Additional Estimate Statements is shown in Table 3.

The variation explanations for each project can be found within Section 2.2A – In-year Budget Estimate Variance of the project data summary sheets.

-10.8% 29.1% -6.2%
-56.5 159.1 -6.7
-216.3 -147.4 -17.5
466.3 705.1 101.7
522.8 546.0 108.4
520.2 704.3 102.4
682.6 852.6 119.2
'D Ships A Poseidon H90 Helicopters
ase 3 AWI ise 2B P-8A ise 2/4/6 MIRH
SEA 4000 Pha AIR 7000 Phas AIR 9000 Phas

Table 3 – Project in-year budget status

Project Progress

One indicator of project progress is comparison of the total project budget and expenditure as shown in Figure 1.

However the percentage of budget spent is dependent on the characteristics of the project and the levels of early investment needed, so the relationship between budget and progress does not necessarily match.

This figure also shows that 18 projects have expended more than half their total budget, and a number are at the final stages of project delivery.



Figure 1: Comparison of total MPR project budget and expenditure as at June 2018 (\$m)

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Contingency Management

Budgets for major Defence capital projects are approved by Government with a contingency provision that varies between projects depending on the complexity and risk of the acquisition.

Contingency provides project managers with approval to financially manage against risks and unexpected events that may arise during the course of a project. Defence projects typically have greater inherent risk, longer acquisition timeframes and are generally more complex.

At the point of Government approval, contingency estimates are included in the amount approved by Government. However the contingency amount is not individually allocated, in cash budget terms, to each project but instead calls on contingency are managed as part of the broader IIP. As contingent events emerge requiring funding, contingency will be programmed in the relevant years up to the original levels approved by Government. The impacts of these contingency allocations are considered across the broader major capital program cash flow requirements. The contingency allocation and funding model was last reviewed at the 2016 White Paper.

Defence monitors the adequacy of its contingency management approaches noting the future capital program will be characterised by larger proportion of high-cost, more complex projects, such as the Joint Strike Fighter and Naval Shipbuilding programs. The ongoing effectiveness of contingency funding arrangements will continue to be monitored to ensure existing policies are appropriate and based on an assessment of project funding risks.

Each project data summary sheet reports on whether contingency has been applied to the project during the financial year.

Across the life of the 26 projects in this year's report (that is, from November 1998 to June 2018), the aggregate amount of 'applied contingency' is approximately \$1.2 billion. The term 'applied contingency' is the amount of contingency that a project has allocated against identified risks, rather than actually spent. This represents 2.0 per cent of the 26 projects combined project approval value (\$59.4 billion).

The areas where risks have been retired using contingency include:

- systems development
- systems integration
- logistics and support
- schedule constraints
- project resourcing.

Four projects have accessed contingency provisions in this financial year:

- AIR 9000 Phase 2,4 and 6 Multi-Role Helicopter
- JP 2008 Phase 5A Indian Ocean Region UHF SATCOM
- JP 2072 Phase 2B Battlespace Communications System
- LAND 75 Phase 4 Battlefield Command Systems

For further details on reasons for accessing contingency, please refer to the project data summary sheet in Part 3 for each project.

Schedule

At the broader portfolio level, as reported in the Defence Annual Report, military equipment projects are being delivered within the agreed parameters of scope and cost. Where schedule slippage has occurred, project managers are working with the Capability Manager Representatives to manage the impacts without compromising on capability.

Of the 26 projects in this report, there was a total of 11 projects that reassessed their Final Operational Capability forecast date within 2017-18, with ten pushing it out and one forecasting earlier achievement.

The average Final Operational Capability variance of projects reviewed in 2017-18 at 30 June 2018 is 29.7 per cent, which is similar to the 29 per cent in 2016-17. It should be noted that this excludes both LAND 75 Battle Management System and JP 2048 Phase 3 LHD Landing Craft Projects, as the current Final Operational Capability forecast date was unknown as at 30 June 2018. When the LHD Landing Craft is included with an estimated forecast date of June 2018, the average increases to an average of 35.0 per cent. The project schedule status of the

26 projects in this year's report is shown in Table 4 from Second Pass through to Final Materiel Release and Final Operational Capability.

<u>Table 5</u> provides a list of additional schedule variance factors which can be attributed to the projects which have greater than ten per cent Final Operational Capability variance across the life of the project.

As outlined previously, the projects listed in the Major Projects Report represent 13.1 per cent by number, but 57.4 per cent by value. These projects are generally the larger acquisition projects that contain inherent risk, and as such, are more likely to encounter schedule delay. Most are legacy projects that have not otherwise benefited from the improvements to the risk management practices where the aim is to reduce the level of risk as the project progresses.

For example, submarine projects have contributed to high levels of schedule slippage outlined in this report. These three projects have been operating under the pre-Kinnaird through to the post-First Principles Review frameworks adapting to varying management processes and procedures. The 2012 Coles transformation program was instrumental in improving submarine availability as the key priority. This involved re-baselining the submarine capability projects. By 2014 Coles noted that submarine availability improved 'significantly' and by 2016 the Collins sustainment should be considered as an 'exemplar project'. Submarine project schedule variation should be considered in this broader context, where the department and industry were able to focus on delivering the priorities for the Australian Defence Force that could not have been achieved without schedule re-baselining.

For further detail on project schedule dates and variance explanations see Section 3 – Schedule Performance within the Project Data Summary Sheets.

Project Number	Project	(a) 2nd Pass Approval	(b) Originally Estimated FMR	Forecast FMR at 30 June 17	(c) Forecast FMR at 30 June 18	(c-a)/(b-a) Variation Percentage FMR	(d) Originally estimated FOC	Forecast FOC at 30 Jun 17	(e) Forecast FOC at 30 Jun 18	(e-a)/(d-a) Variation Percentage FOC
AIR 6000 Phase 2A/2B	Joint Strike Fighter	60 AON	Dec 23	Oct 23	Sep 23	-1.8%	Dec 23	Oct 23	Oct 23	-1.2%
SEA 4000 Phase 3	AWD Ships	20 un(Dec 17	Dec 19	Jan 20	19.8%	May 18	Jan 21	Jan 21	24.5%
AIR 7000 Phase 2B	P-8A Poseidon	Feb 14	Oct 19	Jun 22	May 22	45.6%	Jan 20	Jan 22	May 22	39.4%
AIR 9000 Phase 2/4/6	MRH90 Helicopters	Hugur Bugur	Oct 14	Oct 18	Jun 20	55.8%	Jul 14	Jul 19	Dec 21	74.8%
AIR 5349 Phase 3	Growler	Apr 13	Jul 22	Jun 22	Jul 22	0.0%	Jul 22	Jun 22	Jul 22	0.0%
AIR 9000 Phase 8	MH-60R Seahawk	Jun 11	Dec 23	Dec 23	Dec 23	0.0%	Dec 23	Dec 23	Dec 23	%0.0
LAND 121 Phase 3B	Overlander Medium/Heavy	Jul 13	Dec 22	Dec 22	Dec 22	0.0%	Dec 23	Jun 23	Jun 23	-4.8%
JP 2048 Phase 4A/4B	LHD Ships	20 un (Aug 15	Sep 18	Dec 18	40.8%	Nov 16	Dec 19	Dec 19	32.7%
LAND 121 Phase 4	Hawkei	Aug 15	Dec 21	Dec 21	Dec 21	0.0%	Jun 23	Jun 23	Jun 23	0.0%
AIR 8000 Phase 2	Battlefield Airlifter	Apr 12	Oct 17	Oct 19	Oct 19	36.3%	Dec 17	Dec 19	Dec 19	35.3%
SEA 1654 Phase 3	MOSC	Apr 16	Mar 21	-	Mar 21	0.0%	Dec 22	1	May 22	-8.8%
AIR 5431 Phase 3	CMATS	Dec 14	TBA	TBA	TBA	-100.0%	Jun 23	Oct 25	Oct 25	27.5%
LAND 2072 Phase 2B	Battle Comms Sys Ph2B	Apr 15	Nov 20		Dec 20	1.5%	Sep 20	1	Sep 20	%0.0
AIR 7403 Phase 3	Additional MRTT	Jun 15	Mar 18	Oct 19	Oct 19	-100.0%	Mar 18	Dec 19	Oct 19	57.7%
SEA 1448 Phase 2B	Anzac ASMD 2B	Sep 05	Jul 17	Oct 17	Jul 18	8.4%	Mar 13	Oct 17	Aug 18	72.3%
SEA 3036 Phase 1	PPB-R	Apr 16	Nov 23	-	Nov 23	0.0%	Sep 23		Nov 23	2.3%
JP 9000 Phase 7	HATS	Aug 14	Dec 18	Dec 18	Mar 19	5.7%	Dec 20	Sep 20	Sep 20	-3.9%
JP 2072 Phase 2A	Battle Comm. Sys. (Land)	Nov 11	Sep 16	Oct 17	Nov 18	44.8%	Jun 16	Nov 17	Dec 18	54.5%
SEA 1442 Phase 4	Maritime Comms	Jul 13	May 23	Oct 23	Jun 24	11.1%	Dec 23	Dec 23	Jul 24	5.6%
SEA 1439 Phase 4A	Collins RCS	Sep 02	Jan 16	Oct 18	Oct 18	20.6%	Dec 10	Dec 18	Dec 18	%0.79
SEA 1429 Phase 2	Hw Torpedo	10 lul	Nov 13	Oct 18	Oct 18	39.8%	Nov 13	Dec 18	Dec 18	40.3%
JP 2008 Phase 5A	UHF SATCOM	Mar 09	Mar 14	Jan 19	Dec 19	115.1%	Jun 18	Mar 19	Mar 20	18.9%
SEA 1439 Phase 3	Collins R&S	Sep 00	Oct 22	Aug 22	Dec 22	0.8%	Jun 14	May 22	Jun 23	65.5%
SEA 1448 Phase 2A	Anzac ASMD 2A	Nov 03	Jul 17	Oct 17	Jul 18	7.3%	Dec 11	Oct 17	Aug 18	82.5%
LAND 75 Phase 4	BMS	Aug 13	Jun 17	Oct 17	Dec 17	13.1%	N/A	N/A	N/A	N/A
JP 2048 Phase 3	LHD Landing Craft	Sep 11	Feb 16	Dec 16	Dec 16	18.8%	Feb 16	Jun 18	TBA	N/A
Note: In the 2013 Go	overnment Approval of LAN	ID 75 Phase	4 there is no]	nitial Operat	ional Capabi	lity (IOC) and Fin	al Operational Ca	pability (FOC) li	nked to LAND 7:	5 Phase 4

Table 4 – Project Schedule Status

Defence Major Projects Report Auditor-General Report No.20 2018–19 2017–18 Major Projects Report

WP-A. IOC and FOC are linked to WP--B-D, which is the element of LAND 75 approved under LAND 200 Tranche 2. Given this approach, there is no IOC/FOC for this project.

Driver of Schedule Variance	Project
	HW Torpedo
Platform availability	Collins RCS
	Collins R&S
Industry Capability/Budget Adjustments	AWD Ships
	LHD Ships
Technical complexity - underestimation by industry	Battlefield Airlifter
and/or Defence of the complexity of developmental	LHD Landing Craft
and/or large scale integration projects	MRH90 Helicopter
	CMATS
	Anzac ASMD 2A
	Anzac ASMD 2B
Technical complexity and Scope Change	Additional MRTT
	P-8A Poseidon
	UHF SATSOM
Capability Manager Decisions	Battle Comm. Sys (Land)

Table 5 – Additional Attribution of Schedule Variance Factors

Note: only projects with a variation of 10% or greater are included

Materiel scope and capability

A capability in Defence terms is the power to achieve a desired operational effect in a nominated environment within a specified time and to sustain that effect for a designated period.

Materiel capability performance measures indicate a forecast of the materiel element of capability against the Final Materiel Release milestones, identified in the Materiel Acquisition Agreement at 30 June 2018. It should be noted that this measure does not include the fundamental inputs to capability (such as workforce) and are not necessarily indicative of each project's ultimate ability to deliver the final intended scope.

The subjective 'traffic light' assessment of each element is indicative of:

- green a high level of confidence that the capability outcome will be met;
- amber the capability outcome being under threat but still considered manageable and able to be met; and
- red at this stage, the capability outcome is unlikely to be fully met.

Performance in recent years has been strong and remains steady. Within 2017-18 Defence has seen a reduction in the number of performance measures across the projects with 200 in 2016-17 to 173 in 2017-18. In response to JCPAA Report 468 into the 2015-16 Major Projects Report, Defence committed to correct discrepancies between the approved project schedule and the project Materiel Acquisition Agreement. This work found and corrected 22 Major Projects Report projects with discrepancies.

Of the 173 measures across the 26 projects in this year's report:

- 98.7 per cent of measures are likely to be met (green); and
- 1.3 per cent of measures are under threat (amber).

For further detail on the Capability Delivery Performance for individual projects please see Section 4 – Materiel Capability Delivery Performance in the Project Data Summary Sheet

Detail of the capital equipment assets to be delivered for projects (the materiel scope), is defined in the Materiel Acquisition Agreement, the Operational Concept Document and the Function and Performance Specification.

A summary of the key characteristics of each project is presented in Table 6 and illustrates the variety, complexity and scale of the acquisitions.

Table 6- Project Characteristics

Aff 600 Phase 2A/28Joint Strike Fighter210.11Air ForceReplacementDevelopmental1 $EA 4000 Phase 2B$ AWD Ships208-90NavyNewMOTS1 $EA 4000 Phase 2BAWD Ships208-90NavyReplacementMOTS1AIR 7000 Phase 2B/46MRH90 Helicopters208-90Army/NavyReplacementMOTS1AIR 900 Phase 24/48MH+60 K Seahawk2013-14Air ForceNewAMOTS1AIR 900 Phase 3Growler2013-14Air ForceNewAMOTS1AIR 900 Phase 3Growler2013-14Air ForceNewAMOTS1AIR 900 Phase 3Growler2013-14AmyReplacementMOTS1AIR 900 Phase 3Growler2013-14AmyReplacementMOTS1IAR 900 Phase 3Growler2013-14AmyReplacementMOTS1IAR 911 Phase 3Covel and childrer2013-14AmyReplacementMOTS1IAR 800 Phase 3Battlei Aritifice2013-14AmyReplacementMOTS1IAR 800 Phase 3Battlei Aritifice2013-14AmyReplacementMOTS1IAR 800 Phase 3Battlei Aritifice2013-14AmyReplacementMOTS1IAR 800 Phase 3Battlei Aritifice2013-14AmyReplacementMOTS1IAR 800 Phase 3Battlei Aritifice2013-16AmyReplacementMOTS$	2010-11 Air Force Replaceme 2008-09 Navy New 2014-15 Air Force Replaceme 2013-14 Air Force Replaceme 2013-14 Air Force Replaceme 2013-14 Air Force New 2013-14 Air Force Replaceme 2013-14 Air Force New 2013-14 Air Force Replaceme 2013-14 Air Force Replaceme	Int Developmental AMOTS AMOTS nt MOTS AMOTS AMOTS nt AMOTS AMOTS It	I Post 1 Post	Integration and Test Initial Materiel Release Detailed Design Review Detailed Design Review Contract Signation	US Government AWD Alliance DS Government Airbus Group Australia Pacific US Government DS Government Defence BAE Systems Australia Thales Australia US Government Defence BAE Systems Australia Thales Australia Navantia
EA 400 Phase 3AWD ShipsAWD ShipsMot Mor	2008-09 Navy New 2014-15 Air Force Replaceme 2013-14 Airry/Navy Replaceme 2013-14 Airry/Navy Replaceme 2013-14 Airry/Navy Replaceme 2013-14 Airry/Navy Replaceme 2013-14 Airry Replaceme	AMOTS nt MOTS nt MOTS nt AMOTS nt Developmental nt Developmental nt Developmental	I Post II Post	Initial Materiel Release Detailed Design Review Detailed Design Review	AWD Alliance US Government Airbus Group Australia Pacific US Government US Government Defene BAE Systems Australia Thales Australia US Government
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SEA 1448 Phase 2A Anzac ASMD 2A 2009-10 Navy Upgrade AMOTS II	2009-10 Navy Upgrade	AMOTS	II Pre	Final Materiel Release	ANZAC Alliance
LAND 75 Phase 4 BMS 2015-16 Army New AMOTS II	2015-16 Army New	AMOTS	II Post	Final Contract Acceptance	Defence
JP 2048 Phase 3 LHD Landing Craft 2013-14 Navy Replacement AMOTS III	2013-14 Navy Replaceme	nt AMOTS	III Post	Final Contract Acceptance	Navantia

New' - a capability that has not previously existed in the ADF; Replacement' – a current capability that is being replaced by more up to date technology or to respond to a changing threat; "Upgrade' – an upgrade to existing capabilities.

Appendix 2 has full definition of levels of development.

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The CASG categorisation of projects that represent the complexity of the project on a sliding scale of I to IV with ACAT I representing the most complex projects.

Provides an indication of whether the projects were initially developed under pre- or post-Kinnaird reforms.

Acquisition Governance

Smart Buyer

As part of the Capability Life Cycle framework, projects undergo a Smart Buyer assessment. This enables Capability Managers and project teams to work together, identify and analyse key project risks and drivers, and use that analysis to develop tailored Project Execution Strategies. The Smart Buyer risk-based methodology has also been applied to a selection of:

- Sustainment products to maximise the opportunities a sustainment re-tender offers Defence and Industry;
- other large procurements, such as the Next Generation Health Services and the Fleet Maritime Support Contract;
- the aggregation of similar projects into Sub-Programs for the purposes of increased efficiency and flexibility in their management; and
- Information Communications Technology and Estate projects.

In 2017-18 the Capability Acquisition and Sustainment Group held 118 Smart Buyer assessments for projects and products. Chief Information Officer Group held seven assessments, and the Defence Estate and Infrastructure Group held a further 51 assessments for their projects. The Capability Acquisition and Sustainment Group Smart Buyer assessments are detailed by stage in the Capability Life Cycle in the Table 7 below.

Table 7 – Capability Acquisition and Sustainment Group Smart Buyer Assessments in2017-18

Smart Buyer Assessments	No. held
Gate Zero	50
Gate One	35
Gate Two	13
Other activities	14
Sustainment	6

Defence Independent Assurance Reviews

Similarly, there were 154 Independent Assurance Reviews held supporting capability development, acquisition and sustainment by conducting independent assurance on the respective activities. The Defence Independent Assurance Review framework has also been applied to other activities including:

- the Next Generation Health services;
- Enterprise Information Management;
- the Enterprise Resource Planning Program; and
- a range of projects delivered by the Australian Signals Directorate and the Australian Geospatial Organisation.

The Defence Independent Assurance Reviews are broken down by stage in the Capability Life Cycle in Table 8 below.

Defence Independent Assurance Reviews	No. held
Gate Zero	23
Gate One	14
Gate Two	26
Performance (during delivery)	67
Sustainment	23

Table 8 – Defence Independent Assurance Reviews

Of these, 17 projects listed in the Major Projects Report had an Independent Assurance Review conducted in 2017-18.

The Independent Assurance Review board make recommendations on many aspects relating to project or product management and commercial strategies. This may include a recommendation to refer a project or product for further assessment as either a Project of Interest or Project of Concern by senior executives.

Performance Management

Overall, the performance of the Department's major capital equipment program in the 2017-18 financial year is strong. Of the 120 post Second Pass approved major capital equipment projects, three projects (or 2.5 per cent) had issues with capability, schedule or cost which were significant enough to be included in the Projects of Concern report. A further nine projects (or 7.5 per cent) were identified as Projects of Interest, with risks associated with capability, schedule or cost that warrant further attention from senior executives.

Quarterly Performance Report

The Quarterly Performance Report provides the Department and the Ministers with useful information relating to the performance of Defence's major capital equipment acquisition and sustainment program. The report also fulfils Deputy Secretary Capability Acquisition and Sustainment's obligation in accordance with the First Principles Review under recommendation 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..."

The Quarterly Performance Report is a summary of performance at the end of each quarter on the key acquisition projects and sustainment products¹.

Senior Defence stakeholders and the Defence Ministers are provided with information about emerging risks and issues. It is one of the tools that support decision-making on management actions such as assessing Projects of Interest or Projects of Concern. This is in addition to the regular engagement senior stakeholders across Defence have through the monthly project and sustainment performance reporting.

¹ These are comprised of the Top 30 projects and sustainment products listed in the Defence Portfolio Budget Statements and all of the Major Projects Report.

A continuous improvement approach has benefitted both the monthly performance reporting and the Quarterly Performance Report. These have included minor system enhancements to capture information more efficiently and increase consultation. Feedback on the content and format is regularly sought from all stakeholders including all members of the Defence Investment Committee.

Recommendation 1 from the July 2017 ANAO Performance audit "Defence's Management of Material Sustainment" has been implemented².

Projects of Interest

Projects (and products) showing heightened risks in the areas of cost, scope, schedule and capability, or commercial strategy and other issues are monitored through the Independent Assurance Review and Quarterly Performance Report processes.

Information is gathered from a variety of sources and consultation with senior stakeholders occurs before determining a Project of Interest. Once listed, a more detailed one-page summary of issues, along with proposed remediation strategies to get the project/product back on track is provided in the Quarterly Performance Report. This list is used for internal departmental and Ministerial reporting and management purposes. The broad goal is to provide senior management oversight and prevent projects from becoming Projects of Concern.

Projects of Concern

Projects (or sustainment activities) identified as a Project of Concern have very significant technical, cost or schedule challenges that benefit from additional support from Senior Executives. Projects are removed from the list through project remediation or project contract cancellation with the approval of the Ministers. Projects of Concern receive a higher level of oversight and management and undertake increased reporting to Government.

² Recommendation 1: Defence institutes a risk-based quality assurance process for the information included in the Defence Quarterly Performance Report.

As at 30 June 2018, AIR 9000 Phase 2, 4 & 6 Multi-Role Helicopter is the only project in this year's Major Projects Report that is being managed under the Projects of Concern regime.

Since 2008, 25 projects, with a total value of \$32.4 billion, have been managed this way. As at 30 June 2018, the three active Projects of Concern had a total value of \$4.0 billion.

Table 9 provides a list of Projects of Concern as at 30 June 2018. Significant changes in the 2017-18 reporting period were the addition of AIR 5431 Phase 3 Civil Military Air Traffic Management System and AIR 5431 Phase 1 Deployable Defence Air Traffic Management and Control System to the list. After a successful remediation, CN10 Collins Class Submarines Sustainment and SEA 4000 Phase 3 Air Warfare Destroyer were removed from the list. Additionally, AIR 5431 Phase 3 Civil Military Air Traffic Management System was removed from the list after the acquisition and support contracts were signed with the prime contractor.

Further, since 30 June 2018, Joint Project 2008 Phase 3F Australian Defence Satellite Communications Terrestrial Enhancement was removed as a Project of Concern.

Project Name	Project Number	Date Added
Multi-Role Helicopter	AIR 9000 Phases 2, 4 & 6	Nov 2011
Australian Defence Satellite Communications Terrestrial Enhancement	JP 2008 Phase 3F	Sep 2014
Deployable Defence Air Traffic Management and Control System	AIR 5431 Phase 1	Aug 2017

Table 9: Projects of Concern at 30 June 2018

The ANAO is conducting a Performance Audit into Defence's Management of Projects of Concern. The objective of the audit is to assess whether Defence's Projects of Concern regime is effective in managing the recovery of underperforming projects. ANAO is currently conducting fieldwork, with the report expected to be presented for tabling in the Summer session of the Parliament in 2019.

Response to the JCPAA review

The JCPAA's Report 473: *Defence Major Projects Report (2016-17)* outlined progress against the JCPAA's previous Recommendations and provided a further three Recommendations for Defence. As the formal response is due to the Committee by 18 December 2018, the publication timings prevent the inclusion of the response in this report.

Defence acknowledges the Committee's disappointment that there had been little progress in updating the Project Maturity Score methodology, whilst the department assesses its application in the contemporary environment.

A key challenge in implementing changes to the policy relates to the extant project reporting systems. Implementing even minor change on the aging project Monthly Reporting System needs to be balanced against the requirement to address technical obsolescence and still achieve value for money. In the interim, Defence has made the following improvements:

- Defence has undertaken to reinvigorate the discipline within projects to meet the requirements of the extant guidance through our Project Management Centre of Expertise.
- The Defence Independent Assurance Review procedures are continuously improved. This includes testing the accuracy of the Project Maturity Scores for individual projects as each project goes through their performance review.
- Further, Project Maturity Scores have been included in the "Project Dashboard" in the CASG Quarterly Performance Report with effect from the December 2017 report to lift their profile and improve their validity within the organisation.
- Defence has also begun to strengthen the way risks are communicated through the extant Defence reporting systems.

Better Industry Engagement

Defence is also improving the way it engages with industry to build capability. To help build a stronger and more competitive Australian Defence industry base, Defence has established the Centre for Defence Industry Capability (CDIC), the Defence Innovation Hub and the Next Generation Technologies Fund. These initiatives enable industry to more easily engage with Defence, propose innovative ideas and get the support, funding and advice they need. This in turn secures an innovative and competitive industrial base major projects require.

The 2017-2018 financial year also saw the roll out of our strengthened Australian Industrial Capability Plan, aimed at driving greater Australian industry participation in major capital equipment projects of \$20 million and above, including all major shipbuilding projects.

The Joint Strike Fighter Program has a history of good engagement with Industry through the predecessor program, the Defence Industry Innovation Centre. New Defence Industry policy initiatives have also partnered with the JSF program through the CDIC. The 2017 Defence Industry and Innovation Programs Update Report noted the work done by the CDIC to understand the Australian industry capability and provide grants to 34 Australian businesses to help them win contracts on the global F-35 Program.

Defence Materials Technology Centre (DTMC)

DMTC has led collaborative technology development activities that have contributed, over the life of the projects as well as in the 2017-18 reporting period to the goal of enhancing Defence capability through innovation. The Innovation Hub's investment through DMTC (set at \$3m per year in the 2016 Defence Industry Policy Statement) has attracted an additional \$20m in co-investment from industrial and research sector partners and Defence program offices in 2017-18. In a number of areas across the DMTC's portfolio of programs, the Innovation Hub's support for DMTC has enabled platform technologies to be expanded and deployed on a range of different land and maritime platforms. For example, breakthroughs in welding and fabrication technologies and techniques that have already proven to be applicable to land vehicle production are now being applied to programs in the Naval Shipbuilding Enterprise. There are eight projects in the 2017-18 Major Projects Report benefitting from this collaboration in Table 10 below.

Project Number	Project Name	DMTC involvement
AIR 6000 Phase 2A/B	New Air Combat Capability (Joint Strike Fighter)	Support to industrial base – Vertical tail manufacture (BAES and supply chain), corrosion prognostics (BAES, Defence Science & Technology Group), and manufacturing and sustainment technologies. Current proposal with Defence for consideration on a suite of technology development projects
SEA 4000 Phase 3	Air Warfare Destroyer Build	Welding & production automation technology – removal of module distortion mismatch
AIR 5349 Phase 3	EA-18G Growler Airborne Electronic Attack Capability (Growler)	Corrosion sensors, prognostics, non- destructive testing
LAND 121 Phase 4	Protected Mobility Vehicle – Light (Hawkei)	Manufacturing and production efficiency, weight optimisation, automated manufacture & design optimisation, blast modelling, supply- chain development (Thales & Supply chain partners)
SEA 3036 Phase 1	Pacific Patrol Boat Replacement	General support - supply chain & sovereign industrial capability development relevant to the shipbuilding enterprise
LAND 121 Phase 3B	Medium Heavy Capability, Field Vehicles, Modules and Trailers (Overlander Medium/Heavy)	Materials model development support provided to Land Platform Development Program for M113 upgrade
JP 2048 Phase 4A/4B	Amphibious Ships (Land Helicopter Dock)	Corrosion mitigation
SEA 1439 Phase 3	Collins Class Submarine Reliability and Sustainability	Corrosion management

Table 10: Eight Projects with DMTC Involvement in 2017-18

Risk Reform

Defence is currently updating the Enterprise Risk Framework and has recently refreshed the Enterprise Risk themes for the organisation. Individual Group and Service performance and risk reporting contributes to the Enterprise Risk view for Defence.

The Capability Acquisition and Sustainment Group is reforming its management of risk to align risk management practices and standardise the methods.

Defence has signed a new contract with Aerosafe to enable completion of the Risk Reform Program by November 2019. The purpose of the reform program is to implement a Group Risk Management Model that aligns enterprise-level and specialist risk management practice within the One Defence Enterprise Risk Management Framework.

The key focus of this contract is to align risk management practices across all aspects of capability delivery including Specialist Risk Areas.

The current priorities are:

- Completion and release of practice guidance in project management risk across the Capability Life Cycle, corporate risk, safety risk and commercial risk.
- Planning for transition of projects/products to the remodelled approach, prioritising planning for the Top 30 projects, Project Performance Review projects, and Projects of Concern first.
- Confirming the Capability Acquisition and Sustainment Group standard baseline version controls and ensure they have been activated for all projects/products risk information.

Project transition planning will be structured to consider Defence risks as well as capability life cycle dependencies. It is expected that the remodelled risk management practices in projects will take a number of annual cycles to reach maturity.

Doing Better

The Department is progressing significant reform under the First Principles Review to allow Defence to deliver the ambitious Defence White Paper outcomes in the most efficient and effective way possible. This includes:

- changing the capability development processes to move towards a risk-based approach;
- engaging and partnering with industry to deliver the White Paper outcomes;
- providing flexibility within our workforce and utilising skills to achieve the best possible outcomes; and
- improving our information systems to improve our ability to make informed decisions, measure performance, provide timely, credible, traceable and relevant management information, and support enterprise-wide business processes.

Appendices

Part 2. Defence Major Projects Report

Appendix 1: List of projects removed from the Major Projects Report since its inception

Project Number	Project	First Reported in MPR	Last Reported in MPR	Level of Development	Government Approved Budget \$m	Expenditure to date \$m	Remaining Budget \$m	FMR Achieved/ Forecast	FOC Achieved/ Forecast	Reason for Exit
AIR 5376 Phase 3.2	F/A 18 Hornet Upgrade Structural Refurbishment (Hornet Refurb)	2008-09	2010-11	AMOTS	319.1	319.1	0.0	N/A	N/A	JCPAA Approval[1]
AIR 8000 Phase 3	C-17 Heavy Airlift	2008-09	2011-12	MOTS	1,423.4	1,423.4	0.0	Dec-11	Dec-11	FOC achieved
AIR 5349 Phase 1/2	Bridging Air Combat Capability	2008-09	2012-13	MOTS	3,661.4	3,045.9	651.5	Dec-12	Dec-12	FOC achieved
SEA 1444 Phase 1	Armidale Class Patrol Boat	2007-08	2012-13	AMOTS	537.2	530.3	6.9	Nov-07	Oct-12	FOC achieved
LAND 19 Phase 7A	Counter-Rocket Artillery and Mortar	2011-12	2012-13	MOTS	265.7	186.1	79.6	Jan-13	Jan-13	FOC achieved
AIR 5376 Phase 2	F/A 18 Hornet Upgrade	2007-08	2013-14	STOMA	1,882.5	1,663.8	218.7	Sept 12	Oct-14	FMR achieved
AIR 5418 Phase 1	Follow On Stand Off Weapon	2009-10	2013-14	AMOTS	319.0	287.1	31.9	Sept 13	Jan-14	FOC achieved
JP 2008 Phase 4	Next Generation SATCOM Capability	2009-10	2013-14	MOTS	5.698	569.1	300.4	Jun-14	Jul-15	FMR achieved
JP 2043 Phase 3A	High Frequency Modernisation	2007-08	2013-14	Developmental	580.2	498.1	82.1	Dec-17	Dec-17	JCPAA Approval[2]
LAND 17 Phase 1A	Artillery Replacement	2010-11	2013-14	MOTS	158.5	158.5	0.0	Sept-13	Oct-14	FMR achieved
SEA 1390 Phase 2.1	Guided Missile Frigate Upgrade Implementation	2007-08	2013-14	Developmental	1,453.8	1,374.7	79.0	Jun-16	Jun-16	JCPAA Approval[3]
SEA 1390 Phase 4B	SM-1 Missile Replacement	2010-11	2013-14	AMOTS	416.1	356.5	59.7	Feb-15	Jun-15	JCPAA Approval[4]
AIR 5077 Phase 3	Airborne Early Warning and Control Aircraft	2007-08	2014-15	Developmental	3,885.3	3,559.6	285.7	Feb-15	May-15	FOC achieved

FOC achieved	FOC achieved	FOC achieved with Caveats	FOC achieved	FOC achieved		FOC achieved
Apr-15	Jul-16	Apr-16	Jul-17	Jan-17		Oct-16
Mar-15	May-16	Mar-14	Jul-17	Oct-17		Oct-16
43.8	54.4	0.0	175.4	0.0		0:0
271.9	1,764.3	1867.7	459.5	1,036.1		900.3
315.7	1,818.7	1867.7	643.9	1,036.1		900.3
AMOTS	Developmental	Australianised MOTS	MOTS	Australianised MOTS		Australianised MOTS
2014-15	2015-16	2016-17	2016-17	2016-17		2016-17
2010-11	2008-09	2007-08	2010-11	2007-08	2009-10 (as Ph 3) 2012-13	(as Ph 3A)
Battlefield Command Support System	Air to Air Refuelling	Armed Reconnaissance Helicopter	Additional Medium Lift Helicopter	Bushmaster Protected Mobility Vehicle		Overlander Vehicles (Light)
LAND 75 Phase 3.4	AIR 5402	AIR 87	AIR 9000 Ph5C	LAND 116		LAND 121 Ph3A

- Approval granted after project scope and budget were approved for transition to the in-service sustainment support system in 2010-11. ~
- Approval granted in 2014 based on a risk assessment performed by the then DMO and endorsed by the Capability Manager, which concluded the overall risk rating for remaining work was low. 2
 - ibid.
 - ω 4

ibid.

Appendix 2: Lessons learned

The Joint Committee of Public Accounts and Audit recommended in *Report 422: Review of the 2009-10 Defence Materiel Organisation Major Projects Report,* that a lessons learned section for both the project level and the whole of organisation be included in the MPR for projects that have met the exit criteria.

The lessons learned at the project level, against a whole of organisation level category are listed below in a table format. These have been extracted directly from previous Major Project Reports, dating back to 2008-09.

Categories of systemic lessons	Project lesson	Project learned from
Contract management	An acquisition strategy combining the acquisition and support of the fleet in one single contract rather than the traditional acquisition model followed by a separate support contract can lead to significant disputation and complications in closing out latent defects where the prime contractor is not also the builder. Invariably, once the capability is delivered and being operated and the contract is into the sustainment phase, there is a greater reluctance on the part of the prime contractor to progress rectification of build-related defects that may result in a cost to the contractor and disputation with the builder.	SEA 1444 Phase 1 – Armidale Class Patrol Boat
Contract management	The Armidale Class Patrol Boat In Service Support (ISS) contract is principally a 15 year fixed price contract with the option for a five year extension. Existing contract provisions provide no incentive to	SEA 1444 Phase 1 – Armidale Class Patrol Boat

Lessons learned at the project level

	the contractor to improve or implement changes in the delivery of support activities that would deliver benefits/savings to both the contractor and the Commonwealth. In particular, there is no incentive to make savings over the life of the contract that would generate a reduction in the ISS fee. Incentives need to be built into contracts beyond the acquisition phase.	
Contract management	Proactive Contract Management: Due to the incremental contracting nature of the project, joint and proactive contract management was essential. Regular commercial integrated product teams provided an effective vehicle to manage the prime integration contract with Boeing and FMS cases with the US Government.	AIR 5376 Phase 2 – F/A-18 Hornet Upgrade
Contract management	Participation in face to face financial working groups bi-annually resulted in significant financial savings under the WGS MOU. The cost associated with overseas travel was far outweighed by the financial savings and clarity of financial projections.	JP 2008 Phase 4 – Next Generation SATCOM Capability
Contract management	Best practice would suggest that for a capability acquisition that includes significant software development, a contract that allows for both fixed price elements as well as alternative cost structures which include appropriate controls, incentive and penalty models that can be applied to the highly developmental elements involving significant risk, may be appropriate. Milestone payments could be selected for those deliverables that have well defined objectives and the alternative payment method with incremental work packages could be	JP2043 Phase 3A – High Frequency Modernisation

	applied to the software aspect of the project. This approach would require strict controls and metrics to limit the risk to the Commonwealth.	
Contract Management	A proper balance needs to be kept between proper engineering processes and contractor-perceived commercial imperatives to minimise risk that unrealistic technical programs will actually result in delays to the overall schedule.	JP2043 Phase 3A – High Frequency Modernisation
Contract management	The contract schedule must be accepted by all parties as realistic and achievable from the outset. Each party must be committed to achievement of the schedule and aware of the consequences of non- achievement, plus any provisions for delay outside the contractor's control.	SEA 1390 Phase 2.1 – Guided Missile Frigate Upgrade
	 The contract should contain: milestones which enable the Commonwealth to unambiguously assess Contractor performance from the outset of the Contract; with the exception of non-recurring engineering effort, payment of all or a substantial part of the contract price should be subject to achievement of clear project milestones; milestones should reflect delivery of contracted requirements to the Commonwealth, not just reaching intermediate points on the timeline; milestones which enable use of the equipment and supplies (such as Integrated Logistic System (ILS) and training) should be given similar weight as delivery of the subject as a substantial point and supplies (such as Integrated Logistic System (ILS) and training) should be given similar weight as delivery of the subject as a substantial point and supplies (such as Integrated Logistic System (ILS) and training) should be given similar weight as delivery of the subject as a substantial point and supplies (such as Integrated Logistic System (ILS) and training) should be given similar weight as delivery of the subject as a substantial point as a substantial point and supplies (such as Integrated Logistic System (ILS) and training) should be given similar weight as delivery of the subject point poi	

	 payment on achievement of milestones should be conditional on achievement of previously scheduled milestones; payment of milestones should also be tied to remedies under the contract to allow the Commonwealth to seek redress; and clear entitlements of the Commonwealth to access all contractor project data (including internal workforce planning data) so as to be able to make informed assessments if a milestone is not achieved. 	
Contract management	Implement a progressive acceptance methodology from the outset for all project data / documentation supplies and requirements acceptance objective quality evidence in order to progressively increase confidence of all stakeholders involved with regard to project outcomes.	SEA 1390 Phase 2.1 – Guided Missile Frigate Upgrade
Contract management	The establishment of commercial contracts were based entirely on deliverable items and artefacts (software build states and/or documentation in electronic format) and progress against agreed milestones. Payments were made on delivery acceptance and milestones achieved in accordance with the contract. Reliance on Contract Earned Value Management requires considerable effort and expertise on the part of the Project authority to adequately assess contractor performance, and was not utilised or necessary to achieve 'value for money' project objectives.	SEA 1390 Phase 4B – SM-1 Missile Replacement

Contract management	Significant efficiencies were achieved for ease of handling, delivery, traceability and tracking of documents through electronic document delivery which was encouraged in all commercial contracts and the primary FMS case.	SEA 1390 Phase 4B – SM-1 Missile Replacement
Contract management	Better appreciating the challenges involved in contractor management in a complex developmental project.	AIR 5077 Phase 3 – Airborne Early Warning and Control Aircraft
Contract management	Early recognition of the need for proactive stakeholder engagement throughout the project.	AIR 5077 Phase 3 – Airborne Early Warning and Control Aircraft
Contract management	The project has a well defined contract with clear conditions of contract that provide flexibility where it is needed. In particular, parties to the contract can agree to changes to the GFM by accession rather than via a formal contract change proposal, which allows far greater agility in the management of GFM and GFE requirements.	LAND 75 Phase 3.4 – Battlefield Command Support System
Contract management	The project has formed a variety of contracts and sub-contracts with the Commercial Design Authorities for Army's platforms. There is a wide variety of Intellectual Property (IP) arrangements amongst the separate platform contracts. In the cases where the CoA has stronger IP rights these contracts have worked more effectively and at a lower overall cost. It is recommended for future platform projects that rights to the IP consistent with ownership are sought.	LAND 75 Phase 3.4 – Battlefield Command Support System

Contract management Schedule management	Improving governance to support a more disciplined consideration of strategic trade-offs between performance, cost and schedule post contract signature	AIR 5077 Phase 3 – Airborne Early Warning and Control Aircraft
Contract management Schedule management	Accessibility requirements should be agreed, specified and documented early in the contracting process to minimise risk of incurring excusable delays when access to the system to be upgraded is constrained due to operational reasons.	JP2043 Phase 3A – High Frequency Modernisation
Contract management Schedule management	Foreign Military Sales (FMS) Schedule planning – When factoring FMS related schedules, there is an inclination to schedule the acceptance of the case without allowing sufficient schedule float to accommodate potential delays. Often, there will be a delay post case acceptance whilst the US Government supporting office seeks to contract their suppliers - this delay could be some six to nine months in some instances. When negotiating lead times, it is essential to gain an understanding of the contracting and procurement processes of the source country.	LAND 19 Phase 7A – Counter- Rocket Artillery & Mortar

Contract management Schedule management First of Type Equipment	A fundamental issue to consider at the time of capability and project definition is how the capability should be acquired. If the project is developmental, then consideration should be given to methods other than a fixed price contract for achieving the capability. Contracts should include appropriate clauses that recognise the complexities of verifying and validating a software development project. Multi-platform upgrades should allow for implementation and testing/acceptance of the first platform without committing to a full class upgrade of all platforms. Conducting an upgrade of an existing capability concurrent with scheduled maintenance availability requires very detailed planning and careful consideration of the supporting	SEA 1390 Phase 2.1 – Guided Missile Frigate Upgrade
Contract management Requirements management	For very large developmental contracts, project managers must ensure that the contractor maintains sufficient focus and resourcing on documenting what is being delivered and how to use it (through ILS, configuration management and training). Milestones must be structured so that the contractor is not tempted to focus on equipment deliverables only. Payment for equipment milestones should be conditional on achievement of related ILS milestones. The contract should be clear on configuration management requirements of ILS products in an	SEA 1390 Phase 2.1 – Guided Missile Frigate Upgrade

	incremental delivery software development project. This should align to milestones and remedies in the contract.	
Contract management Requirements management	Objective acceptance criteria are required to ensure there is no scope for dispute as to whether the criteria have been met. Criteria for determining contractual achievement should support those criteria used by Defence for determining achievement by DMO of the measure of effectiveness in the MAA	SEA 1390 Phase 2.1 – Guided Missile Frigate Upgrade
First of Type Equipment	Stability of interfaces on ageing platforms may not be reliable, leading to an underestimation of integration complexity.	AIR 5418 Phase 1 – Follow On Stand Off Weapon
First of type equipment	Host platform upgrades not required in the past may now be required, due to the minimum technical performance requirements of new systems to be integrated.	AIR 5418 Phase 1 – Follow On Stand Off Weapon
First of type equipment	FMS is a good procurement vehicle when a US program is mature. However, FMS provides little ability for DMO to manage capability and associated risk when US program is less mature and the Commonwealth is the integrator of project outcomes.	AIR 5418 Phase 1 – Follow On Stand Off Weapon
First of type equipment	For a new or significantly modified design there will be a number of design changes emanating from initial sea trials. The aggressive delivery schedule for the Armidale Class Patrol Boat did not allow time for changes from initial sea trials to be built into the follow-on build boats prior to their construction. This resulted in an evolving design baseline throughout the production phase that was not stabilised until	SEA 1444 Phase 1 – Armidale Class Patrol Boat

	after delivery of the last boat. Consequently the redesign, build, test and acceptance aspects of boats built after the first of class became unnecessarily complicated, expensive and inefficient. Time should be allowed after the first (or second depending on the size of the class) boat build to conduct sea trials and modify and stabilise the design as appropriate prior to the main production run.	
First of type equipment	Procurements that include significant change to software-intensive systems and complex system integration have many inherently high-risk activities, which must be analysed and appropriate risk mitigation processes applied. Such risks are often under- estimated in the planning phase.	SEA 1390 Phase 2.1 – Guided Missile Frigate Upgrade
First of type equipment	In the context of pre-project planning, the need to better appreciate the effort involved in being a customer of a first-of type program.	AIR 5077 Phase 3 – Airborne Early Warning and Control Aircraft
First of type equipment	Recognising the need for proactive risk management and the use of high- end risk management tools.	AIR 5077 Phase 3 – Airborne Early Warning and Control Aircraft
First of type equipment	Appropriate investment in pre- contract work (such as an IDA phase) to better understand the technical risks, clarify Defence's appetite for it and adjust requirements, acquisition strategy and expectations.	AIR 5077 Phase 3 – Airborne Early Warning and Control Aircraft
First of type equipment	Tempering the biases towards overoptimism and underestimation of risk by both industry and Defence, and making allowances for the biases and risks in the commitments made to government and the Capability	AIR 5077 Phase 3 – Airborne Early Warning and Control Aircraft

	Manager.	
First of type equipment	Accepting and accommodating the likelihood of incremental delivery of capability in developmental projects.	AIR 5077 Phase 3 – Airborne Early Warning and Control Aircraft
First of Type Equipment	The development and introduction into service of a first-of-type military (aircraft) mission and support system is always harder than it first appears. At contract signature the project appeared a reasonably low risk venture. However, over the course of the project, it became apparent to both Defence and the contractor that the integration of the fuel delivery systems and military systems on a commercial aircraft introduced many challenges including: software integration issues, underestimation of developmental and certification testing schedule. As a result, a higher effort for a greater period of time was required by Defence to support the program.	AIR 5402 – Air to Air Refuelling Capability
First of type equipment and off-the-shelf equipment	Weapons acquired under the scope of the project proved to be cost effective for the Commonwealth as the weapons were US Navy (USN) common and this also assisted in providing common integration and technical input from the USN.	AIR 5349 Phase 2 – Bridging Air Combat Capability
First of type equipment and off-the-shelf equipment	FMS is a good procurement vehicle when a US Program is truly MOTS. However, FMS provides little ability for DMO to manage capability and associated risk when the US program is less mature.	AIR 5349 Phase 2 – Bridging Air Combat Capability

First of type equipment Off-The-Shelf Equipment	Substantial development in the information technology field over the extended term of the project means that some elements of the system could now be delivered via off-the- shelf solutions or by other contemporary production, rather than attracting extended software development, thereby reducing risk, schedule and possibly cost. The proposed approach for capability development involving substantial software or software systems development over an extended period needs to be considered carefully to enable best use of emerging developments within appropriate risk, schedule and cost constraints.	JP2043 Phase 3A – High Frequency Modernisation
First of type equipment Requirements management	Major maritime software development should be incremental and delivery does not have to be aligned with the platform modification program.	SEA 1390 Phase 2.1 – Guided Missile Frigate Upgrade
First of Type Equipment Schedule Management	Technical (design) maturity assessment: a tender definition activity was undertaken following selection of the preferred supplier and prior to contract negotiations. However, due to time constraints and the breadth of review activities, it was not possible to conduct a comprehensive technical review and maturity assessment. As a consequence, an aggressive system design schedule was agreed that subsequently proved difficult to achieve due to lower design maturity - and hence higher development effort - on some systems. The additional development effort was accommodated under the change to a two-phased conversion and test	AIR 5402 – Air to Air Refuelling Capability

	process. In hindsight, once it became apparent that Australia was the lead customer for the A330 MRTT, a more robust design maturity assessment should have been undertaken under a funded design development process prior to contract award.	
Governance	acquisition cycle for the WGS program necessitated a strengthening of the governance process to ensure lines of authority and responsibility were clear in the definition of business need and option analysis.	JP2008 Phase 4 – Next Generation SATCOM Capability
Governance	During the course of the program, it was found to be essential to continue with an expanded Integrated Project Team which had senior stakeholder representation of all groups involved, including projects delivering the platforms, technical regulatory agencies and the Capability Managers.	LAND 75 Phase 3.4 – Battlefield Command Support System
Governance	Considering the many stakeholder interfaces involved in the NCW programs (which this project is but one), the traditional PMSG forum was found to be insufficient and requiring a broader NCW program focus. As a result, higher level program management oversight, which involves all key stakeholder groups, including the Capability Manager, Capability Development Group and the DMO, has proven to be an essential management forum for the project.	LAND 75 Phase 3.4 – Battlefield Command Support System
Governance Resourcing	Integrated Product Teams: Integrated product teams for all project disciplines (engineering, logistics, commercial, test and evaluation, and display development) were established with members from all	AIR 5376 Phase 2.1 – F/A-18 Hornet Upgrade

	major stakeholders (Commonwealth, prime and sub contractors, US and Canadian Government representatives). These teams met formally on a regular basis and with significant issues being raised with the overarching management integrated product team. As well as ensuring progress towards a common goal, the teams enabled the implementation of many other project initiatives that relied on quick and honest communication between all parties.	
Governance Schedule management	Joint Risk and Schedule Management – through the integrated product teams a common risk and schedule management methodology was implemented for the entire project. Boeing, as the prime integrator, provided a vehicle to manage both risk and schedule in a common framework. Pro-active management of risks was encouraged and many mitigation strategies, particularly in respect to display development, were implemented to avoid schedule delays.	AIR 5376 Phase 2 – F/A-18 Hornet Upgrade
Military off-the-shelf equipment	Considerable acceleration of the standard acquisition cycle is possible when the major supplies being procured are off-the-shelf production items. However, acceleration of establishment of support systems may be more difficult and should attract early management focus.	AIR 8000 Phase 3 – C17 Globemaster III Heavy Airlifter

Off-the-shelf equipment Requirements management Resourcing	Support arrangements – Accelerated Acquisitions. Whilst they deliver equipment quickly, Integrated Logistics Support considerations (e.g. Net Personnel and Operating Cost) can take considerable time when implemented retrospectively. Limitations to resources and costs need to be considered at the early stages of the project to enable robust planning.	LAND 19 Phase 7A – Counter- Rocket Artillery & Mortar
Off-the-shelf equipment Requirements management	Sole source relationships: In a sole source relationship, projects might consider the Commonwealth of Australia would lack leverage over suppliers when negotiating contractual outcomes due to the absence of supplier competition. In this case, early and strong face-to-face engagement between the project office and FMS staff in the US and Saab staff in Sweden assured professional and outcome focused relationships. Using other Defence establishments for training, using partner nations to leverage open source commercial information to gain a sense of value for money in Australia's circumstance, and holding the supplier's reputation for further business opportunities at risk from poor performance in the current project are options available to the Commonwealth when negotiating sole source contracts.	LAND 19 Phase 7A – Counter- Rocket Artillery & Mortar
Requirements	Risks associated with requirements	IP2043 Phase 3A
management	instability, software development	– High
	and systems engineering were known at the time of contract signature but in the light of subsequent events were clearly not adequately addressed in pre-contract	Frequency Modernisation

	negotiations. The experience underlines the importance of having well-defined and stable requirements at contract award, and of contractors having sound systems engineering and software development processes.	
Requirements management	The accelerated procurement of major materiel is possible with off- the-shelf items currently in production, but the establishment of a sustainment solution is a challenge and requires early management oversight.	AIR 5349 Phase 1 – Bridging Air Combat Capability
Requirements management	Interface Control Documents are not always correct or may not have been interpreted correctly during host platform design.	AIR 5418 Phase 1 – Follow On Stand Off Weapon
Requirements management	Failure at project inception to articulate, tailor and agree naval standards to be applied to a ship designed and built to commercial 'Classification Society' standards has resulted in considerable debate and potential cost increase.	SEA 1444 Phase 1 – Armidale Class Patrol Boat
Requirements management	The data generated by Defence Science Technological Organisation as part of the centre barrel test-to- destruction programme will result in a considerable cost saving to the project (due to a reduction in the number of aircraft requiring structural refurbishment programs 2) and an increased flexibility in aircraft modification induction dates.	AIR 5376 Phase 3.2 – F/A-18 Hornet Upgrade Structural Refurbishment
Requirements management	Modifying an ageing weapon system such as the Hornet aircraft can present emergent work such as corrosion and cracking in the aircraft structure which must be rectified while the aircraft is disassembled. Adequate project contingency budget and schedule must be programmed	AIR 5376 Phase 3.2 – F/A-18 Hornet Upgrade Structural Refurbishment

	to accommodate such uncertainties.	
Requirements management Resourcing	Increased need for collaboration due to diverse systems integration. As DMO projects become heavily integrated and dependent on one another, such as interoperable battle management systems, the technical challenges to success become frequent. Close collaboration with the customer, supplier and related DMO projects, early in the process, is essential to understanding the interoperability requirements and developing suitable test plans and schedules that achieve the outcomes of the customer. Regular joint working groups are an excellent way to achieve this.	Land 17 Phase 1A – Artillery Replacement
Requirements management Resourcing	Close stakeholder engagement – whilst delivering a novel and technically complex system to Army, the project experienced a constantly changing environment in terms of customer requirements. In order to ensure the customer's needs are met through timely and accurate representation of requirements to suppliers, continuous face to face stakeholder engagement is essential. Regular working groups with both the customer and supplier are an excellent way to achieve this.	Land 17 Phase 1A – Artillery Replacement
Requirements management	Requirements and specifications must be well defined and agreed before contract signature. Where detailed specifications cannot be defined fully prior to contract signature, such as when systems definition and new design work must be undertaken within a	SEA 1390 Phase 2.1 – Guided Missile Frigate Upgrade

	developmental project phase, then the end capability requirements and priorities must be well defined and agreed.	
Requirements management	Close liaison and communication with Navy stakeholders is required throughout the project life. Navy regulator engagement must be open and transparent from the project commencement to FOC so that the Navy Acceptance Certificate (T1338) residual issues/risks are well understood and easily accepted. Where capability delivered falls short of Navy customer initial expectations as agreed in the MAA, the process of securing concessions/agreement is needed to allow efficient and prompt project closure to avoid/limit inefficient use of resources.	SEA 1390 Phase 2.1 – Guided Missile Frigate Upgrade
Requirements management	For Network Centric Warfare (NCW) projects that have many interfaces and stakeholders, it is essential to have the requirements not only well understood, but to have these very well defined in the suite of Second Pass project approval documentation. This provided a solid foundation to build an executable contract, and helps guide stakeholder projects who are seeking interoperability with the BGC3.	LAND 75 Phase 3.4 – Battlefield Command Support System
Requirements Management	Whilst this project preceded improvements in the capability definition documents (Operational Concept Document, Function and Performance Specification and Test Concept Description), the intent of these documents was included in tender documentation and refined during contract negotiation for inclusion in the Acquisition Contract. The Contractor's internal	AIR 5402 – Air to Air Refuelling Capability

	requirements management process did not adequately support a robust process for customer clarification of the operational intent leading to protracted development and rework. There is a need to ensure that a robust process exists to achieve a common understanding of derived requirements and operational intent, and that it is agreed in the early stages of the project life-cycle.	
Requirements management Contract management	Two stage contracting – Contract Development Agreements facilitate early positive engagement with the contractor, joint development of the resultant fixed price contract and establishes an effective and cooperative work environment	SEA 1390 Phase 4B – SM-1 Missile Replacement
Requirements management Contract management	For significant and high technological upgrades to major systems the acquirer (Commonwealth) acting as the Procurement Coordinator managing separate contracts directly with OEMs allows for better risk management, schedule control and influence on the quality of the contracted supplies.	SEA 1390 Phase 4B – SM-1 Missile Replacement
Resourcing	A reasonable presence of Australian Super Hornet Project Staff in the US is required to enable the Commonwealth adequate insight, influence and progress reporting of the USN and Boeing activities.	AIR5349 Phase 1 – Bridging Air Combat Capability
Resourcing	Personnel resourcing, especially continuity in Business and Finance staff, requires careful management in project wind-down leading to FOC as project reporting and accurate financial accounting remains obligatory and at the same magnitude. Australian Super Hornet Project Office suffered when the business and finance responsibilities	AIR5349 Phase 1 – Bridging Air Combat Capability

	were reassigned from the Project Office in Canberra to Tactical Fighter Systems Program Office 12 months before FOC without an associated transfer of personnel. Furthermore, the level of work to account for assets and inventory procured by the project and the finance resource that would be required following FMR was underestimated causing the processing of Assets Under Construction to be adversely affected. This was further exacerbated by increased governance required through the utilisation of Quality Assurance Rollout Assist. To overcome these deficiencies, finance and logistics resources are being shared within Tactical Fighter Systems Program Office.	
Kesourcing	The level of experience gained as a result of the Joint Standoff Weapon C-1 operational test and evaluation program has provided the DMO with the ability to streamline raise train sustain weapons test programs.	AIR 5349 Phase 2 – Bridging Air Combat Capability
Resourcing	Sufficient resident project staff is important to ensure US Government and contractors understand our requirements and expectations.	AIR 5418 Phase 1 – Follow On Stand Off Weapon
Resourcing	The DMO needs to work closely with Australian Small to Medium Enterprise (SME) companies to ensure the SME resourcing effort and engineering demands in executing Defence contracts is not underestimated.	JP 2008 Phase 4 – Next Generation SATCOM Capability
Resourcing	The need for industry to pay greater attention to adequately resourcing complex and highly developmental projects.	AIR 5077 Phase 3 – Airborne Early Warning and Control Aircraft

Resourcing Contract management	The need to provide adequate resources with sufficient lead-time to develop and execute the evaluation and negotiating phases for the in- service support component of a first of type capability.	AIR 5077 Phase 3 – Airborne Early Warning and Control Aircraft
Resourcing Governance	Applying greater workforce, management focus and governance to the definition, planning and execution of the Integrated Logistics Support and sustainment components of the project in keeping with their significant share of total system life-cycle costs.	AIR 5077 Phase 3 – Airborne Early Warning and Control Aircraft
Schedule management	Closely monitor the return of repairable parts for the production installation phase to ensure no delays are experienced during the rebuild of each aircraft being modified. The more severe action that could be taken is to direct that repairable parts are not removed during the aircraft modification. Close monitoring of modification kit holdings and subsequent timely procurement is required to ensure kit deficiencies do not arise impacting on production schedule.	AIR 5376 Phase 3.2 – F/A-18 Hornet Upgrade Structural Refurbishment
Schedule management	Underestimating the length of time required and effort involved in undertaking these phases when applied to a complex, highly developmental system.	AIR 5077 Phase 3 – Airborne Early Warning and Control Aircraft
Schedule management Resourcing Governance	International Traffic in Arms Regulations (ITAR) – as the number of ITAR controlled items being acquired by Defence increases, the need for close engagement with the Defence Export and Controls office and a detailed data management plan early in the project becomes essential. The movement and transfer of ITAR	Land 17 Phase 1A – Artillery Replacement

	controlled items between countries and parties is governed by Technical Assistance Agreements and Third Party Retransfers, these documents are time consuming to develop with the US government and must be commenced early in the project.	
Schedule Management	The evaluation and scheduling of a gap between Low Rate Initial Production and Full Rate Production is a critical driver for effective and efficient Full Rate Production. This schedule gap must provide suitable time for; evaluation of the Low Rate Initial Production deliverables, planning to overcome any production and performance quality issues, and implementation of improved production procedures.	LAND 121 Ph3A – Overlander Vehicles

Appendix 3: Acquisitions categories

Defence categorises its acquisition projects to enable it to differentiate between the complexities of business undertakings, focus management attention, provide a basis for professionalising its workforce and facilitate strategic workforce planning. Projects are graded into one of four acquisition categories (ACATs):

- ACAT I These are major capital equipment acquisitions that are normally the ADF's most strategically significant. They are characterised by extensive project and schedule management complexity and very high levels of technical difficulty, operating, support and commercial arrangements
- ACAT II These are major capital equipment acquisitions that are strategically significant. They are characterised by significant project and schedule management and high levels of technical difficulty, operating, support arrangements and commercial arrangements
- ACAT III These are major or minor capital equipment acquisitions that have a moderate strategic significance to the ADF. They are characterised by the application of traditional project and schedule management techniques and moderate levels of technical difficulty, operating, support arrangements and commercial arrangements
- ACAT IV These are major or minor capital equipment acquisitions that have a lower level of strategic significance to the ADF. They are characterised by traditional project and schedule management requirements and lower levels of technical difficulty, operating, support and commercial arrangements.

As the complexity of a project will vary over its life cycle, Defence reviews project acquisition categories at defined milestones between entry into the Integrated Investment Program and project completion.

The ACAT framework provides a recognised, consistent and repeatable methodology for categorising projects and aligning project managers' certified experience and competencies to the complexity and scale of projects under management. The ACAT level of a project is assessed against six project attributes:

- acquisition cost the approved budget for the project
- project management complexity the complexity of project management necessary for its execution
- schedule complexity the inherent complexity brought about by delivery pressures on the project
- technical difficulty the complexities associated with technical undertakings such as design and development, assembly, integration, test and acceptance
- operation and support the complexity associated with preparing the organisation and environment in which the system will be operated, supported and sustained
- commercial experience the readiness and capability of industry to develop, produce and support the required capability, and the complexity of the commercial arrangements being managed.

Appendix 4: Project Maturity

CASG's project maturity score quantifies the maturity of a project by way of a score based on the project managers' judgement at defined milestones in its capability development and acquisition phases. This score is then compared against an ideal or benchmark score for that milestone. A project's maturity is assessed on 16 milestones across its lifecycle and for each of these milestones the ideal or benchmark condition is represented by a benchmark score as shown in Figure 1.



Figure 1 - Benchmark maturity scores

The project maturity score comprises a matrix of seven attributes:

- schedule
- cost
- requirement
- technical understanding
- technical difficulty
- commercial
- operations and support.

The project manager assesses the level of maturity that a project reaches at a particular milestone for each of these attributes on a scale of 1 to 10. Score assessment is made by selecting the most appropriate description that fits the question under the attributes columns.

Project maturity scores provide a means of communicating in a simple fashion an indicative 'as is' versus a 'should be' condition to inform decision making for each project. The scores are not precise and are not intended to enable exact comparisons across projects. Following is a description of the project maturity score attributes.

		Pro	ject maturi	ty score mat	rix		
Attributes	Schedule	Cost	Requirements	Technical understanding	Technical difficulty	Commercial	Operation and support
			Delivery pe	erformance			
Maturity Score	How are the IMR & FMR milestones tracking against project approval?	How well is the cost tracking against project approval?	How well are the requirements defined in the MAA being realised?	Defence's understanding of the technical solution and arrangements to operate and support the capability.	How well are the design and its validation coming along?	How well is industry performing?	How well prepared is the project to transition from Acquisition to Sustainment?
10	Achieved	Proven	Demonstrated	Fully understood	Proven	All delivered	Operational
6	Confident	Contingency remains	Tested	Transferred	Tested	Delivered	Transitioning
8	Acceptable	Confident	Designed	Arranged	Integrated	Delivering	Integrated
7	In tolerance	Within contingency	Acceptable	Needs understood	Designed	Manages risk	Being procured
9	Manageable	Negotiated	Contracted	Provided for	Planned	As Contracted	Defined
			Process	maturity			
Maturity score	How realistic is the schedule?	What is the quality of the project estimate?	How well are the requirements defined and understood?	How well are the solutions understood?	How difficult is to integrate the component parts?	Can industry deliver the solution?	Is the impact on the existing operating and support environment understood?
5	Confirmed	Pre- endorsed capability	Endorsed	Understood	Manageable	Offered	Planned
4	Understood	Industry tested	Documented	Feasible	Feasible	Industry proposals	Known
3	Feasible	Reasonable	Solution classes	Coalescing	Building blocks	Strategy developed	Issues understood
2	Drivers known	Plausible	Scenarios identified	Minimal	Conceptual	Possible	Conceivable
Ŧ	Speculative	Speculative	Deficiency	Not at all	Not defined	Not yet	Not identified

Project life cycle		Benchmar
gates ¹	Represents	к maturity score
Enter Defence Integrated Investment Program	The stage at which a project is recommended to Government for inclusion in the Defence Integrated Investment Program	13
Decide viable capability options	The stage in the capability definition/ development process when 1 st Pass options that will be put to Government are decided by Chief CDG	16
1 st pass approval	The stage at which 1 st Pass options to be put to Cabinet are endorsed by the Defence Integrated Investment Program Committee	21
Industry proposals/ offers	The stage at which formal responses from industry to a request for price or request for tender have been received and evaluated	30
2 nd pass approval	The stage in the capability definition/development process when 2 nd pass approval is sought from Cabinet	35
Contract signature	On completion of contract negotiations and on concluding contract signature of a contract that has maximum influence on the project	42
Preliminary design review(s)	On completion of system requirements reviews and when preliminary design reviews are completed	45
Detailed design review(s)	On completion of detailed design reviews	50
Complete system integration and test	On completion of verification and validation activities at the system and subsystem levels	55
Complete acceptance testing	On completion of all contractual acceptance testing and associated testing activities nominated in the Test and Evaluation Master Plan	57
Initial materiel release	Occurs when the materiel components that represents the CASG contribution to initial operational release are ready for transition to the capability manager	60
Final materiel release	Occurs when all the products and services within the MAA have been transitioned to the capability manager.	63
Final contract acceptance	On final acceptance as defined in the contract.	65
MAA closure	Occurs when all of the actions necessary to finalise the MAA have been completed, including completion of all financial transactions and records, completion of contracts and transfer of remaining fund.	66
Acceptance into service	The point at which the capability manager accepts the materiel system, supplies and services for employment in operational service ²	67
Project completion	Project closure is achieved when the project is financially closed, support arrangements have been transitioned and all MAA requirements have been demonstrated and transitioned.	70

¹ Defence is in the process of replacing this as the Capability Life Cycle implementation progresses. This will still be relevant for the historical data presented in the 2016-17 Major Projects Report.

² Where multiple elements of a mission system are involved (e.g. three surface combatants) this date represents Initial Operational Capability (IOC) of the initial Subset, including its associated operational support, i.e. when the IOC is achieved.

Appendix 5: Glossary

Acquisition Categories	See Appendix 1.
Additional Estimates	Where amounts appropriated at Budget time are required to change, the Parliament may make adjustments to portfolios through the Additional estimates process.
Australianised Military-off- the-shelf	An adapted military-off-the-shelf product where modifications are made to meet particular ADF operational requirements.
Capability	The power to achieve a desired operational effect in a nominated environment within a specified time and to sustain that effect for a designated period. Capability is generated by the Fundamental Inputs to Capability.
Capability manager	A capability manager (CM) has the responsibility to raise, train and sustain capabilities. In relation to the delivery of new capability or enhancements to extant capabilities through the Defence Integrated Investment Plan, CMs are responsible for delivering the agreed capability to Government, through the coordination of the fundamental inputs to capability. Principal CMs are Chief of Navy, Chief of Army, Chief of Air Force, and Chief of Joint Capabilities.
Capital equipment	Substantial end items of equipment such as ships, aircraft, armoured vehicles, weapons, communications systems, electronics systems or other armaments that are additional to, or replacements for, items in the Defence inventory.

Contract change proposal	This is a formal written proposal by the Commonwealth or the contractor, prepared in accordance with the terms and conditions of the contract, to change the contract after the effective date. After agreement by the parties, the contract is amended in accordance with the processes established in the contract
Corporate governance	The process by which agencies are directed and controlled, and encompasses; authority, accountability, stewardship, leadership, direction and control.
Developmental	A product that is not available off-the-shelf and has to be developed specifically to meet the ADF's particular operational requirements.
Fixed price contract	A fixed price contract is unalterable in all respects for the duration of the contract, except where the parties agree to a contract amendment which alters that contract price.
Foreign Military Sales	The US Department of Defense's Foreign Military Sales program facilitates sales of US arms, Defense services, and military training to foreign governments.
Forward Estimates	The level of proposed expenditure for future years (based on relevant demographic, economic and other future forecasting assumptions). The Government requires forward estimates for the following three financial years to be published in each annual Federal Budget paper.
Function and performance specification	A specification that expresses an operational requirement in function and performance terms. This document forms part of the capability documentation.
Materiel Acquisition	An agreement between Defence and CASG which states in concise terms what services and products

Agreement	will be delivered, for how much and when.
Memorandum of understanding (MOU)	A memorandum of understanding is a document setting out an agreement, usually between two government agencies.
Minor Capital Acquisition Project	A Defence project in which the proposed equipment falls within the definition of capital equipment but does not meet the criteria in the definition of a major project.
Off-the-shelf	A system or equipment that is available for purchase, which is already established in-service with another military or government body or commercial enterprise and requires only minor, if any, modification to deliver interoperability with existing ADF assets.
Operational concept document	The primary reference for determining fitness-for- purpose of the desired capability to be developed. This document forms part of the Capability Definition Document.
Operational test and evaluation (OT&E)	Test and evaluation conducted under realistic operational conditions with representative users of the system, in the expected operational context, for the purpose of determining its operational effectiveness and suitability to carry out the role and fulfil the requirement that it was intended to satisfy.
Platforms	Refers to air, land, or surface or sub-surface assets that are discrete and taskable elements within the ADF.
Portfolio Budget Statement	A document presented by the Minister to the Parliament to inform Senators and Members of the basis for Defence budget appropriations in support of the provisions in Appropriation Bills 1 and 2. The statements summarise the Defence budget and provides detail of outcome performance forecasts and resources in order to justify agency expenditure.

Prime system integrator	The entity that has prime responsibility for delivering the mission and support systems.
Public Governance, Performance and Accountability Act 2013	<i>The Public Governance, Performance and Accountability</i> <i>Act</i> 2013 came into effect on 1 July 2014 and superseded the <i>Financial Management and</i> <i>Accountability Act</i> 1997. It is a Commonwealth Act about the governance, performance and accountability of, and the use and management of public resources by, the Commonwealth, Commonwealth entities and Commonwealth companies, and for related purposes.
Test concept document	The basis for the development of the Test and Evaluation Master Plan for a project, and is the highest level document that considers test and evaluation requirements within the capability systems' life-cycle. This document forms part of the Capability Definition Document.
Variable price contracts	Variable price contracts provide for the contractor to be paid a fixed fee for performance of the contract, subject to certain variations detailed in the contract. Variable price contracts may allow for variations in exchange rates, labour and/or material costs.