

Modernising Army Command and Control — the Land 200 Program

Department of Defence

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Canberra ACT
23 May 2019

Dear Mr President
Dear Mr Speaker

In accordance with the authority contained in the *Auditor-General Act 1997*, I have undertaken an independent performance audit in the Department of Defence. The report is titled *Modernising Army Command and Control — the Land 200 Program*. Pursuant to Senate Standing Order 166 relating to the presentation of documents when the Senate is not sitting, I present the report of this audit to the Parliament.

Following its presentation and receipt, the report will be placed on the Australian National Audit Office's website — <http://www.anao.gov.au>.

Yours sincerely



Grant Hehir
Auditor-General

The Honourable the President of the Senate
The Honourable the Speaker of the House of Representatives
Parliament House
Canberra ACT

AUDITING FOR AUSTRALIA

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Contents

Summary and recommendations.....	7
Background	7
Conclusion	8
Supporting findings.....	8
Recommendation	10
Summary of entity response.....	10
Key messages from this audit for all Australian Government entities	11
Audit findings.....	13
1. Background	14
Introduction	14
Land 200 acquisition.....	14
Rationale for undertaking the audit	22
Audit approach	22
2. Procurement and value for money	23
Did Defence conduct an effective requirements definition process?	23
Did Defence conduct an effective and value-for-money procurement for the Army's Tactical Communications Network to 2016 — JP 2072 Phase 3?	25
Did Defence conduct an effective and value-for-money procurement for the Army's Battle Management System to 2016 — Land 75 Phase 4?	28
Did Defence effectively address the unaffordability issues facing its two tender processes?	32
3. Governance and contracting	37
Did Defence establish effective project review and governance frameworks?	37
Do contracting arrangements and internal reporting allow Defence to effectively monitor and manage contractor and project performance?	43
Appendices	49
Appendix 1 Department of Defence response	50
Appendix 2 Harris Communications (Australia) response	52
Appendix 3 Land 200 Tranche 1	54
Appendix 4 Work Package A of Land 200 Tranche 2	57

Summary and recommendations

Background

1. Since 2005, the Department of Defence (Defence) has been developing the digital command and control of Army forces, through an overlapping series of projects and tranches now known collectively as Land 200. This capability was noted as a critical enabler for land force operations in the Defence White Paper 2009. In 2017, the Chief of Army described Land 200 as the 'highest-priority project in the Army':

because when we build a network and connect all the parts of that force to that network we are greater than the sum of the individual. It is the improved quality of command and control of all aspects of our operations, so it's not about high-end warfare, not about counterterrorism. It's about everything we do.

2. The capability being acquired through Land 200 is comprised of two major systems:

- the Battle Management System — which enables commanders to monitor, direct and review operations with electronic displays of maps and combat data; and
- the Tactical Communications Network — comprising secure, mobile infrastructure (such as radios) to support the data and voice distribution of the Battle Management System and other combat systems used by the Australian Army.

3. Land 200 is being acquired on behalf of Army by Defence's Capability Acquisition and Sustainment Group, at a cost to date of some \$1.3 billion, with over \$600 million of expenditure remaining for Tranche 1 and Tranche 2.

Rationale for undertaking the audit

4. Modernising the Australian Army's communications capability is important for providing Army commanders with better visibility of, and communications with, soldiers and vehicle formations, and for improving soldier safety. This topic was selected for audit due to the importance of the Land 200 program to Army, the two-year delay in delivering Tranche 1 of the program and the expected cost of nearly \$2 billion to deliver Tranches 1 and 2. Tranche 3 is expected to cost a further \$1 billion–\$2 billion.

Audit objective and criteria

5. The objective of the audit was to assess the effectiveness and value for money of Defence's acquisition of a Battle Management System and a Tactical Communications Network through Land 200 Tranche 2 Work Packages B–D. To form a conclusion against the audit objective, the ANAO adopted the following high-level criteria:

- Defence conducted effective and value-for-money acquisition processes.
- Defence established effective project governance and contracting arrangements.

6. The audit scope focused on Work Packages B–D of Land 200 Tranche 2. Given the complexity and interdependencies of the Land 200 program, the outcomes of earlier work — Tranche 1, and Work Package A of Tranche 2 — have also been reported in this audit.

Conclusion

7. Defence did not conduct fully effective acquisition processes for Land 200 Tranche 2 Work Packages B–D, but may ultimately achieve value-for-money outcomes if the contracted quality and quantity of goods and services are delivered according to the agreed schedule and successfully integrated by Defence. Defence established an appropriate review framework for the acquisition projects, but its effectiveness was undermined by a failure of governance.

8. Inadequate requirements definition and poor coordination between the two responsible project offices contributed to an ineffective 2015 procurement for the Army's Tactical Communications Network, which required a lengthy post-tender refinement process to bring the acquisition within the approved budget. The 2015 sole-source procurement process for the Army's Battle Management System was ultimately effective, but the procurement was delayed pending resolution of affordability issues affecting Land 200 Tranche 2 as a whole. Defence addressed affordability issues by adopting a 'design to price' strategy, significantly reducing project scope and assuming additional risk and cost by taking on the role of Prime Systems Integrator. Defence has assessed that it can achieve value-for-money outcomes following these adjustments.

9. The difficulties encountered in Land 200 Tranche 2 stem in large measure from one project office's release of a Request for Tender with a scope that exceeded the approved cost and did not fully assess the budget consequences or governance and coordination arrangements at a program level. The desired outcome shifted from the procurement of radios to the procurement of a complex digital communications solution, as Army developed its understanding of how it would operate in a digital environment.

10. Defence did not establish fully effective project governance arrangements. Defence established an appropriate review framework, with successive reviews identifying project coordination risks from 2013. Defence management's failure to implement the recommendations of these reviews until 2017 constitutes a failure of governance that negatively affected the 2015 tender outcomes.

11. Defence has established effective contract arrangements. However, vehicle integration costs were not included at contract signature because funding was insufficient, and Defence has now accessed contingency funding to reinstate this scope into the contract.

Supporting findings

Procurement and value for money

Requirements

12. Defence did not conduct an effective requirements definition process. The need to align the capability being procured by the two responsible project offices was recognised in 2012 but the project offices did not align requirements for the interconnected projects and developed different conceptions of the capability, adding layers of risk and duplicated effort. Army's final stakeholder review before contract signature in 2017 raised concerns about the lack of verification statements for many requirements, which was considered to present risk to the achievement of an integrated network.

Tactical Communications Network procurement to 2016

13. Defence's 2015 procurement process for the Army's Tactical Communications Network was not effective. Weaknesses in the project office's requirements process resulted in surprises during the tender process and necessitated a lengthy post-tender refinement process to attempt to bring the acquisition within budget.

14. By late 2016, Defence had assessed the single tender received from Harris for the Tactical Communications Network as offering value for money but as unaffordable (both in terms of project budget and total Land 200 Tranche 2 budget) despite significant reductions in scope. The effectiveness of the procurement of the Tactical Communications Network was impacted by the significant disconnect between the funding allocated to JP 2072 Phase 3 in 2013 and the scope included in the 2015 Request for Tender. Defence records indicate that a number of companies declined to bid because the Request for Tender included a network solution rather than radio equipment. There is no documented government approval for the shift in scope from a simple procurement of radios (as approved by Government at First Pass in 2013) to a complete, new network solution.

Battle Management System procurement to 2016

15. The 2015 sole-source procurement process for the Army's Battle Management System was ultimately effective, following significant refinement and scope reductions. The decision to undertake a sole-source tender to Elbit for the Battle Management System was based on the substantial investment already made by Defence and the difficulties inherent in operating another system concurrently. To maintain some competitive pressure in the context of a sole-source procurement, Defence reserved the right to release a limited tender to other firms.

16. By late 2016, Defence had assessed Elbit's tender as offering value for money but could not conclude the tender process until the overall affordability of the Land 200 Tranche 2 program — including the Tactical Communications Network — was addressed. Cost and risk ratings were adjusted to be more positive in successive tender evaluation reports, but the reasons for these changes were not documented.

Addressing unaffordability

17. In 2017, Defence took a number of effective actions — including project rationalisation and adoption of a 'design to price' negotiation strategy — to address the unaffordability issues facing Land 200 Tranche 2. In doing so, Defence was able to conclude both tenders but accepted a significantly reduced project scope and extra risk (and cost) by assuming the role of Prime Systems Integrator. Prior to signing contracts with Harris and Elbit in 2017, Defence assessed that the revised procurement approach delivered value for money in terms of capability, cost and schedule. The value-for-money assessment also had regard to the potential cost, delay and loss of experience associated with adopting different systems.

Governance and contracting

Project governance and review frameworks

18. Defence established an appropriate project review framework, including regular internal reviews, an internal audit, and the Land Enhanced Command and Control Capability Council. At the individual project level, successive reviews from 2013 to 2016 noted a lack of coordination

between the two project offices responsible for Land 200 Tranche 2. However, management did not act on the advice provided, and the two project offices were not merged until 2017. The lack of alignment between the two projects was assessed by Defence as negatively affecting the 2015 tender outcomes. A subsequent internal review in 2017 recognised that significant progress had been made since the project office merger.

Contracting arrangements and internal reporting

19. Defence has established effective contracting arrangements to monitor and manage the performance of the contractors. The arrangements include oversight bodies, an early baseline review, and regular contract reporting against milestones. Each contractor achieved completion of an Integrated Baseline Review in 2018, three months late in the case of Harris and on schedule in the case of Elbit. To date, each contractor has provided regular reports to Defence.

20. Vehicle integration was a known requirement before contract signature, but this cost was not included in the relevant contract in 2017 because funding was insufficient. Defence did not advise Government at Second Pass in 2017 of this scope reduction, but has subsequently drawn on project contingency funds to reinstate this scope into the contract. Delays in providing access to the Army's tanks and recovery vehicles for integration purposes are impacting the program schedule, and Initial Materiel Release may be delayed. Defence advised the ANAO in April 2019 that 'The 12 month delay in the Hawkei vehicle schedule is likely to impact the L200 [Land 200] Tranche 2 schedule. The subsequent impact on the L200 Tranche 2 Initial Operational Capability and Final Operational Capability is yet to be fully understood.'

Recommendation

Recommendation no.1

Paragraph 2.64

That Defence assess whether it has the capability to adequately perform the role of Prime Systems Integrator, and provide assurance on this matter to the Capability Manager, Chief of Army.

Department of Defence response: *Defence agrees to this recommendation.*

Summary of entity response

21. The proposed report was provided to the Department of Defence. The Department's summary response is below and its full response is at Appendix 1.

Defence presented an affordable capability option to Government for 2nd Pass Approval in 2017. Post 2nd Pass Approval, Defence identified issues and established effective contract arrangements to monitor and manage the performance of its contractors. Defence also put in place new program governance structures and successfully merged the two projects into a single, coherent Land 200 Program Office in 2017.

The Land 200 Program's governance, schedule and technical challenges reflect the nature of the rapidly changing digital systems and communications environment in which Defence operates. Defence is actively incorporating these lessons learned into the smart buyer process for Land 200 Phase 3, including improving Defence's requirements definition, understanding of the market, cost estimation, assessment of how the Prime System Integrator role will be performed and improved coordination with other interdependent programs.

Defence is confident that Army has access to a world leading system that will continue to evolve into a next generation Land Combat System under Land 200 Phase 3.

22. An extract from the proposed report was provided to Elbit Systems of Australia and Harris Communications (Australia) Pty Ltd. The full response provided by Harris Communications (Australia) Pty Ltd is at Appendix 2. Elbit Systems of Australia advised that it would not be providing a response.

Key messages from this audit for all Australian Government entities

23. Below is a summary of key messages, including instances of good practice, which have been identified in this audit and may be relevant for the operations of other Australian Government entities.

Governance and risk management

- Interdependent projects require effective and coordinated program-level management and governance arrangements to support their delivery.
- Where similar recommendations to management are made by successive reviewers, they should not be rejected by line management without appropriate escalation and review by senior leaders.
- Audit committees can add value by reviewing management's rationale for the closure of internal audit findings, particularly where the closure of specific project-level recommendations is based on the implementation of strategic entity-level initiatives.

Procurement

- It is good practice to reserve the right to release a limited tender to other companies if a contractor's response to a sole-source tender has an unacceptable level of risk, offers less favourable conditions than an existing contract or fails to provide value for money.

Audit findings

1. Background

Introduction

1.1 Since 2005, the Department of Defence (Defence) has been developing the digital command and control of Army forces, through an overlapping series of projects and tranches now known collectively as Land 200. This capability was noted as a critical enabler for land force operations in the Defence White Paper 2009.¹ In 2017, the Chief of Army described Land 200 as the ‘highest-priority project in the Army’:

because when we build a network and connect all the parts of that force to that network we are greater than the sum of the individual. It is the improved quality of command and control of all aspects of our operations, so it’s not about high-end warfare, not about counterterrorism. It’s about everything we do.²

1.2 Land 200 is intended to transition Army’s command and control from a paper-based system to a modern digital system. Land 200 replaced a previous system, first known as AUSTACCS, that was delivered in the period 1982 to 1998. AUSTACCS was incrementally redeveloped, as the Battlefield Command Support System, from 1999 to 2014. This previous system was recognised as being significantly limited in its networking and data distribution capability. Designed for use in command posts, its electronic battle map was not in real time. In contrast, the Land 200 capability provides real-time situational awareness (including friendly-force tracking), combat planning tools and complex combat messaging.

1.3 Land 200 is being acquired on behalf of Army by Defence’s Capability Acquisition and Sustainment Group, at a cost to date of some \$1.3 billion, with over \$600 million of expenditure remaining for Tranche 1 and Tranche 2.

Land 200 acquisition

1.4 The capability being acquired through Land 200 is comprised of two major systems:

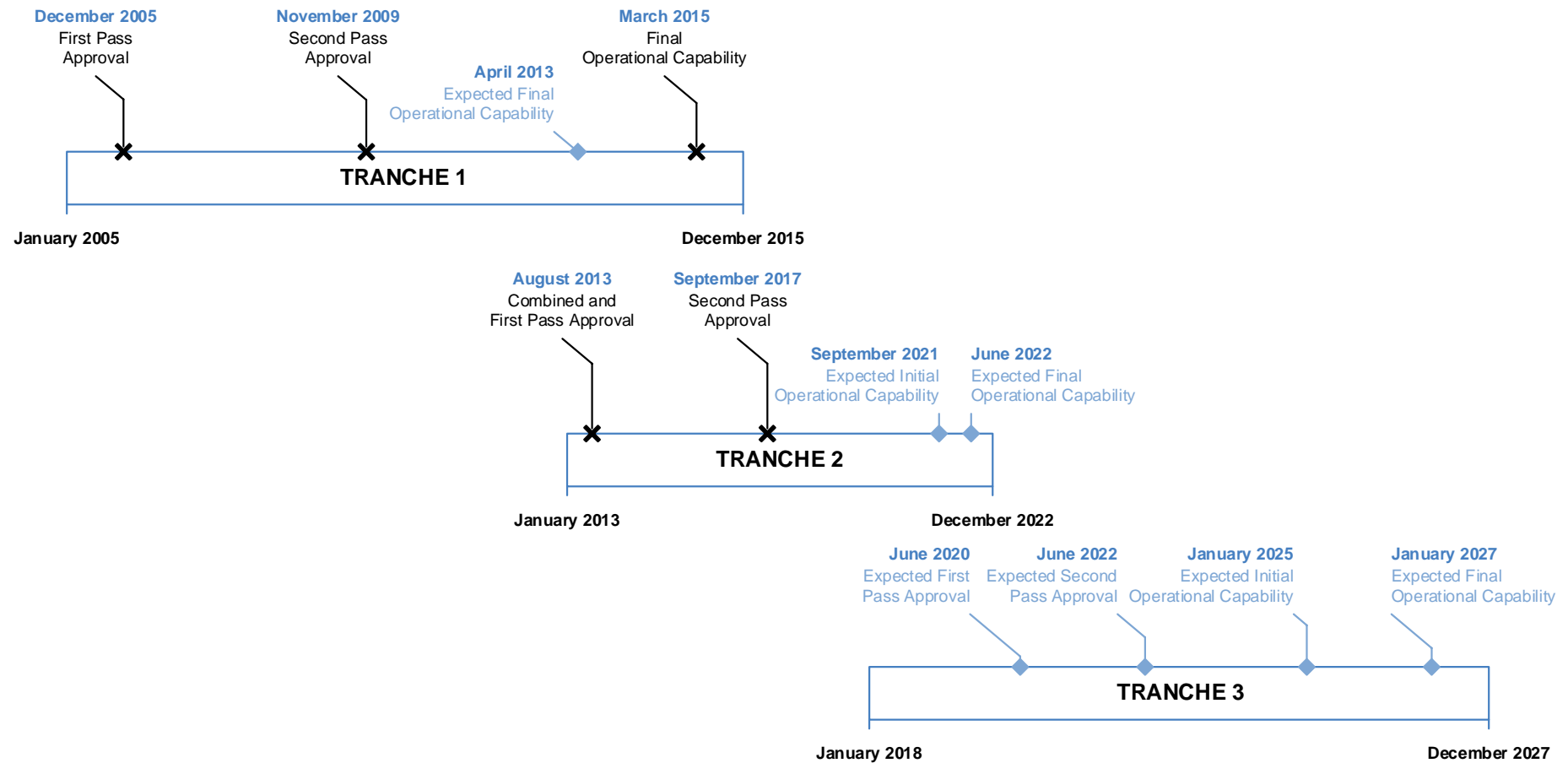
- the Battle Management System — which enables commanders to monitor, direct and review operations with electronic displays of maps and combat data; and
- the Tactical Communications Network — comprising secure, mobile infrastructure (such as radios) to support the data and voice distribution of the Battle Management System and other combat systems used by the Australian Army.

1.5 There are numerous technical and programmatic dependencies within Land 200, and with almost 50 other Land and Joint projects currently provisioned in Defence’s Integrated Investment Program. Land 200 is comprised of three tranches of activity (see Figure 1.1 on the following page). Tranche 1 achieved Final Operational Capability in the first quarter of 2015, two years behind schedule. Tranche 2 achieved contract signature in 2017 and is expected to achieve Final Operational Capability in 2022. Tranche 3 has commenced, with industry briefings held in September 2018.

1 *Defending Australia in the Asia Pacific Century: Force 2030. Defence White Paper 2009*, Canberra, 2009, pp. 67, 76, 84.

2 ‘System “a game changer”’, *Army News*, 14 December 2017, p. 11.

Figure 1.1: Tranches of Land 200



Note a: Expected dates for Initial Operational Capability and Final Operational Capability are as at Second Pass.

Note b: Tranche 3 dates are preliminary as at May 2019.

Source: ANAO analysis.

Land 200 Tranche 1

1.6 Tranche 1 comprised three separate, but related, projects intended to equip a third of the Army:

- Land 75 Phase 3.4 — Battle Management System (as shown in Figure 1.2). The Tranche 1 version of the Battle Management System — known as the Battle Group Command, Control and Communication System — enables the distribution of tactical combat data to and from vehicle commanders and infantry;
- Land 125 Phase 3A — dismounted (soldier-carried) Battle Management System; and
- JP 2072 Phase 1 — vehicle-mounted radios and vehicle installation kits.³

1.7 Tranche 1 received Second Pass approval in November 2009, and achieved Final Operational Capability in March 2015. Tranche 1 expenditure to date amounts to some \$600 million. Defence advised the ANAO that it expects to close this project in June 2019.

Figure 1.2: The Battle Management System



Note: The screens and table illustrate Elbit's Battle Management System, while the Harris radios provide the Combat Radio System for transmission of Battle Management System data.

Source: Defence Image Library, S20172954.

3 The term 'Land 200' was originally used by Defence as a convenient aggregation of related projects for discussion. The term originated as a combination of Land 75 and Land 125 — adding to 200. The term was used at Land 200 Tranche 2 First Pass in 2013 for projects Land 75 Phase 4 and JP 2072 Phase 3.

Land 200 Tranche 2

1.8 Tranche 2 of Land 200 (the main focus of this audit) is intended to equip almost another third of the Army with the Land 200 capability. Tranche 2 is also continuing the development of the Battle Management System, including enhancements to Joint (Australian Defence Force) and Coalition (international) interoperability.

1.9 For some years — until combined into a single program office in early 2017 — Tranche 2 was managed by two Defence project offices:

- JP 2072 Phase 3 for the Tactical Communications Network; and
- Land 75 Phase 4 for upgrade of the Battle Management System and its installation into further vehicle fleets.

1.10 Tranche 2 comprises four work packages (A, B, C and D) across both projects. The two projects are interdependent, requiring both procurement processes to be finalised for Tranche 2 Work Packages B–D to proceed. The deliverables for each Tranche 2 work package are outlined in Table 1.1.

Table 1.1: Work Packages of Land 200 Tranche 2

Work Package	Deliverables
A	<ul style="list-style-type: none"> • Follow-on purchase of mounted Battle Management System and associated radios, and their integration into vehicles already approved or designed under Tranche 1 including protected mobility vehicles (PMV), light tactical vehicles (G-Wagons), and armoured personnel carriers (M113).
B	<ul style="list-style-type: none"> • Integration of the Battle Management System into three more fleets: M1A1 tanks, M88 recovery vehicles, and Protected Mobility Vehicles–Light (Hawkei). • Integration of the Tranche 1 system into selected Medium Heavy Capability (MHC) protected vehicles. • A Tactical Communications Network with a new voice and data solution that is also intended to be acquired by future vehicle programs including Land 400 (the Boxer Combat Reconnaissance Vehicle) and Land 907 (the future Main Battle Tank).
C	<ul style="list-style-type: none"> • Integration of the Land 200 capability into the Army training system, including the various Defence schools.
D	<ul style="list-style-type: none"> • Development of planning software for Joint Task Force and Brigade Headquarters and enabling of interoperability with joint and coalition systems. • Development of a Weapon-Integrated BMS (WINBMS) for the M1A1 tank to enable direct fires and targeting and collaborative engagement.^a

Note a: The WINBMS will commence the evolution of the Battle Management System from a command and control system to a combat system.

Source: ANAO analysis of Defence documentation.

1.11 Work Package A of Tranche 2 was endorsed by Government in August 2013, and achieved Final Materiel Release in December 2017. Defence advised the ANAO that it expects to close Work Package A in June 2019. Work Packages B–D also received First Pass approval in August 2013,

followed by Second Pass approval in September 2017.⁴ Contracts for Work Packages B–D of Tranche 2 were signed in September 2017.

1.12 Three contractors are responsible for delivering Tranches 1 and 2 to Defence, as shown in Table 1.2.

Table 1.2: Contract deliverables of Land 200 Tranches 1 and 2

	Elbit Systems of Australia	Harris Communications (Australia) Pty Ltd	Raytheon Australia
Tranche 1	<ul style="list-style-type: none"> • Battle Management System 	<ul style="list-style-type: none"> • Radios 	<ul style="list-style-type: none"> • Tactical Data Radios
Tranche 2	<ul style="list-style-type: none"> • Enhanced Battle Management System • Training • Simulation 	<ul style="list-style-type: none"> • Radios (network enabled) • Tactical Communications Network 	<ul style="list-style-type: none"> • Tactical Data Radios (Work Package A only)

Source: ANAO analysis.

Tranche 2 First Pass decision, 2013

1.13 At First Pass for Land 200 Tranche 2 in August 2013, Defence sought government approval for:

- Work Package A — a follow-on buy to install the Battle Management System and radios into more of the vehicles — Bushmasters, G-Wagons and M113 Armoured Personnel Carriers — for which design work had already been completed under Tranche 1, at a cost of \$387 million.⁵ Work Package A was regarded as low-risk because it was purchasing ‘more of the same’ vehicle radio systems;
- Risk Reduction Activities to develop Work Packages B–D to Second Pass, at a cost of \$104 million, with these packages involving:
 - integration of the Battle Management System into five additional vehicle fleets: M1A1 tank, M88 recovery vehicles, ASLAV, Hawkei, and medium-heavy trucks (Work Package B);
 - training and simulation (Work Package C);
 - further development of the Battle Management System, and updating of the technology and communications network architecture, including acquisition of over 11,000 personal radios (Work Package D); and
- an estimated acquisition cost of \$815 million for Work Packages B–D.

1.14 Defence advised Government that the acquisition cost for the follow-on buy (Work Package A) was largely based on executable industry quotes, and that the benefits of commencing Tranche 2 outweighed the benefits of delaying project approval until Tranche 1 achieved Final Operational Capability.

⁴ Minister for Defence and Minister for Defence Industry, *Revolutionary new Battlefield Command System for the Army*, media release, 28 November 2017.

⁵ The cost was allocated as follows: \$171 million for JP 2072 Phase 3, and \$215 million for Land 75 Phase 4.

1.15 Defence also advised Government that the value for money in the acquisition would rely on: the substantial investment already made into integrating the Battle Management System into vehicle fleets; the low risk of failure given the already proven system; the competitive tender conducted from 2007–10; Defence’s knowledge of Elbit’s costs and resource drivers; and Defence’s significant Intellectual Property rights in the Battle Management System.

1.16 The Prime Minister gave Combined Pass approval (that is, simultaneous First and Second Pass approval) for Work Package A, and First Pass approval for Work Packages B–D, on 5 August 2013,⁶ noting the timing imperative for project approval so that contracts could be signed with Elbit by October 2013. Second Pass for Work Packages B–D was scheduled for September 2015, with Initial Operational Capability scheduled for September 2017 and Final Operational Capability for December 2018. At this time, Defence’s total allocation for Tranche 2 — including Work Package A — was some \$1.3 billion, comprising \$996 million for acquisition and \$325 million for sustainment until 2033.

1.17 The funding split between the two projects for the acquisition of Work Packages B–D was stated in the Cost Model that was presented to Government, with \$185 million allocated to JP 2072 Phase 3, \$578 million to Land 75 Phase 4 and \$52 million for other costs within Defence.⁷ In November 2011, the Government had approved the transfer of \$439 million from JP 2072 Phase 2A (which was not a part of Land 200) to JP 2072 Phase 3. The amount approved in 2013 for JP 2072 Phase 3 was substantially less than the November 2011 transfer. The 2013 First Pass decision makes no reference to the 2011 approval to transfer funds or the availability of these funds.

Tranche 2 Second Pass decision, 2017

1.18 At Second Pass for Land 200 Tranche 2 Work Packages B–D in September 2017, the Government approved:

- expansion of the Battle Management System into Brigade and Joint Task Force Headquarters;
- introduction of the Battle Management System into four additional vehicle fleets: M1A1 tank, M88 recovery vehicles, Hawkei, and medium-heavy trucks;
- introduction of Battle Management System training and simulation facilities across Australia; and
- software development to assist in managing the network and to support the exchange of data.

1.19 The number of vehicles to have the Land 200 capability installed was reduced by about half as compared to the First Pass request, and the dismounted solution was again postponed to the

⁶ This was the same day that writs were issued for the 2013 federal general election.

⁷ Defence’s budget provision for Land 200 Tranche 2 was announced a number of times in public Defence Capability Plans, with the total draft allocation increasing from \$400 million–\$500 million (2006), to \$600 million–\$2 billion (2009), to \$800 million–\$1.5 billion (2012). In 2006, the expected funding split between the two projects was 50:50; in 2009 and 2012, the funding split was largely weighted towards JP 2072 Phase 3. In 2017, these separate budget provisions were combined into a single provision for Land 200 Tranche 2.

following tranche (Tranche 3), as was the requirement for over 11,000 personal radios and other subsystems (see paragraph 1.13).

1.20 In its September 2017 advice to Government, Defence identified the technical risk as high, and the overall risk as medium–high, due to: the complexity of the system; the lack of a clear and robust design for some network elements; and the technical challenges involved.

1.21 Initial Operational Capability was scheduled for the Third Quarter of 2021, and Final Operational Capability for the Second Quarter of 2022.⁸ The overall acquisition cost was agreed as \$997 million, including contract costs of \$731 million and an estimated \$216 million (30 per cent of those contract costs) classified as Australian Industry Involvement.⁹

Land 200 Tranche 3

1.22 Tranche 3 of Land 200 is intended to run from 2018 to 2027, completing the introduction of the Land 200 capability across the Joint Land Force, at a cost of \$1 billion–\$2 billion.

1.23 For key events in the Land 200 program since 2013, see Table 1.4 (on the following page).

Land 200 budget and expenditure

1.24 The acquisition budgets of the Land 200 projects at Second Pass, expenditure to 31 December 2018 and estimated remaining expenditure are shown in Table 1.3 (amounts are not inflation-adjusted).

Table 1.3: Budget and expenditure of the Land 200 projects

		Second Pass budget (\$m)	Expenditure to 31 Dec 2018 (\$m)	Estimated remaining expenditure (\$m)
Tranche 1	JP 2072 Phase 1	254.4	237.5	7.3
	Land 75 Phase 3.4	340.7	279.5	8.2
	Land 125 Phase 3A	124.7	91.7	15.5
Tranche 2 (Work Package A)	JP 2072 Phase 3	171.1	148.3	0 ^a
	Land 75 Phase 4	318.9	359.2	3.2
Tranche 2 (Work Packages B–D) ^b	JP 2072 Phase 3	996.8	245.6	618.2
	Land 75 Phase 4			

Note a: \$20.3 million was transferred from Work Package A to Work Packages B–D in 2017.

Note b: At First Pass in 2013, Government approved \$104 million for Land 75 Phase 4 Risk Reduction Activities, and \$815.5 million for acquisition under both Land 75 Phase 4 and JP 2072 Phase 3. See paragraphs 1.13 and 1.17.

Source: ANAO analysis of Defence documents.

⁸ These dates represent delays of four years over the preliminary estimates provided to Government at First Pass in August 2013 (see paragraph 1.16).

⁹ The estimated value of Australian Industry Capability, that is, planned expenditure in Australia, was later increased to \$329 million (see paragraph 3.38).

Table 1.4: Key events in the Land 200 program since 2013

5 August 2013 Combined Pass for Tranche 2 Work Package A First Pass for Tranche 2 Work Packages B–D	
Land 2072 Phase 3	Land 75 Phase 4
December 2013 Orders placed for more radios (Work Package A)	December 2013 Tranche 2 contract amended to add Battle Management System to more vehicle fleets (Work Package A)
March 2015 Tranche 1 achieves Final Operational Capability	
1 April 2015 Defence releases open Request for Tender	September 2015 Defence releases sole-source Request for Tender to Elbit
15 July 2015 Harris provides the only tender	September 2015 Elbit provides its tender
October 2015 Defence finds Harris's tender merits further consideration	April 2016 Defence finds that Elbit's tender does not represent value for money
August 2016 Harris provides a revised tender	August 2016 Elbit provides a revised tender
September 2016 Defence finds that Harris's tender represents value for money	November 2016 Defence finds that Elbit's tender represents value for money
February 2017 Defence merges the two project offices and invites a Joint Proposal for Further Negotiations from the tenderers	
April–September 2017 Defence conducts parallel contract negotiations with each tenderer	
12 September 2017 Second Pass for Tranche 2 Work Packages B–D	
26 September 2017 Contracts signed	
December 2017 Tranche 2 Work Package A achieves Final Materiel Release	

Source: ANAO analysis of Defence documentation.

Rationale for undertaking the audit

1.25 Modernising the Australian Army's communications capability is important for providing Army commanders with better visibility of, and communications with, soldiers and vehicle formations, and for improving soldier safety. This topic was selected for audit due to the importance of the Land 200 program to Army, the two-year delay in delivering Tranche 1 of the program and the expected cost of nearly \$2 billion to deliver Tranches 1 and 2. Tranche 3 is expected to cost a further \$1 billion–\$2 billion.

Audit approach

Audit objective, criteria and scope

1.26 The objective of the audit was to assess the effectiveness and value for money of Defence's acquisition of a Battle Management System and a Tactical Communications Network through Land 200 Tranche 2 Work Packages B–D. To form a conclusion against the audit objective, the ANAO adopted the following high-level criteria:

- Defence conducted effective and value-for-money acquisition processes.
- Defence established effective project governance and contracting arrangements.

1.27 The audit scope focused on Work Packages B–D of Land 200 Tranche 2. Given the complexity and interdependencies of the Land 200 program, the outcomes of earlier work — Tranche 1, and Work Package A of Tranche 2 — have also been reported in this audit. Refer to Appendices 3 and 4.

1.28 The annual ANAO Major Projects Report has reported on aspects of the Land 200 program since 2011.¹⁰

Audit methodology

1.29 The audit involved:

- the collection of data from Defence covering the period from the establishment of Land 200 to the present, with a particular focus on key decision points;
- interviews with Defence personnel (notably from Army and the Capability Acquisition and Sustainment Group) and contractors, the principal contractors being Harris Communications (Australia) Pty Ltd (Harris) and Elbit Systems of Australia (Elbit); and
- visits to Army units already equipped with Land 200 Tranche 1 capability, as well as to Army's Land Network Integration Centre and Elbit's Land 200 demonstration facility.

1.30 This audit was conducted in accordance with the ANAO Auditing Standards at a cost to the ANAO of approximately \$475,000.

1.31 The team members were Dr Patrick O'Neill, Jagjeet Basant, Leo Simoens and Sally Ramsey.

10 The annual ANAO Major Projects Report included Land 75 Phase 3.4 from 2010–11 to 2014–15, and Land 75 Phase 4 from 2015–16. JP 2072 Phase 1 and Phase 3 have not been reported.

2. Procurement and value for money

Areas examined

This chapter examines whether Defence conducted an effective and value-for-money acquisition process for the Land 200 capability. In particular, it examines whether Defence: conducted an effective requirements process; undertook effective and value-for-money procurements of the Tactical Communications Network and the Battle Management System; and addressed unaffordability issues effectively to conclude the procurement processes.

Conclusion

Inadequate requirements definition and poor coordination between the two responsible project offices contributed to an ineffective 2015 procurement for the Army's Tactical Communications Network, which required a lengthy post-tender refinement process to bring the acquisition within the approved budget. The 2015 sole-source procurement process for the Army's Battle Management System was ultimately effective, but the procurement was delayed pending resolution of affordability issues affecting Land 200 Tranche 2 as a whole. Defence addressed affordability issues by adopting a 'design to price' strategy, significantly reducing project scope and assuming additional risk and cost by taking on the role of Prime Systems Integrator. Defence has assessed that it can achieve value-for-money outcomes following these adjustments.

The difficulties encountered in Land 200 Tranche 2 stem in large measure from one project office's release of a Request for Tender with a scope that exceeded the approved cost and did not fully assess the budget consequences or governance and coordination arrangements at a program level. The desired outcome shifted from the procurement of radios to the procurement of a complex digital communications solution, as Army developed its understanding of how it would operate in a digital environment.

Area for improvement

The ANAO made one recommendation aimed at providing assurance to the Capability Manager, Chief of Army, that Defence has the capability to adequately perform the role of Prime Systems Integrator.

Did Defence conduct an effective requirements definition process?

Defence did not conduct an effective requirements definition process. The need to align the capability being procured by the two responsible project offices was recognised in 2012 but the project offices did not align requirements for the interconnected projects and developed different conceptions of the capability, adding layers of risk and duplicated effort. Army's final stakeholder review before contract signature in 2017 raised concerns about the lack of verification statements for many requirements, which was considered to present risk to the achievement of an integrated network.

2.1 Defence's acquisition guidance sets out that project requirements must be defined through three key Capability Definition Documents:

- the Operational Concept Document is intended to inform system acquirers and developers of the Australian Defence Force's intended military use of the new capability;

- the Function and Performance Specification is the key requirements document, and defines the functions and performance that will be required, in engineering terms; and
- the Test Concept Document outlines the approach and strategy to be used to verify and validate that the design and operational requirements of the new or upgraded capability have been met.

2.2 As discussed in paragraph 1.9, until early 2017 Land 200 Tranche 2 was managed by two Defence project offices — responsible for Land 75 Phase 4 and JP 2072 Phase 3. In August 2012, when developing the operational concept for Land 75, the project office noted that ongoing alignment between Land 75 and JP 2072 would be central to providing the complementary elements of the total capability. However, in its preparation of the three Capability Definition Documents, Defence defined and refined the requirements for the Land 200 Tranche 2 acquisition through the two separate project offices, and did not succeed in aligning the requirements. The lack of alignment inhibited the delivery of a holistically defined system, adding layers of risk and duplicated effort.¹¹ Defence's attempts to align the requirements before the release of Requests for Tender in April and September 2015 were unsuccessful, with consequent impact on the overall requirements process.

2.3 In September 2016, Defence found that a number of weaknesses in the project office's requirements process had directly shaped and limited the Tactical Communications Network tenderer's response, contrary to Defence's intent. The weaknesses included:

- a lack of specified data requirements linking Tranche 1 and Tranche 2, which left open the possibility that Tranche 1 performance might be degraded by the Tranche 2 solution;
- a lack of clarity regarding the relationship between, on the one hand, the proposed Network Planning and Management System required for communications systems and on the other hand, the network planning and management/monitoring tools already available in the Battle Management System; and
- a lack of baselines for the vehicles from which Tactical Communications Network equipment would operate, limiting tenderers from being able to clearly respond to vehicle-related requirements.

2.4 A number of activities were recommended as a result of these findings, and were conducted throughout 2016 as Risk Reduction Activities (discussed further in paragraphs 2.21–2.22).

2.5 Following the development of separate requirements for Land 75 Phase 4 and JP 2072 Phase 3, Army Headquarters reviewed and endorsed the requirements for both projects in September 2017. At that time, Army noted the following concerns as the project proceeded to contract signature:

- the lack of verification statements in relation to both the Tactical Communications Network and the vehicle-integrated Battle Management System, which 'presents risk to confirming a coherent and integrated network'; and
- the inclusion of the dismounted capability as an option, raising a risk that the contractors might base design decisions on perceived constraints related to that capability.

¹¹ See, for example, paragraphs 2.3, 2.5, 2.40 and 2.48–2.51.

2.6 Defence advised the ANAO in April 2019 that it is not uncommon for verification statements to be incomplete at contract signature, and that the contracted major systems review process would ensure testing against verification statements approved by Defence after contract signature.

2.7 The following two sections discuss the procurement activities firstly of the JP 2072 Phase 3 project to acquire networking systems and radios, and secondly of the Land 75 Phase 4 project to upgrade the Battle Management System and install it into further vehicle fleets.

Did Defence conduct an effective and value-for-money procurement for the Army's Tactical Communications Network to 2016 — JP 2072 Phase 3?

Defence's 2015 procurement process for the Army's Tactical Communications Network was not effective. Weaknesses in the project office's requirements process resulted in surprises during the tender process and necessitated a lengthy post-tender refinement process to attempt to bring the acquisition within budget.

By late 2016, Defence had assessed the single tender received from Harris for the Tactical Communications Network as offering value for money but as unaffordable (both in terms of project budget and total Land 200 Tranche 2 budget) despite significant reductions in scope. The effectiveness of the procurement of the Tactical Communications Network was impacted by the significant disconnect between the funding allocated to JP 2072 Phase 3 in 2013 and the scope included in the 2015 Request for Tender. Defence records indicate that a number of companies declined to bid because the Request for Tender included a network solution rather than radio equipment. There is no documented government approval for the shift in scope from a simple procurement of radios (as approved by Government at First Pass in 2013) to a complete, new network solution.

2.8 Defence's acquisition strategy for JP 2072 Phase 3, which was approved in August 2012, set out two main streams of activity:

- continued use of the Standing Offers established in 2010–11 with Harris and Raytheon during Tranche 1 (see Appendix 3) to purchase 'mostly the same' radios for the additional vehicle fleets (Work Packages A and B); and
- tender processes or studies of five potential new communications subsystems, including antennas and personal radios (Work Package D).¹²

Tender release and evaluation

2.9 An Exposure Draft of the requirements for the Tactical Communications Network was released to industry in November 2014 — with particular emphasis on the networking, Tactical Data System and Personal Radio System components — and received seven responses. At the same time, the project office sought clarification from Capability Development Group, noting several uncertainties and assumptions in the end-state required.

¹² JP 2072 Phase 3 had no activities in Work Package C of Land 200 Tranche 2, but some related training was delivered under JP 2072 Phase 2A.

2.10 In March 2015, Defence senior management endorsed the release of a tender for the acquisition of a Tactical Communications Network and three years of Interim Support Services, to fulfil the JP 2072 Phase 3 elements of Work Package D. The endorsement noted that the project was pre-Second Pass and that funding was not available. Defence expected five to seven responses to its Request for Tender, at a cost of around \$180 million.

2.11 An open Request for Tender was released in April 2015. The five potential new subsystems included bespoke software development of a Network Planning and Management System and a Network Interface System.¹³ In addition, the number of radios requested at First Pass was increased by approximately 10 per cent.¹⁴

2.12 There was a significant disconnect between the funding allocated to JP 2072 Phase 3 in 2013 and the scope included in the 2015 Request for Tender. Defence's First Pass submission to Government (see paragraph 1.13) referred to the updating of the technology and communications network architecture, and allocated \$185 million to this project. The JP 2072 Request for Tender, which sought to acquire a Tactical Communications Network and support services, resulted in a response that exceeded its share of the Land 200 funding split by over half a billion dollars.

2.13 Later Defence records agree that this tender expanded the scope of Land 2072 Phase 3 without approval from a 'simple radios purchase' (as approved by Government at First Pass in 2013) to a 'complete, new network solution'. For example, in an internal review in 2016, the Head Joint Systems noted that there was no 'documented approval for the shift in tender focus'.¹⁵ Later Defence records also agreed that the project office was 'unaware' that the expanded scope would lead to an industry response that was 'so much more expensive' than the First Pass provision, despite advice from numerous sources within Defence that this should be expected.

2.14 The Request for Tender closed on 15 July 2015, after two extensions from the original closing date of 24 June 2015. Defence received interest in the tender from 29 companies. One formal tender was received from Harris as the lead of a team including Elbit¹⁶, Boeing Defence Australia, Comtech and Northrop Grumman as subcontractors. Harris's tender offered Defence over 1000 vehicular nodes and over 12,000 dismounted (soldier-carried) systems. Defence records indicate that a number of companies declined to bid due to the need to be a prime contractor for a system rather than for individual components, and the need to integrate with the Battle Management System. One prime contractor withdrew in the final weeks, not leaving time for its co-tenderers to bid in their own right.

2.15 In its detailed tender evaluation conducted during July–October 2015, Defence found it difficult to assess value for money because there was:

- only one tender;

13 Defence advised the ANAO that over the 2013–14 period, the Land 200 Tranche 1 system was experiencing network performance issues that were delaying the project. The JP 2072 Phase 3 requirements were structured because Army was seeking to reduce its reliance on proprietary systems but also to deliberately hedge against the networking issues in Tranche 1. Army sought to have an open standards Network Interface System and Network Planning and Management System in accordance with the endorsed Function and Performance Specification.

14 Later scope clarifications saw the number of radios reduced by some 90 per cent.

15 The 2016 Gate Review is discussed further at paragraphs 3.17 to 3.20.

16 The provider of the Battle Management System.

- a large number of non-compliances; and
- a significant difference between Harris's tender price and Defence's estimates — the tender price was over half a billion dollars (some 370 per cent) greater than the \$180 million expected in March 2015 (see paragraph 2.10).

2.16 Defence's assessment was that Bases of Estimates were required in all areas of the pricing in order to determine value for money. Concluding that Harris's tender merited further investigation, beginning with analysis of financial data, Defence invited Harris to participate in an Offer Definition and Improvement Activity, initially planned for October–December 2015.

Tender refinement

2.17 Defence's efforts to refine the tender so as to make it affordable lasted from September 2015 to September 2016, and involved:

- three stages of Offer Definition and Improvement Activity, including five technical Risk Reduction Activities; and
- significant scope reductions by Defence.

2.18 There were two initial stages of Offer Definition and Improvement Activity, under an October 2015 deed between Defence and Harris:

- Stage 1: Financial, September–October 2015. Harris provided explanations of its financial data and level of effort that would enable Defence to estimate the impacts of changes to the tendered quantities and capabilities sought. Defence found that the tendered pricing structures were not unreasonable.¹⁷
- Stage 2: Technical workshops and technical demonstrations, October 2015–February 2016. Defence signed the deed change for this stage after the fact, in March 2016, and once incurred expenditure for technical activities without prior approval under financial management legislation.

2.19 By the end of Stage 2, Defence considered that the tendered solution from Harris provided value for money, but was still unaffordable within the approved funding allocation. In March 2016, Defence's senior governance body for Land 200, the Land Enhanced Command and Control Capability Council¹⁸, approved a way forward that would undertake a third stage of Offer Definition and Improvement Activity (five Risk Reduction Activities) in parallel with the issue of a tender clarification request to Harris.

2.20 Defence advised Harris in April 2016 that it was the preferred tenderer. Shortly afterwards, Defence released a tender clarification request to Harris, seeking a solution that would be more affordable to Defence, by reducing the number of dismantled systems required from over 12,000 to some 700, and the number of vehicles to have equipment installed from over 1000 to some 300. In the refined Request for Tender, Defence retained the network aspects of the original Request for Tender, thus avoiding any need to re-tender the procurement.

2.21 While awaiting Harris's response, Defence conducted the five Risk Reduction Activities to understand the technical viability of Harris's proof of concept. The activities were conducted from

¹⁷ For the views of Harris Communications (Australia) on affordability, see Appendix 2, paragraph 3.

¹⁸ The Land Enhanced Command and Control Capability Council is discussed further at paragraphs 3.11 to 3.13.

June to September 2016, at a cost of \$1.8 million, using contingency funding transferred from Land 75 Phase 4. The studies included:

- interoperability between Land 200 Tranche 1 and Land 200 Tranche 2 equipment;
- network performance simulation;
- routing;
- waveform; and
- range.

2.22 Overall, Defence found that the Risk Reduction Activities gave it a much clearer understanding of the tendered solution and provided a significant amount of evidence of the effectiveness of the solution.

2.23 Defence received Harris's tender clarification response in August 2016. Harris described the main scope changes as a transition to an open-standards networking solution, with the main impact of that change being increased development by Harris. Despite the significant scope reductions noted in paragraph 2.20, Harris's tendered price was still well above Defence's budget expectations. Defence conducted a financial investigation, comparing the revised tender with the previous tender. A number of areas — such as labour rates, travel costs and risk costs — were identified for negotiation with Harris.

2.24 Defence finalised its evaluation of Harris's tender (comprising Harris's August 2015 tender together with Harris's August 2016 tender clarification) in September 2016. The evaluation concluded that Harris's tender represented value for money — but was still unaffordable — on the basis that:

- an open tender process had been undertaken; and
- the solution offered by Harris would provide state-of-the-art radios and waveforms to support a modern digital army; and
- the radio equipment costs were aligned with current standing offers and what was known of costs associated with dual-channel radios from other vendors.

2.25 The evaluation recommended that Defence should proceed to negotiations after the overall affordability of Land 200 Tranche 2 was addressed by the Land Enhanced Command and Control Capability Council.

Did Defence conduct an effective and value-for-money procurement for the Army's Battle Management System to 2016 — Land 75 Phase 4?

The 2015 sole-source procurement process for the Army's Battle Management System was ultimately effective, following significant refinement and scope reductions. The decision to undertake a sole-source tender to Elbit for the Battle Management System was based on the substantial investment already made by Defence and the difficulties inherent in operating another system concurrently. To maintain some competitive pressure in the context of a sole-source procurement, Defence reserved the right to release a limited tender to other firms.

By late 2016, Defence had assessed Elbit's tender as offering value for money but could not conclude the tender process until the overall affordability of the Land 200 Tranche 2 program — including the Tactical Communications Network — was addressed. Cost and risk ratings were adjusted to be more positive in successive tender evaluation reports, but the reasons for these changes were not documented.

2.26 Defence has been in contract with Elbit for the acquisition and support of the Army's Battle Management System since March 2010, following an open tender process conducted in 2007–09 for Tranche 1 (see Appendix 3). The 2012 Acquisition Strategy (discussed in Appendix 4) envisaged a sole-source approach for two further acquisitions:

- the installation of the Battle Management System into further vehicles under Work Package A of Land 200 Tranche 2, through the sole-source contract change later negotiated in 2013; and
- further vehicle installations, the development of a training and simulation package, and a major software enhancement of the Battle Management System for Army headquarters functions, under Work Packages B–D of Land 200 Tranche 2, as discussed in this section.

Risk Reduction Activities

2.27 The first major activities under Work Packages B–D were Risk Reduction Activities¹⁹ to enable the refinement of the Operational Concept Document and the requirements, and to provide confidence that the technical difficulty, support arrangements and interactions with industry were achievable. The Risk Reduction Activities, through the use of concept demonstrators, enabled Defence to validate, assess and identify the importance, suitability and design constraints of its Land 200 Tranche 2 requirements.

2.28 Defence issued a sole-source Request for Quotation to Elbit in May 2013 for the Risk Reduction Activities and received a response in July 2013. Defence reviewed the response and determined that further work was necessary. Defence decided that a collaborative approach would provide the best chance of an acceptable schedule and price for the Risk Reduction Activities, and from September to November 2013, Defence and Elbit teams worked to address what Defence described as deficiencies of the initial Elbit proposal.

2.29 Defence and Elbit conducted contract negotiations for the Risk Reduction Activities during November–December 2013, partly concurrently with negotiations for Work Package A. The cost of the activities was reduced by \$8.5 million, largely by excluding a concept demonstrator for the M1A1 tank. Defence contracted Elbit for the activities in December 2013, at a cost of \$74.3 million.

2.30 The Risk Reduction Activities were undertaken from January 2014 to August 2015. Elbit's report on the Risk Reduction Activities, completed in August 2015, proposed that Defence appoint a Prime Systems Integrator and implement an evolutionary acquisition strategy to address what Elbit considered to be three key risks in the Land 200 program, namely:

- a conventional platform-centric acquisition approach, leading to an outcome that would be over budget, over schedule and with poor take-up by the user community;

¹⁹ The Risk Reduction Activities were approved at First Pass in August 2013, see paragraph 1.13.

- distribution of design, integration, installation and performance of the core system across multiple projects and programs; and
- continuation of an individual project approach.

2.31 Defence concluded that, despite a slow start to the programmed activities, Elbit had provided significant resources for the planning and execution of each of the concept demonstrators, which ‘were successfully conducted and received wide praise’ from across Defence. The success of these activities led to a desire by Army to speed up the introduction of the capability.

2.32 To maintain some competitive pressure, Defence reserved the right to release a limited tender to other companies if Elbit’s response to the sole-source tender for Work Packages B–D had an unacceptable level of risk, offered less favourable conditions than the 2010 contract, or failed to provide value for money.

Sole-source tender release and evaluation

2.33 The procurement of the main components of Work Packages B–D began in August 2015, when the Land Enhanced Command and Control Capability Council unanimously endorsed Elbit as the sole-source provider of the Battle Management System. The Chief of Army also endorsed the decision, and obtained the concurrence of the Chief and Vice Chief of the Defence Force. Defence senior management then endorsed the release of a sole-source tender to Elbit for the Land 75 Phase 4 elements of Work Packages B–D. Unlike the endorsement for JP 2072 Phase 3, which noted that funding was not available (see paragraph 2.10), the endorsement noted that sufficient funding was available for the expected cost of over \$700 million, subject to Second Pass approval.

2.34 Defence issued its Request for Tender to Elbit in September 2015. The decision to undertake a sole-source tender was based largely on the substantial investment already made by Defence and the difficulties inherent in operating another system concurrently. Elbit provided its tender in December 2015. Notably, Elbit offered to act as the Prime Contractor, and offered an enterprise software licence to supplement the then-current per-vehicle software licence for the Battle Management System.

2.35 Defence completed an interim evaluation of Elbit’s tender in April 2016. Elbit’s technical compliance with the requirements was assessed as strong, and in alignment with the expectations set during the Risk Reduction Activities. However, Defence noted: a lack of subcontractor and third-party integration into Elbit’s proposed plans and schedules; inconsistency and ambiguity in the proposal documentation; lack of consideration of interoperability with the partner JP 2072 Phase 3 project; and the transfer of risk and responsibilities for the management of subcontractors to Defence. Finally, the tendered price — including mandated options, a recommended option, Defence project office costs and Government Furnished Material — was over 30 per cent greater than Defence’s budget provision. The findings against two tender evaluation criteria — pricing and past contractor performance — were not recorded in the evaluation summary matrix. This was despite a Working Group rating of ‘Compliance: Deficient–Significant; Extreme Risk’ on pricing. There was no Working Group finding on the criterion of past contractor performance.

2.36 Defence advised the ANAO that:

The purpose of the Interim Source Evaluation Report was to provide an initial quick assessment of the tendered response. The focus of the Interim Source Evaluation Report was on the technical and project management compliance to the Statement of Work. This initial analysis would

determine if further evaluation was warranted. As there was insufficient time to conduct detailed analysis of the pricing, the evaluation was deferred to the final Source Evaluation Report where a thorough evaluation of the costs would be undertaken.

2.37 Defence concluded that Elbit's response was 'critically deficient and high risk', and that in its current form it did not represent value for money. In addition to the non-competitive nature of the tender and the lack of detail in core plans, Defence also based its value-for-money assessment on the 'severely unaffordable' price.

Tender refinement

2.38 Defence decided to conduct an Offer Definition and Improvement Activity with Elbit prior to any consideration of potentially conducting an open tender for all or part of the project scope. Defence released revised tender documentation to Elbit, incorporating adjustments in vehicle quantities and other requirements changes in order to realise potential cost savings. Defence advised Elbit that its bid would not be accepted if the identified issues were not rectified and a value-for-money proposal was not achieved.

2.39 After Elbit had satisfied a number of preconditions, the Offer Definition and Improvement Activity took place during June 2016. Elbit submitted its revised tender in August 2016. The tendered price was almost 50 per cent less than the price tendered in December 2015, largely as a result of quantity reductions and other requirements adjustments.

2.40 Affordability issues were prominent in the October 2016 report by Defence's Cost and Risk Tender Evaluation Working Group. This Working Group identified potential savings of \$130 million, counterbalanced by potential risks costed at over half a billion dollars, with potential for an 18-month delay and a likely final cost over \$1 billion. The Working Group attributed these cost risks almost entirely to the project's dependence on JP 2072 Phase 3, and Army's 'inability' to define the desired capability. The Working Group concluded that the Elbit tender was viable and could be made affordable if it was not dependent on JP 2072 Phase 3 and an overarching Land 200 Operational Concept Document that was 'yet to be developed'. In relation to price, the Working Group rated the revised tender as 'Compliance: Deficient–Significant; Extreme Risk'.

2.41 Defence completed its tender evaluation report on Elbit's revised tender in November 2016. In this report, the Cost and Risk Tender Evaluation Working Group's ratings were changed to a more positive rating of 'Deficient–Minor; Medium Risk' in the summary matrix, and were shown as 'Compliant; Medium Risk' in the table of findings. An explanation of the upgraded cost and risk ratings was not documented by Defence.

2.42 Defence advised the ANAO that:

The evaluation of the Elbit tender response was underpinned by the use of a financial software tool called Joint Analysis of Cost and Scheduling (JACS). This tool takes both the cost and schedule information and assigns a schedule and cost risk rating based on a series of algorithms.

In writing the Financial Tender Evaluation Working Group report, the lead applied an Extreme risk rating which was the worst case rating from the software tool. The cost risk was identified at \$518.7m with a schedule risk of 225 months.

In writing the Source Evaluation Report, the Tender Evaluation Board assessed the Extreme cost risk as not realistic and applied the 'most likely' cost and schedule risk rating which equates to a Deficient – Minor Compliance and Medium risk rating.

2.43 The tender evaluation report concluded that Elbit's revised tender was much improved and highly compliant with the revised requirements, and was below the First Pass provision for the project. Defence was satisfied that Elbit understood the level and types of activities as well as the necessary analysis required to achieve the project's objectives, and that the tender therefore represented value for money.

2.44 The tender evaluation report recommended that negotiations should not commence until the overall affordability issues facing Land 200 Tranche 2 were resolved. The report also noted that interoperability with JP 2072 Phase 3 remained a high-risk issue.

Did Defence effectively address the unaffordability issues facing its two tender processes?

In 2017, Defence took a number of effective actions — including project rationalisation and adoption of a 'design to price' negotiation strategy — to address the unaffordability issues facing Land 200 Tranche 2. In doing so, Defence was able to conclude both tenders but accepted a significantly reduced project scope and extra risk (and cost) by assuming the role of Prime Systems Integrator. Prior to signing contracts with Harris and Elbit in 2017, Defence assessed that the revised procurement approach delivered value for money in terms of capability, cost and schedule. The value-for-money assessment also had regard to the potential cost, delay and loss of experience associated with adopting different systems.

Consideration of options during 2016

2.45 As discussed in paragraphs 2.19 and 2.37, affordability issues arose in both the 2015 Tactical Communications Network procurement and the 2015 Battle Management System procurement. In March 2016, the options for dealing with the 'unaffordability crisis' were considered by Defence's Land Enhanced Command and Control Capability Council, which agreed to an option that would introduce new radios and waveforms with 'open standards IP routing', with the aim of achieving interoperability with the Tranche 1 system. This option was assessed as being of medium-high technical risk, with high integration complexity and an extended implementation schedule. Later, decisions were made not to equip the ASLAV fleet²⁰, and the number of dismounted solutions to be sought was significantly reduced. An option to equip three Ready Battle Groups was also developed, rather than the two Brigades and other force elements planned at First Pass. In July 2016, the schedule for Second Pass was again delayed, from November 2016 to April 2017.

2.46 During 2016, the Council considered the prioritisation of capabilities to be acquired and the vehicle fleets to have equipment installed. The projects were still approximately \$225 million beyond Defence's budget provision.

2.47 Defence held an inaugural Tender Evaluation Board for the overall Land 200 Tranche 2 acquisition in August 2016, with representatives from both projects. Both project teams sought advice from the board on how to handle the tenders received, in light of the unaffordability of the overall program. Both teams were advised to complete the individual evaluations of the tenders, and to capture risks and assumptions of the individual projects, as well as of the combined

20 The Australian Light Armoured Vehicle (ASLAV), which first saw service in East Timor in 1999, is currently being replaced by the Boxer 8x8 Combat Reconnaissance Vehicle (CRV). The acquisition contract, under project Land 400 Phase 2, was signed in August 2018.

capability. Meetings of the board ceased after the completion of the revised evaluation reports for both tenders.

2.48 In addition to the cost issues facing the tender process and areas of overlapping scope, the two project offices disagreed on the appropriate technical solution for Land 200, with each project office advocating a solution that would be provided by their major subcontractor. Army sought advice and assurances from the Capability Acquisition and Sustainment Group about technical and affordability options. Army emphasised its concern about unaffordability and the potential long-term impact on its vehicle acquisition projects. Army also emphasised the priority of the Land 200 modernisation program, and the benefits that would be realised from a successful outcome. The final meeting of the Land Enhanced Command and Control Capability Council, in September 2016, referred the issue to a more senior body, a Capability Manager Gate Review.

2.49 By late 2016, Defence had descoped both of its tender processes in an attempt to make Land 200 Tranche 2 affordable, but was not in a position to progress the procurement without further major changes. It was clear that Defence did not have the budget to proceed with the Land 200 Tranche 2 acquisition based on the tenders received from Harris for the Tactical Communications Network and from Elbit for the Battle Management System. While the Elbit tender was affordable, the two projects were interdependent and required both procurement processes to be finalised for Tranche 2 Work Packages B–D to proceed. In November 2016, Army delayed consideration of Land 200 by Defence’s Investment Committee until February 2017, noting that:

The key reasons for delay have been the additional time required to analyse the refined tender responses to both L75-4 and L2072-3, and the need to combine the responses into a single business case and cost model. The program currently remains unaffordable against the capability outcomes presented at Gate 1. Tender analysis and development of the business case has been complicated by a lack of a programmatic approach from both the respective projects and the commercial contenders who have changed commercial relationships between initial and refined tenders.

2.50 Government consideration of Land 200 Tranche 2 was similarly delayed until June 2017.

2.51 Defence resolved the unaffordability impasse facing Land 200 Tranche 2 by further reducing the project scope and removing scope overlap, in a process that also involved:

- merging the two project offices into a single program under new leadership, with a funding split agreed between the two projects; and
- using a novel approach — the Joint Proposal for Further Negotiations — to finalise the two parallel tender processes involved.

Project office merger

2.52 Successive internal reviews from 2013 to 2016 had noted the lack of coordination between the two Land 200 Tranche 2 projects (these reviews are discussed in Chapter 3). The responsible Division Head advised the May 2016 Gate Review that it was ‘imperative’ to restructure the two separate projects into a single Land 200 Tranche 2 program, and that he planned to have this implemented ‘well before October 2016’ (see discussion at paragraphs 3.17–3.20).

2.53 A new Director for the single Land 200 Tranche 2 program commenced in December 2016, a new set of delegations was approved in January 2017, and the two project teams were co-located from February 2017. The two projects agreed a revised funding split for Defence’s budget provision

— 53 per cent for Land 75 Phase 4 and 47 per cent for JP 2072 Phase 3. Work also began on a number of program-level documents, including a combined acquisition strategy. The combined program team developed a new strategy to resolve the unaffordability of the two projects. The new strategy involved implementation of a Joint Proposal for Further Negotiations.

2.54 Defence records indicate that the merger of the two project offices with new leadership turned ‘two previously disenfranchised and factionalised units’ into a ‘cohesive and empowered team’. Defence records further indicate a significant turn-around in the project office’s relationship with Army, and achievement of a capability solution that addressed customer priorities in the context of significant affordability pressures.

Joint Proposal for Further Negotiations

2.55 Defence adopted what it described internally as a ‘unique’, ‘unusual’ and ‘atypical’ approach to resolve the unaffordability impasse facing the two ongoing tender processes. Defence brought the two tenderers together and sought a ‘design to price’ solution from them.²¹ The decision to bring the two tenders together was made following a Commercial Strategy Workshop (held in September 2016) and the receipt of expert advice that the most practicable option for the delivery of Land 200 Tranche 2 was to consolidate the two distinct work-streams into a single package to be carried out by a prime contractor.²² Defence also received expert advice that another option was to have each project acquired under a separate contract (in line with the approach to procurement to date). Defence decided to take the latter option.

2.56 In February 2017, shortly after the merger of the two project offices, Defence advised Harris and Elbit that Defence had completed its evaluation of the tender responses and intended to make a decision in the coming week on whether to proceed to negotiations, which would require a high level of collaboration between Harris, Elbit and Defence. A week later, Defence invited both tenderers to participate in an iterative negotiation process ‘in an effort to overcome questions of affordability, integration and co-operation.’ Defence intended its initial, exploratory engagement with the tenderers to achieve a ‘Go/No Go’ decision on whether further savings could be achieved while still meeting Defence’s capability and schedule requirements.

2.57 At the first negotiation meeting, Defence advised the tenderers that Land 200 as a whole was the most important step that the Australian Army would have taken in the previous 50 years, but that Defence did not have sufficient budget to accept the refined tenders. Defence therefore wanted to ‘partner with the tenderers to identify the best way to get the best capability effect possible for the money available’. Defence stated that it was acutely aware of the investments already made by the tenderers, and that this bespoke negotiation process — still subject to the conditions of tender — was intended to allow Defence to very quickly determine if it was worth proceeding to further negotiations.

2.58 During the meeting, Defence advised the tenderers separately of the actual budget for the relevant tender, along with the minimum requirements for capability and schedule and a list of suggested price reductions. Defence asked the tenderers to provide a Joint Proposal for Further

21 Defence considered that the price of Harris’s August 2016 revised tender offer needed to be reduced by 25 per cent to fit within the budget provision, and an affordability issue of the same scale confronted negotiations with Elbit.

22 A key benefit of this approach would have been to more effectively manage the integration risk between the two Land 200 Tranche 2 work-streams.

Negotiations within two weeks, advising them that success depended on satisfying the minimum requirements and giving comfort that the tenderers were willing to communicate and collaborate with each other. For its part, Defence undertook to do all it could to treat both tenderers equally, fairly and transparently during negotiations, particularly in light of the unique approach being adopted.

2.59 In response, the tenderers provided a Joint Proposal for Further Negotiations on 10 March 2017, confirming that:

they are each able to meet both the Commonwealth's technical and schedule Minimum Requirements as well as the Contract Price Minimum Requirement applicable to each party.²³

2.60 After a further joint negotiation session with the tenderers in March 2017, Defence authorised further contract negotiations with Elbit and Harris (a 'Go' decision). The authorisation was informed by a value-for-money consideration, namely that previous tender evaluations of value for money were still valid for the purposes of the Joint Proposal for Further Negotiations process.

2.61 Defence endorsed a new Contract Negotiation Strategy in April 2017. The Strategy set out Army's agreed negotiation boundaries for Defence's negotiations with Harris and Elbit, including the postponement of a dismounted (soldier-carried) solution to Tranche 3, and an extended delivery schedule.²⁴ Parallel negotiations were conducted with each tenderer between April and September 2017, and a further stage of Tactical Communications Network Risk Reduction Activity was conducted, at a cost of \$27.3 million.

2.62 The September 2017 Contract Negotiation Report noted that affordability constraints had affected the acquisition contracts. For example, the installation and integration of the Land 200 capability onto the relevant vehicle fleets (tanks, recovery vehicles, some Bushmasters, and Hawkei) was excluded from the acquisition cost. Defence expected to vary the contracts later for this purpose. The ANAO found no evidence that Defence advised Government at Second Pass in 2017 that the cost of vehicle integration was excluded from the initial acquisition contract prices.²⁵

2.63 Defence also assumed the role of Prime Systems Integrator for the Land 200 Tranche 2 capability. Neither tenderer could absorb this role within the affordability constraints. Defence advised the ANAO in April 2019 that Defence was best positioned to own the risks involved, and that it assessed the cost to treat the risks as being less than the cost of paying industry to perform the role.²⁶ To mitigate the risks, Defence established a Battlefield Command System Program Board to maintain a baseline master schedule. The Board includes representatives of Army, the Capability Acquisition and Sustainment Group, the Defence Science and Technology Group, Elbit and Harris. The Board was expected to meet monthly, and had its first meeting in August 2017.²⁷

23 For the views of Harris Communications (Australia) on the Joint Proposal for Further Negotiations process, see Appendix 2, paragraph 4.

24 As noted in paragraphs 1.1 and 2.20, this requirement was defined in the Defence White Paper 2009, and Defence had already significantly reduced the requirement in April 2016.

25 The later use of contingency funding for vehicle integration is discussed at paragraph 3.51.

26 For the views of Harris Communications (Australia) on Defence's role as Prime Systems Integrator, see Appendix 2, paragraph 5.

27 The Battlefield Command System Program Board is discussed further at paragraphs 3.46 and 3.47.

Recommendation no.1

2.64 That Defence assess whether it has the capability to adequately perform the role of Prime Systems Integrator, and provide assurance on this matter to the Capability Manager, Chief of Army.

Department of Defence response: *Defence agrees to this recommendation.*

Defence's value-for-money assessments of the acquisition contracts

2.65 Prior to signing the acquisition contracts with Harris and Elbit in September 2017, Defence conducted an internal review (August 2017) that described the value for money of the Land 200 program as follows:

While there is always a potentially infinite range of solutions to a problem, it has been accepted that the proposed architecture and capability solutions as now being progressed have been developed in the context of experience gained in L75-4 and L2072-3 over the last eight years, and cognisant of the need to support the schedule for major platform programs such as LAND 400. All stakeholders advised there are no viable alternative approaches that could credibly and materially deliver better value for money.

2.66 In its value-for-money assessments prepared as part of the procurement process in September 2017, Defence documented that:

- The key factors that contributed to assessing the Battle Management System acquisition as value for money were: Elbit's reliability and successful performance during the Risk Reduction Activities; the capability being acquired met Defence's minimum requirements and budget provision; the potential cost, delay and loss of experience associated with adopting a different system; the convenience and efficiency of using existing production lines; and Elbit's commitment to take responsibility for assisting other platform design contractors in design work for vehicle integration.
- The key factors that contributed to assessing the Tactical Communications Network acquisition as value for money were: Harris's performance during the Risk Reduction Activities and Offer Definition and Improvement Activities; Harris's equipment and operating costs met Defence's minimum requirements and budget provision; and the feasibility of Defence taking responsibility as Prime Systems Integrator due to affordability constraints. Defence also established risk mitigation measures, including: system reviews and reporting requirements; liquidated damages and stop-payment milestones.

2.67 In approving the contracts for signature, the delegate noted that although a number of risks had been remediated through negotiation, a number still remained, including the interface between the network and the Battle Management System, and these would need to be 'carefully managed by the project office and the program board'.

Tranche 2 contract signature, 2017

2.68 The contracts for the Battle Management System and the Tactical Communications Network were signed on 26 September 2017. Final Acceptance of the Battle Management System is contracted for 30 June 2021, and Final Acceptance of the Tactical Communications Network is contracted for June 2023.²⁸

28 The contract for the Battle Management System was an amendment of the 2010 contract discussed in Appendix 3.

3. Governance and contracting

Areas examined

This chapter examines whether Defence has established effective project governance and contracting arrangements for the two projects in Land 200 Tranche 2.

Conclusion

Defence did not establish fully effective project governance arrangements. Defence established an appropriate review framework, with successive reviews identifying project coordination risks from 2013. Defence management's failure to implement the recommendations of these reviews until 2017 constitutes a failure of governance that negatively affected the 2015 tender outcomes.

Defence has established effective contract arrangements. However, vehicle integration costs were not included at contract signature because funding was insufficient, and Defence has now accessed contingency funding to reinstate this scope into the contract.

Did Defence establish effective project review and governance frameworks?

Defence established an appropriate project review framework, including regular internal reviews, an internal audit, and the Land Enhanced Command and Control Capability Council. At the individual project level, successive reviews from 2013 to 2016 noted a lack of coordination between the two project offices responsible for Land 200 Tranche 2. However, management did not act on the advice provided, and the two project offices were not merged until 2017. The lack of alignment between the two projects was assessed by Defence as negatively affecting the 2015 tender outcomes. A subsequent internal review in 2017 recognised that significant progress had been made since the project office merger.

3.1 To review and oversee the progress of Land 200 Tranche 2, Defence undertook a series of reviews, an internal audit, and the establishment of a Capability Council.

2013 Gate Review

3.2 In August 2013, three weeks after First Pass, a Defence internal Gate Review observed that the two projects involved in Land 200 Tranche 2 appeared to have sufficient budget and the scope was adequately defined. However, the review determined that there was a significant workforce risk²⁹ and that the schedule for Second Pass in September 2015 was also at risk. The review recommended that the project be considered for the Projects of Interest list³⁰, at least until the resolution of workforce issues. It also suggested that a combined schedule of the major milestones for each project should be developed.

29 The various phases of Joint Project 2072 were 50 per cent staffed, with a total of 19 staff needed.

30 A Project of Interest is a project which Defence management considers to be underperforming and in need of senior management attention and close monitoring to prevent it deteriorating to the point of becoming a Project of Concern. Projects of Interest are discussed in Auditor-General Report No.31 2018–19, *Defence's Management of its Projects of Concern*.

3.3 Defence Materiel Organisation management rejected the recommendation for a revised schedule on the basis that replanning project schedules was an ongoing project management responsibility. At this time, the project was not placed on the Projects of Interest list.

2014 Gate Review

3.4 In August 2014, a further Gate Review found ‘strong evidence’ that Land 200 Tranche 2: lacks strong, authoritative program level management and governance systems and this results in an inability to generate appropriate program level management data and strategies ...

3.5 The review raised concerns that the lack of appropriate governance constituted a significant ongoing risk to the scope, schedule and, perhaps, funding envelope. The only program-level schedule was provided by Capability Development Group, and appeared to be unfamiliar to the two project offices. The review also expressed concern that the scope and intent of JP 2072 Phase 3 had moved from the acquisition of a set of radios, as approved at First Pass, to delivery of a communications system. The review considered that this late change in the nature of the project was ‘symptomatic of the lack of authoritative program level oversight’. Amongst other things, the review recommended a further review of the management and governance structure of Land 200 Tranche 2.

3.6 To address the need for program-level management and governance, in September 2014, Defence delegated a Director General (SES Band 1 or one-star equivalent) to be responsible for the outcomes of both projects. Another Gate Review was to be held in six months to see if governance had improved.

2014 internal audit

3.7 In May 2014, Army had requested an internal audit of Defence’s Land Force Digitisation. Shortly afterwards, in August 2014, the Chief of Army expressed his concern to the CEO of the Defence Materiel Organisation about delays in digitisation projects and the consequences for Army capability. The CEO responded in October 2014 that the already established mechanisms (a Project Management Steering Group and a Capability Development Steering Group) would provide clearer accountability for Army digitisation projects, and the two Tranche 2 projects would continue to be managed separately, essentially maintaining the current arrangements.³¹

3.8 Defence’s Internal Audit Branch completed the requested audit of Land Force Digitisation in December 2014. The audit concluded that:

To achieve integration, particularly in a joint environment, Defence capabilities such as digitisation need to be managed as programs, not as a number of separate, albeit related, projects. However, Defence typically pursues coordination of such programs through consensus; there is no single owner who has the authority and resources to ensure individual projects are aligned to wider program requirements.

3.9 The audit recommended a review of the architecture requirements for digitisation, to determine how a coordinated architecture framework should be governed, and development of a structure based on programs rather than individual projects.

31 Land 75 and Land 125 were to be managed by the Director General Command Support Systems, and JP 2072 Phase 3 by the Director General Communications.

3.10 Defence closed these two recommendations in June 2015, on the basis that a Joint Battlespace Networked Environment roadmap had been developed, and that the development of a new structure would be addressed by actions to fulfil Recommendation 2 of the First Principles Review.³² It is unclear how the implementation of Recommendation 2 — an entity-level reform relating to the overarching capability development function — was expected to resolve the specific project-level management and coordination issues identified by the internal audit. In any case, the implementation of Recommendation 2 did not address these issues, as discussed in the remainder of this section. Defence's audit committee could usefully have considered the links drawn between the internal audit finding and the rationale provided by management for closing the recommendations.

Establishment of Land Enhanced Command and Control Capability Council, 2014

3.11 In November 2014, Defence established the Land Enhanced Command and Control Capability Council, composed of two-star representatives from Army, the Capability Acquisition and Sustainment Group and other areas of Defence. The Council was a result of the 'unanticipated complexity' of the ongoing digitisation of Army, for which normal management processes had been found to be 'not well suited'. The Council was to meet at key times for key decisions affecting the whole digitisation program.

3.12 The Council met first in November 2014, three times in 2015, and four times in 2016.

3.13 At its first meeting, in November 2014, the Council agreed to postpone Second Pass from September 2015 to November 2016, so that key Risk Reduction Activities — approved at First Pass and scheduled for mid-2015 because of approval and contracting delays — could be completed in time to contribute to Second Pass decision making. During 2015, the Council considered other issues relating to Land 200, such as: Army investment initiatives; the outcome of Risk Reduction Activities; and the sole-sourcing of the Battle Management System acquisition to Elbit.

2015 Gate Review

3.14 In June 2015, a further internal Gate Review noted that — despite 'consistent disquiet' from past Gate Reviews, the 2014 internal audit and the Capability Council — the two parallel, mutually dependent projects were still not being run as a program, and that previous recommendations for a review of the management structure had not been implemented. The Gate Review observed that both projects' interdependencies had been considered significant enough for their collective scope, schedule and funding to be represented to Government as a single tranche at First Pass in 2013.

3.15 The Gate Review found that Defence's lack of authoritative program-level governance and management at the right level meant that Land 200 Tranche 2 continued to be 'poorly structured to achieve optimum digitisation outcomes'. The Gate Review highlighted that different visions coexisted between the two projects, and this was likely to continue. It also highlighted the continuing risk to shared alignment with Defence's overarching digitisation plans and robust analysis of value for money. The review chair was concerned that:

32 Recommendation 2 of the First Principles Review reads: 'Establish a single end-to-end capability development function within the Department to maximise the efficient, effective and professional delivery of military capability'. Department of Defence, *First Principles Review: Creating One Defence*, 2015, p. 9.

the management of the two constituent projects provides limited evidence of strategic understanding and drive to meet optimal program level capability outcomes.

3.16 Defence again decided to retain the existing governance arrangements — as had occurred in 2014 (see paragraph 3.7) — notwithstanding the findings of successive reviews that these arrangements were suboptimal. A combined schedule to Second Pass was developed, including tender evaluation activities, to identify and manage interdependencies between the two projects.

2016 Gate Review

3.17 In May 2016, a further Gate Review noted that the tender outcomes during 2015³³ reflected a lack of alignment between the two projects. The review also noted:

- The tendered price for JP 2072 Phase 3 was some 350 per cent greater than Defence's provision. Lack of project management diligence resulted in the JP 2072 project office being unaware, at the time of the tender release, that the industry response would be so much more expensive than the indicative budget for the communications element of Land 200 Tranche 2.
- The tendered price for Land 75 Phase 4 aligned broadly with expectations, being some five per cent greater than Defence's budget provision.³⁴
- Each tender had been released with a scope based on a different Basis of Provisioning to that underpinning the other tender.³⁵
- The total tendered price was over \$1.5 billion, more than \$720 million over Defence's budget.
- Initial due diligence analysis of both tenders suggested that the prices tendered were broadly reasonable.

3.18 The review further noted that Army's preference had moved from its previous endorsement of the Battle Management System (on which the Land 75 Request for Tender was based) as the central capability for land platforms to an endorsement of an open architecture option, 'albeit currently unaffordable'. In February 2016, Chief of Army had issued a statement that specified 'the use of open architectures' for all future land platforms.³⁶

3.19 The Gate Review found that:

At present the project has a moving scope and approach, an inadequate budget and an unworkable schedule. The present unaffordability crisis has arisen as a consequence of an evolving customer understanding of the challenges of the digital communication environment and the absence of a single L200-2 [Land 200 Tranche 2] management construct within CASG, lack of timely, technical expert advice on emerging technologies and the absence of an effective L200-2 system architecture.

3.20 The Head Joint Systems within the Capability Acquisition and Sustainment Group advised the review that it was imperative to restructure the projects (Land 75 Phase 4 and JP 2072 Phase 3)

33 The separate procurement processes for Land 200 Tranche 2 are discussed in Chapter 2, notably at paragraphs 2.8 to 2.25 and 2.26 to 2.44.

34 As noted in paragraph 2.35, the tendered price was over 30 per cent greater than Defence's budget provision.

35 The Basis of Provisioning is the amount of equipment that will be issued to Australian Defence Force units.

36 In April 2017, expanding this decision, Army began development of its own Combat Platform Architecture.

into a single Land 200 Tranche 2 program, and that he planned to have this implemented 'well before October 2016'. He also noted his confidence that the Land Enhanced Command and Control Capability Council provided an appropriate level of governance oversight for Land 200 Tranche 2.

2017 Independent Assurance Review³⁷

3.21 The first post-merger internal review of Land 200 Tranche 2 was held in August 2017, just before the acquisition contracts were signed. The 2017 review found that:

The affordability challenge, together with lessons learnt from deployment of the Tranche 1 capability over the course of the two-year schedule slip, have led to a change in system architecture from that delivered in Tranche 1, a revised Basis of Provisioning (BoP) and 'scope shuffle' between Tranches 2 and 3.

... this Project has had a difficult gestation, in the main due to Army having to learn what it means to operate in the digital environment and coming to terms with the associated challenges and technical complexities in deploying the envisaged, horizontally and vertically integrated capability through the Land Forces. The necessity to address the significant affordability challenge presented in pursuing the initially approved approach to deliver the BGC3 [Battle Group Command, Control and Communication System] capability ... has demanded a reconsideration of a number of elements of this program.

In my view the Program and Capability Manager teams have together made significant progress since the last review and have developed a solution that appears to be the best that could have been achieved given the prevailing constraints.

3.22 The 2017 review commended the program and capability managers on the significant progress made over the course of the previous 12 months in resolving the affordability challenge, achieving Investment Committee consideration and successfully advancing parallel negotiations with two tenderers to the point of being close to having acceptable draft contracts. The review also noted:

While the current team is very able, it is not yet structured as a comprehensive program level team.^[38] There remains a significant amount of work to establish the management framework necessary to manage and monitor the Program in the delivery phase which I suggest would now benefit from the deployment of additional and appropriately skilled resources.

3.23 The review also noted that Tranches 2 and 3 combined were unlikely to deliver the quantities of equipment originally envisaged, particularly in terms of the dismounted capability, but that Army was confident that a more cost-effective solution would be developed utilising fewer assets but still delivering the expected outcomes.

3.24 Some other issues observed by the review were that:

- it was difficult to assess if the overall budget was adequate, and it seemed likely that some contingency funding would eventually be needed;
- it was not possible to express a view, or level of confidence, in the program's ability to deliver against the key milestones;

37 Defence's internal reviews, formerly called Gate Reviews, are now called Independent Assurance Reviews. Both reviews are conducted by Defence.

38 ANAO comment: The Capability Acquisition and Sustainment Group had advised the 2016 Gate Review that this would be implemented well before October 2016 (see paragraph 3.20).

- further thought was required ‘to mature an appropriate sustainment model’; and
- Army’s acceptance of an 18-month extension for delivery of the Final Operational Capability milestone potentially provided some schedule float, but a significant portion, if not all of this period, would be needed by Army for Operational Test and Evaluation activities previously not adequately considered.

2018 Independent Assurance Review

3.25 In September 2018, one year after contract signature, Army advised a further Independent Assurance Review that, with Army now having nine years of experience with the Battle Management System, the Land 200 program remained extremely important to Army. The review found that:

the most significant challenge currently facing L200-2 remains Defence’s ability to effectively discharge its responsibilities as the Prime Systems Integrator (PSI). The current lack of Program level governance is concerning, and in my experience will likely lead to adverse impacts to budget, schedule and capability. While I acknowledge that the Program is already under financial pressure, and the enterprise generally is resource constrained, a Program of this complexity and importance should attract a priority for resourcing.

3.26 The review did not share the project teams’ confidence that the projects could be delivered as planned, with: most of the budget committed; the 12-month schedule float at contract signature in September 2017 already consumed; a further apparent delay of 6–8 months to Initial Operational Capability; and significant technical challenges yet to be resolved. The review concluded that:

the next few years are going to be extremely challenging as there are limited *levers to pull* unless one or both of the current budget and resource limitations can be alleviated now. To this end, I strongly recommend that as a priority, CASG Divisional and broader Defence executive consideration be given to how the Program can be better positioned to deliver this important capability to Army.

3.27 In the absence of an Integrated Master Schedule, and with scope and budget allocation still being finalised, the review was not in a position to make an objective assessment as to schedule achievability and adequacy of budget:

With schedule pressure evident but yet to be quantified, significant risks identified and yet to be mitigated, and an absence of a Program level management team, the Board concluded that it was likely that there would be further strain on the remaining budget and contingency well before IOC [Initial Operational Capability] – a view accepted by the Program team.

3.28 The review recommended that Land 200 Tranche 2 should be considered as a candidate Project of Interest³⁹ until: the program was appropriately resourced; risk could be demonstrated to have been effectively retired through establishment of the appropriate program-level governance; and achievement of design reviews then planned to occur by the end of June 2019. From September 2018, Land 200 was listed as a Project of Interest.

2018 Independent Assurance Review of Tranche 3

3.29 The next phase of Land 200 — Tranche 3 — began in 2017, and has a capital provision of \$1 billion–\$2 billion. In March 2018, Defence postponed Second Pass from August 2021 to

39 The meaning of Project of Interest is discussed in footnote 30.

June 2022 to provide time to complete Risk Reduction Activities. Second Pass will now be after Initial Operational Capability for Tranche 2, allowing the Tranche 2 outcomes to inform any Tranche 3 request for additional Tranche 2 equipment.

3.30 Defence records indicate that Tranche 1 and Tranche 2 were both overly ambitious for the funds available, and that the unaffordability of Tranche 2 led to scope being moved to Tranche 3 without additional funding. The briefing paper for the April 2018 review of Tranche 3 stated:

Land 200 will define the command and communications architecture and systems that future Army vehicles and dismounted soldiers will use. There are high expectations of T3 [Tranche 3] to realise LCS [Land Combat Systems] capability. As it prepares for Gate 0, the Project Sponsor and Project team should be congratulated on the quality of the documentation suite and the collaboration effort.

However significant challenges remain. Scope is yet to be finalised, technical issues remain, and integration complexity and affordability risks are high. ... The capacity of the proposed Gate 0 to Gate 1 activities to address these significant challenges and set the project on firm foundations for implementation will depend on the quality of the RRA [Risk Reduction Activities] proposed and adequate resourcing of the AHQ [Army Headquarters] and project teams to manage analysis of the RRA and the evolving environment.

3.31 The report from this internal review similarly raised major concerns about the program:

T1 [Tranche 1] and T2 [Tranche 2] delivered well below expectations both in terms of capability and Basis of Provisioning (BOP) ...

It is clear that T3 [Tranche 3] is expected to address BOP [Basis of Provisioning] shortcomings [**ANAO note:** that is, past reductions in the amount of equipment acquired]. ...

It appears to me that there is a potential mismatch between project/program-level aspirations, and the reality of the constrained T3 budget and schedule and broad scope. Affordability has already been raised as a major concern, and the schedule is considered to be ambitious, even with the proposed deferral of Gate 1 [**ANAO note:** now scheduled for June 2020]. In light of the information available, I believe that these risks will be realised unless expectations are matched to what can be achieved in an uncertain environment (T1 and T2 issues).

3.32 Defence conducted industry briefings about Tranche 3 at the Land Forces Conference in Adelaide in September 2018.

Do contracting arrangements and internal reporting allow Defence to effectively monitor and manage contractor and project performance?

Defence has established effective contracting arrangements to monitor and manage the performance of the contractors. The arrangements include oversight bodies, an early baseline review, and regular contract reporting against milestones. Each contractor achieved completion of an Integrated Baseline Review in 2018, three months late in the case of Harris and on schedule in the case of Elbit. To date, each contractor has provided regular reports to Defence.

Vehicle integration was a known requirement before contract signature, but this cost was not included in the relevant contract in 2017 because funding was insufficient. Defence did not advise Government at Second Pass in 2017 of this scope reduction, but has subsequently drawn on project contingency funds to reinstate this scope into the contract. Delays in providing

access to the Army's tanks and recovery vehicles for integration purposes are impacting the program schedule, and Initial Materiel Release may be delayed. Defence advised the ANAO in April 2019 that 'The 12 month delay in the Hawkei vehicle schedule is likely to impact the L200 [Land 200] Tranche 2 schedule. The subsequent impact on the L200 Tranche 2 Initial Operational Capability and Final Operational Capability is yet to be fully understood.'

Contract status

3.33 As discussed in paragraph 2.68, the contracts for the Battle Management System and the Tactical Communications Network were signed on 26 September 2017. Table 3.1 shows Land 200 Tranche 2 Work Package B–D contract costs.

Table 3.1: Land 200 Tranche 2 Work Package B–D contract costs

Contract	Contractor	Cost (\$m)
Battle Management System	Elbit Systems Limited	417.3
Tactical Communications Network	Harris Communications (Australia) Pty Ltd	376.3

Note: Amounts are in base date Third Quarter 2015 dollars, GST inclusive.

Source: Defence.

3.34 Since contract signature, the Land 200 Tranche 2 contracts have been amended a number of times but the amendments have not resulted in changed costs:

- Defence advised the ANAO in February 2019 that there have been no contract changes for the Battle Management System contract with Elbit since contract signature for Land 200 Tranche 2 Work Packages B–D in September 2017. However, Defence advised that from contract signature for Work Package A in December 2013 until November 2017, 11 Survey and Quote tasks have also been awarded to Elbit since contract signature, at a cost of approximately \$92 million. These tasks have included further Risk Reduction Activities as well as vehicle installation work.
- Defence advised the ANAO in February 2019 that there have been nine nil-cost contract changes to the Tactical Communications Network contract with Harris since contract signature.

Internal reporting

3.35 The Land 200 program is included as a Project of Interest in Defence's Quarterly Performance Report, which is provided by the Deputy Secretary, Capability Acquisition and Sustainment Group to senior stakeholders within Defence to inform them about emerging risks and issues for cost, capability and schedule targets.

3.36 In the September 2018 Quarterly Performance Report, Defence reported that it had spent \$204 million on Land 200 Tranche 2 to 30 September 2018. By this time, Defence was reporting risks that several Initial Materiel Release capabilities might be delayed, due to possible late exit from Detailed Design Review by Harris (due in September 2019), and because the contract changes for vehicle integration (see paragraphs 2.62 and 3.50) had not yet been finalised. Defence was working to minimise the impact on Initial Materiel Release and Initial Operational Capability in 2021. Initial Materiel Release was expected to be delayed by 11 months, while the later milestones of Final Materiel Release and Final Operational Capability in 2022 were not expected to be impacted.

3.37 However, Defence advised the ANAO in April 2019 that:

The 12 month delay in the Hawkei vehicle schedule is likely to impact the L200 [Land 200] Tranche 2 schedule. The subsequent impact on the L200 Tranche 2 Initial Operational Capability and Final Operational Capability is yet to be fully understood.⁴⁰

3.38 Australian Industry Capability across both acquisition contracts totals approximately \$329 million, or 46 per cent of the contract value, a significant increase over the estimate of \$216 million provided to Government in 2017 (see paragraph 1.21). These costs relate to engineering, project management and training.

Integrated Baseline Reviews

3.39 Within six months of contract signature on 26 September 2017, Harris and Elbit were each required to hold an Integrated Baseline Review.⁴¹

- Defence and Harris held an Integrated Baseline Review on 9–13 April 2018. The review found that Harris had made ‘insufficient progress towards the development and resourcing of a meaningful Performance Measurement Baseline’, and raised 22 major and five minor Corrective Action Requests. Defence determined that the Corrective Action Requests had been addressed, and Harris achieved exit from the Integrated Baseline Review in June 2018, three months behind schedule.
- Defence and Elbit held an Integrated Baseline Review on 21–24 May 2018 (in Israel) and 18–22 June 2018 (in Melbourne). The review raised one major and five minor Corrective Action Requests. Elbit achieved exit from the Integrated Baseline Review in June 2018, in accordance with the schedule.

Contract reporting

3.40 The contracts require Contract Status Reports to be provided to Defence, at six-monthly intervals by Harris and at three-monthly intervals by Elbit.

Tactical Communications Network

3.41 In May 2018, Harris reported to Defence that:

- a subcontract had been signed with Boeing Defence Australia for delivery of a Graphical User Interface (GUI) for the Network Planning and Management System;
- numerous working group meetings had been held between Defence, Elbit, Thales⁴² and Boeing; and
- the overall Program Master Schedule remained within tolerances, with the late closure of the Integrated Baseline Review the only schedule slippage of note.

3.42 As at the end of October 2018, Harris reported 14 activities (32 per cent) ahead of schedule, 23 activities (53 per cent) behind schedule and seven activities (16 per cent) on schedule. The latest

40 For the views of Harris Communications (Australia) on Initial Materiel Release, see Appendix 2, paragraph 6.

41 An Integrated Baseline Review is a joint review by the Government and the contractor to assess whether the contracted plan is realistic and can be implemented.

42 The Thales Integral Computing System being produced for the Hawkei vehicles will include a virtualised version of the Battle Management System. See Auditor-General Report No.6 2018–19, *Army’s Protected Mobility Vehicle — Light*, paragraph 5.40.

contract milestone achieved by Harris, relating to the Interface Control Document, was achieved in December 2018, one month early.

Battle Management System

3.43 In November 2018, Elbit reported to Defence that:

- Contractor access to the M1A1 tank and M88A2 armoured recovery vehicle was approved in May 2018. This enabled the first look inside the platforms by Elbit and initial assessment for equipment placement. Additional access has been approved in order to conduct a more complete platform survey and to enable concept design completion. Negotiations with Defence were continuing for access to documentation that would enable development of the Weapon-Integrated Battle Management System. Continued lack of access to the vehicles meant that work had not commenced.
- Installation of the Battle Management System into medium-heavy trucks had progressed well, with all initial technical and logistics issues resolved. Installation into 150 vehicles was completed in October 2018, fulfilling Elbit's Milestone 3 requirements in accordance with the schedule.

3.44 As at the end of October 2018, Elbit reported 11 activities (24 per cent) ahead of schedule and 34 activities (76 per cent) behind schedule. The latest contract milestone achieved by Elbit, relating to Training Delivery Year 1, was achieved in November 2018, one month early.

Contract governance

3.45 Defence has established two key contract oversight bodies:

- the Battlefield Command System Program Board; and
- the Battlefield Command System Program Steering Group.

Battlefield Command System Program Board

3.46 Defence has held regular meetings of the Battlefield Command System Program Board with Elbit and Harris. The focus of the Board is on:

- interfaces between the contractors' systems;
- maintaining the philosophy of collective and shared success: mutually working together to deliver the best capability outcome for Army within budget and schedule;
- adopting a regular monthly meeting for the board, with flexibility to adapt as the program progresses; and
- allowing the contractors as well as other Commonwealth agencies to feed into the meeting schedule.

3.47 The Board is also expected to continue to monitor key events from other Land programs that will influence Land 200 Tranche 2.

Battlefield Command System Program Steering Group

3.48 In June 2018, Defence established an internal Battlefield Command System Program Steering Group at the one-star/SES Band 1 level. This Steering Group is jointly chaired by leaders from Army Headquarters and the Capability Acquisition and Sustainment Group. The Terms of

Reference make the Steering Group responsible for approval of the capability roadmap, including capability and investment prioritisation decisions.

3.49 The Steering Group minutes indicate that the delays in contract signature for Land 200 Tranche 2 created a gap during which Defence's vehicle programs did not know who to collaborate with on network issues.⁴³ The Steering Group is responsible for understanding and synchronising the networking of Defence's vehicle programs, such as the acquisition of Protected Mobility Vehicles–Light (Hawkei) and Combat Reconnaissance Vehicles (Boxer).

Contract variation for vehicle integration

3.50 As noted at paragraph 2.62, the affordability constraints facing Land 200 Tranche 2 resulted in the exclusion of vehicle integration costs from the acquisition contracts signed in September 2017, in the expectation that the contracts would be amended later for this purpose. The contractors have since agreed that Elbit will be responsible for vehicle integration, with Harris to act as Elbit's subcontractor for this aspect of the program. While the project sought and received relevant internal approvals for contingency funding for integration of the Land 200 Tranche 2 capability into vehicle fleets, it did not advise Government at Second Pass that this was likely.

3.51 In September 2018, Defence obtained internal approval from the Chief Finance Officer of the Capability Acquisition and Sustainment Group for access to contingency funding for Land 200 Tranche 2 for vehicle integration of the Land 200 equipment.

3.52 Completion of the contract amendment for vehicle integration was discussed by both the Board and the Steering Group at the end of 2018. Defence records indicate that delays in finalising the variation were risks to the schedule for Tranche 2 delivery.

3.53 In relation to vehicle integration, Defence advised the ANAO in February 2019 that:

There will be several sub-contracts or Contract Change Proposals (CCP) to existing platform acquisition or sustainment contracts to fund the work of the platform industry Design Authority: Thales for Hawkei, General Dynamics Land Systems – Australia (GDLS-A) for Tank and as well Elbit Systems for design, integration and installation of the L200-2 kits into the M88 Armoured Recovery Vehicle and Harris will be a subcontractor to Elbit for design and testing services related to platform integration. Harris's current contract scope already includes the communications design for each of these platforms.

3.54 With one exception, all CCPs relating to platform-integration were expected to be signed by the end of April 2019. Commencement of the Thales Hawkei CCP was contingent on resolution of current platform commercial issues.

3.55 As an example of the interdependencies with other Defence vehicle programs (see paragraph 3.47), Defence reporting indicates that, because of a misalignment in the schedule for completion of the Land 200 Tranche 2 design for the Hawkei vehicle, some 250 Hawkei vehicles will be produced with a basic fit-out that will provide very limited command and control capability. These vehicles will need to be retrofitted with the Land 200 Tranche 2 equipment and software once the design acceptance has been achieved.

3.56 Defence's September 2018 internal review recommended that Land 200 Tranche 2 should be considered a Project of Interest (see paragraph 3.28). Defence advised the contractors in

⁴³ The interdependencies of Land 200 with other Defence projects are discussed in paragraph 1.5.

December 2018 that they had both been performing ‘well and within tolerances’, and that it was not the contractors’ fault that Land 200 Tranche 2 was becoming a Project of Interest.⁴⁴ Defence noted that it had limited resources to run the integration aspect of Land 200, in its role as the Prime Systems Integrator. Defence advised the ANAO in February 2019 that:

The 2017 Defence Internal Review recommended the Land 200 Program become a Project of Interest due to the Program Office drawing down on 30 per cent of its contingency and the programmatic complexity of Defence being the Prime Systems Integrator. The Land 200 Program Office assesses that the remaining contingency funding is adequate and able to cover the current risks.



Grant Hehir
Auditor-General

Canberra ACT
23 May 2019

44 Defence advised the ANAO in December 2018 that the Projects of Concern and Projects of Interest 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 and cost variances warrant increased senior management attention.

Appendices

Appendix 1 Department of Defence response



Australian Government
Department of Defence

PO Box 7900 CANBERRA BC ACT 2610

Mr Grant Hehir
Auditor-General
PO BOX 707
CANBERRA ACT 2601

Dear Mr Hehir

Australian National Audit Office Section 19 Proposed Report: Modernising Army Command and Control – The Land 200 Program

Thank you for your correspondence of 2 April 2019, which contained the Proposed Report for the *ANAO performance audit – Modernising Army Command and Control – The Land 200 Program*. Defence appreciates the opportunity to review and comment on the Proposed Report.

Defence presented an affordable capability option to Government for Second Pass Approval in 2017. Following Second Pass Approval, Defence identified issues and established effective contract arrangements to monitor and manage the performance of its contractors. Defence also put in place new program governance structures and successfully merged the two projects into a single, coherent Land 200 Program Office in 2017.

The Land 200 Program's governance, schedule and technical challenges reflect the nature of the rapidly changing digital systems and communications environment in which Defence operates. Defence is actively incorporating these lessons-learned into the smart buyer process for Land 200 Phase 3, including improving: Defence's requirements definition; understanding of the market; cost estimation; assessment of how the Prime System Integrator role will be performed; and coordination with other interdependent programs.

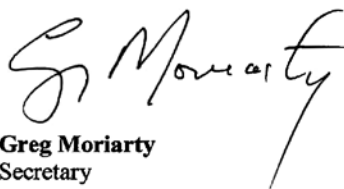
Attached to this letter are Defence's Proposed Amendments, Editorials and Comments (Annex A), Defence's Response to the Proposed Recommendation (Annex B), and Defence Summary Response (Annex C). These constitute Defence's formal response to the Proposed Report.

Our point of contact is ANAO Liaison Officer, Miss Alaina Brown, who can be contacted by telephone on 02 6266 3103 or email: alaina.brown@defence.gov.au.

2


Defence is confident that Army has access to a world leading system that will continue to evolve into a next generation Land Combat System under Land 200 Phase 3, and remains committed to assisting you with the successful completion of this audit. We look forward to the upcoming tabling of the Final Report.

Yours sincerely



Greg Moriarty
Secretary

26 April 2019



Angus J Campbell, AO, DSC
General
Chief of the Defence Force

29 April 2019

Annexes:

- A) Defence's Proposed Amendments, Editorials and Comments.
- B) Defence's Responses to the Proposed Recommendation.
- C) Defence Summary Response.

Appendix 2 Harris Communications (Australia) response



HARRIS COMMUNICATIONS (AUSTRALIA) PTY LTD

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harris.com

Reference: HCA/OUT/2019/

Thursday, 02 May 2019

Ms Sally Ramsey
Executive Director Land 200 Audit

[via email: sally.ramsey@anao.gov.au; Patrick.o'neill@anao.gov.au]

Dear Ms Ramsey

Proposed Report under s.19 of the Auditor General Act 1997; Modernising Army Command and Control – The Land 200 Program, Draft Report (Extract for Harris Defence Australia). Dated 1 April 2019

1. Thank you for the opportunity to comment on the subject report. Harris would like to offer the following for consideration as part of the Report.
2. **Level of Redaction.** The report is heavily redacted. While the intent of this redaction is understood the level of redaction in the version provided to Harris is significant and makes any real analysis or insightful contribution impossible. Harris requests a less redacted version to provide a more useful contribution to this process.
3. **Audit Scope - Affordability.** The Report makes a number of statements about Value For Money (VFM) and affordability. The judgement reached on VFM is that Defence's obligations have been met through cost investigation, risk reduction activities and the negotiation conducted as part of the JPFN. In para 2.14 the Report states that the cost of the Harris products and services was some 370% higher than the Defence estimate. The report however does not provide any detail of how the original estimate was constructed and whether it was a reasonable market survey or an estimate produced within the confines of CASG. Without this detail Government is left with an impression that Harris was using its market position to charge an above market price: which was absolutely not the case. Without any examination of the basis of Defence's initial estimate this impression is not warranted. Harris requests the detail of the original estimate be included to allow a more informed judgment by Government.⁴⁵
4. **JPFN.** The Report makes a number of statements about the Joint Proposal for Further Negotiations as being 'unique', 'unusual' and 'atypical'. Harris would agree with these statements but would confer a different outcome to that depicted in the report. At the time Harris viewed the JPFN as a form of pressure to meet a cost ceiling, else to risk the Program being cancelled. Harris accepts that it entered into the Contract willingly however the impact of the JPFN cost reduction and schedule constraints are an enduring detrimental feature of the Program and should not, in Harris' view, be considered as an exemplar for conducting negotiations.
5. **CASG as a Prime.** The report states that CASG accepted the role of Prime Systems Integrator because of the affordability issues of the Program. This is partially correct as while this decision was made using the JPFN as a justification, the reality was that the enabling contracts contributing to the Land 200 Program, either directly or indirectly, were not in place for any outcome other than CASG assuming role of PSI. Of particular note, prior to the JPFN, the JP2072 Phase 3 or the Land 75 programs were developed as independent programs and could not be converted to one program under a single prime.

ABN 88 054 982 151

1

45 **ANAO comment:** Paragraph 2.18 of this audit report states that Defence found that the tendered pricing structures were not unreasonable.



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6. **Delay to IMR.** Para 3.36 states that by September 18, 2019 Defence was advising Government that Initial Material Release might be delayed due to the likely late exit by Harris from Detailed Design Review and because the contract changes for vehicle integration had not yet been finalized. Harris strongly rejects the inference that these factors were of equal causality to the likely delay to IMR. In September 18, 2018 Harris was forecasting an on-time DDR; however, it was clear that none of the associated vehicle programs (for example Land 121 and Land 400) were able to meet the IMR date. Since then the inability of Defence to provide key Government Furnished Materiel for Land 200, in its role as the PSI, and its continued inability to provide the vehicles, has driven the IMR delay to an irrecoverable position in terms of meeting the original program schedule.
7. Harris again thanks the ANAO for the opportunity to provide comment of the subject report. Should further clarification be required in relation to this response, please contact either myself or HCA's Program Director, Mr. Andrew Libby at andrew.libby@harris.com or +61 (0)423 931 339.

Yours sincerely,

Alan Callaghan

President and Managing Director

HARRIS DEFENCE AUSTRALIA

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2

Appendix 3 Land 200 Tranche 1

1. Capability later defined as Land 200 Tranche 1 was procured from 2007 to 2011. For the Battle Management System, an open tender issued in 2007 was followed by a refined sole-source tender issued to Elbit in March 2009, with contract signature in March 2010. The 2010 contract sought the 'supply, integration, installation and support' of the Battle Management System in its dismounted and vehicle-mounted forms, for commanders, logistic staff and Headquarters staff. The intention was to integrate the vehicle-mounted Battle Management System into 1054 vehicles over five vehicle types: G-Wagon, Bushmaster, M113, Unimog and Mack trucks.
2. For the hardware to accompany the Battle Management System, two Standing Offers were established:
 - Defence released a sole-source tender to Harris Corporation (Harris) in January 2010 for combat radios, and signed a contract in March 2010.
 - Defence also released a sole-source tender to Raytheon Australia (Raytheon) for tactical data radios in May 2010, with contract signature in January 2011.
3. Defence judged these two sole-source contracts to be value for money and low-risk, on the basis of the capability being acquired, Elbit's recommendation about the hardware that would operate best with the Battle Management System, and the similarity of the cost to that being obtained by the United States Government.
4. Tranche 1 required 15 system integration designs built on software systems and network architecture. The designs were physically integrated into 30 variants of four platforms — notably G-Wagon, Bushmaster and Unimog⁴⁶ — as well as a small number of Tiger helicopters and landing craft.⁴⁷ The notable omission from the planned deliveries was installation into the M113 fleet: although the design work was completed, Defence had decided in 2012 to postpone M113 installation to Tranche 2.⁴⁸
5. Land 200 Tranche 1 achieved Final Operational Capability in March 2015, two years behind schedule.⁴⁹ In declaring Final Operational Capability, the Chief of Army noted that:

Army appreciates the complexity of interdependencies that faced the DMO [Defence Materiel Organisation] and industry in delivering the LAND 200 Tranche 1 system and accepts that frequent unforeseen factors led to schedule delay. The 'learn by doing' approach applied to Tranche 1 allowed Army to digitise a subset of its force and refine its operating concept and system requirements for future tranches.
6. In adopting a 'learn by doing' approach, Defence experienced schedule delays and delivered some materiel that was not fit-for-purpose, but at the same time achieved a capability that it considers to be valuable. Defence records indicate that the Land 200 capability has been

46 Kits for Mack trucks were delivered but were not installed into these trucks because the trucks were obsolete. Defence advised the ANAO that these kits, which cost \$1.5 million, were used to expand the Land 200 Tranche 1 network across all Combat Brigades.

47 In addition to the purchase of 5500 radios under Land 200 Tranche 1, another 11,000 radios were purchased by Standing Offer in January 2012.

48 This schedule change occurred in the context of the 2012 Federal Budget.

49 The April 2013 target date for Final Operational Capability was advised to Government at Second Pass in November 2009.

well received within Army, and has performed well during Army exercises since its acquisition, giving Army formations greater situational awareness and manoeuvrability. The lessons arising from the implementation of Tranche 1 include:

- Army identified benefits in phasing out the legacy Battlefield Command Support System and spreading the Land 200 capability across its Combat Brigades. Army changed its original intent to equip a single Combat Brigade and redistributed the Tranche 1 equipment so as to provide an initial digital command and control capability across all three Combat Brigades.
- Defence found that installing the Land 200 capability into the fleet of unprotected G-Wagons was not as beneficial as having the system installed into front-line vehicles, and refocused its efforts towards armoured and protected vehicles. Defence advised the ANAO in 2019 that a total of 666 G-Wagons were installed, at a cost of approximately \$33 million, with the final vehicle accepted in June 2017, and Defence now intends to uninstall this capability from over 200 G-Wagons if funding is identified. Defence advised the ANAO that:

The decision for employment / installation of the Land 200 capabilities into the G-Wagon fleet was made based on the technical requirement to achieve a minimum density to enable the network to function. This would not have been possible if solely installed into front-line training vehicles. Non front-line vehicles like the G Wagon are also used elsewhere in the battlespace and are therefore still essential in the realisation of a Battlefield Command System.

This experience has been highly valuable to Defence, as it has enabled Army to learn how to prepare, deploy and fight with the network, and subsequently understand technical limitations and considerations that informed both Tranche 2 and future requirements for Tranche 3.

- In the case of the dismounted (soldier-carried) capability, there was a lack of agility in Defence's acquisition and engineering design process, and technological change outpaced Defence's procurement. A total of 1501 dismounted (soldier-carried) systems that met the specifications was acquired under Land 200 Tranche 1, at a cost of approximately \$56 million. The system was subsequently deemed not usable in a dismounted configuration, primarily due to its weight. Defence advised the ANAO in January 2019 that these dismounted systems are currently being withdrawn from service and will be disposed of once disposal approval is granted. Because of affordability constraints, the requirement for a dismounted system was transferred first to Land 200 Tranche 2, and then to Land 200 Tranche 3.⁵⁰ Defence advised the ANAO that:

Although the dismounted capability delivered under Land 200 Tranche 1 was deemed unsuitable due to size/power/weight issues, the capability that was delivered was rolled out to units across Army, and has significantly informed future iterations that may be acquired. The dismounted capability was only de-scoped from Tranche 2 due to affordability issues.

7. Defence's administration of the Land 200 capability also caused the postponement of installation into the M113 fleet, and delays meant that older vehicles already selected for Land 200 were superseded by newer fleets (Mack trucks by the Medium Heavy Capability). Similar affordability issues and project delays also later affected Tranche 2.

⁵⁰ See paragraphs 2.20, 2.45 and 2.61.

8. Defence advised the ANAO that the Battle Management System is accredited for offshore deployment, and summarised the outcome of the Land 200 program as follows:

The Battlefield Command System delivered under L200 has seen a generational change in the way Army communicates and fights on the battlefield. The benefits of this network have been proven across numerous activities, and directly resulted in this capability being delivered across the three Combat Brigades (and up to JTF [Joint Task Force] HQ), vice the original intent of digitising at the Battlegroup-level.

Land 200 Tranche 1 ... is a complex system of systems capability that needs to be integrated into the Army's combat vehicles and headquarters. Defence acknowledges that Tranche 1 managed significant risk given the multiple interdependent platforms that needed to be centralised, prepared and delivered as Government Furnished Equipment to the Prime Contract and the rapid change in digital technology.

Appendix 4 Work Package A of Land 200 Tranche 2

Work Package A purchase of radios

1. The combat radios and tactical data radios for Work Package A were procured through standing offers under the existing contracts with Harris and Raytheon (see Appendix 3). Defence issued a Request for Information to each supplier in April 2013, and a Request for Quote in October 2013. Orders were placed in December 2013, amounting to \$107 million for over 2000 combat radios (Harris) and \$46.5 million for 1200 tactical data radios (Raytheon).

Work Package A purchase of vehicle kits and vehicle installation

2. The September 2012 Acquisition Strategy for Land 75 Phase 4 stated that the proposed method of procurement was to exercise contract options for Work Package A, and to issue a limited (sole-source) tender for Work Packages B–D to Elbit based on the 2010 contract for Land 200 Tranche 1 (see Appendix 3). The justifications for a sole-source approach included:

- the significant investments already made to integrate the system into Australian Defence Force vehicle fleets;
- preservation of the conditions of the 2010 contract, as negotiated in the competitive 2007–09 tender;
- the absence of significant technical advancements among competitors;
- Army's inability to accommodate multiple systems in parallel to achieve the same capability;
- maintaining compatibility with the equipment acquired under Land 200 Tranche 1;
- maximising the reuse of training courses and material;
- maintaining the doctrine, tactics, techniques and procedures for best use of the systems already acquired; and
- delivering the Army digitisation program as rapidly as possible.

3. In May 2013, Defence released a sole-source Request for Quote for Work Package A to Elbit under the 2010 contract. Defence intended to use its leverage during Work Package A to set the basis for the later acquisition of Work Packages B–D, while still preserving Defence's option to test the market for these subsequent work packages and not to place all its requirements with Elbit.

4. Contract negotiations between Defence and Elbit occurred during October–November 2013, focusing on matters such as: pricing, savings and efficiency targets; local production options to reduce long lead times; and the preservation of the existing (Tranche 1) contract conditions.

5. Defence records indicate that the negotiations achieved a one-third price reduction. Almost two-thirds of this reduction was based on the indefinite deferral of installation into the M113 fleet, which had already incurred 'significant delays' under Tranche 1. A contract change was signed with Elbit in December 2013, increasing the 2010 contract for Tranche 1 by \$153 million. Elbit was contracted to install the Tranche 1 system into five more Bushmaster variants and four more G-Wagon variants by the end of April 2017, and to provide training.

6. In December 2014, the deferred design and production of vehicle kits for the M113 fleet was included in the contract, at a cost of A\$600,000 and US\$28 million (GST inc). Elbit also agreed to continue negotiating a Defence-wide software licence for the Battle Management System, with part of the cost to be funded from liquidated damages of \$6 million arising from past schedule delays.⁵¹ Installation of vehicle kits into the M113 fleet was contracted in December 2015, at a further cost of \$6 million.

7. Between June 2015 and September 2017, some 900 additional vehicles — G-Wagons, Bushmasters, and M113s — were fitted or upgraded with the Tranche 1 capability. Final Materiel Release of the Work Package A capability was achieved in December 2017, just over a year behind schedule.

51 Defence records indicate that by December 2014 there had been improvements in Elbit's schedule performance.