

Comprehensive Analysis of Strategic Force Generation Challenges in the Australian Army



AUSTRALIA

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Preface

Australian Army Headquarters has tasked RAND Australia to investigate the strategic-level challenges associated with Force Generation (FORGEN) in the wake of its adopting a cyclical 36-month FORGEN process to support its newly organised and modernised formations. To accomplish this objective, RAND compiled information about the status of the Australian Army along with relevant lessons identified from the reorganisation, modernisation, and strategic FORGEN challenges of other militaries. Ultimately, this effort aims to help the Australian Army develop best practices for overcoming challenges in generating forces in light of its current and emergent missions and resourcing levels.

This report begins by discussing enterprise initiatives that armies undertake—and how FORGEN relates to such initiatives. A review of enterprise initiatives and challenges in the U.S., French, and Canadian armies provides a foundation for identifying and prioritising FORGEN challenges faced by the Australian Army. We draw on defence frameworks to analyse and organise Australian Army FORGEN challenges—and also draw upon recent research, conducted by the Land Analytical Decision Support section of the Australian Defence Science & Technology Group (DSTG), that examined tactical-level challenges associated with the capability and capacity of the Army's enabler forces. The present study incorporates relevant DSTG findings into higher-level strategic challenges.

This report primarily addresses the Active Component (AC) and how it relates to FORGEN requirements at the strategic level. Although there is some discussion of the Reserve Component (RC) and of how Government, civilians, and contractors might be used as means of addressing challenges, the RC, civilians, and contractors are not the focus of this study and warrant additional attention in future research. Also, this study did not address the special operations community; this, too, is a potential area for further investigation.

This report is likely to be of interest to Australian Government officials overseeing defence policy. Mitigating FORGEN challenges is an important policy discussion because these challenges can lead to operational risk and the inefficient allocation of resources. Levers such as policy and doctrine changes, resource allocation decisions, and informed leadership decisionmaking can serve to address these challenges. This

study will offer recommendations to inform policy and guidance, while also helping to shape resource allocation decisions.

This research was conducted within the Acquisition and Technology Policy Center of the RAND National Security Research Division (NSRD). NSRD conducts research and analysis on defence and national security topics for the U.S. and allied defence, foreign policy, homeland security, and intelligence communities and foundations and other nongovernmental organisations that support defence and national security analysis.

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Summary

Force Generation (FORGEN) for current and future operations has become a key concern of modern armies facing a range of threats. In the case of Australia, FORGEN has been described as the Army's ability to "provide rapid and scalable forces with combined arms combat proficiency at their core" that afford the Australian Government both "the utility of an immediately deployable force for the most likely scenarios and a strategic hedge against the uncertainty of the future." The desired objective of FORGEN is to provide "credible options to Government for posture (providing strategic weight), engagement (shaping the region), and response."¹ Given that the process tends to have considerable implications for national defence, the Army recently has revised its approach to FORGEN to better provide ready forces capable of fulfilling Army's roles and missions and protecting Australia's domestic, regional, and global interests. The purpose of our study was to further identify and help Army address challenges associated with these strategic FORGEN changes.

While FORGEN was our primary focus, we also examined modernisation and preparedness—which encompasses readiness and sustainability in the Army.² The concepts of FORGEN, modernisation, and preparedness are all interrelated and rooted in the defined roles and missions of the force. How a nation generates forces depends on anticipated roles and missions. Similarly, how an army defines preparedness and trains, assesses, and certifies the readiness of its forces depends on its understanding of precisely what it must be ready to do. Army officials have acknowledged this interrelatedness, noting that an army brigade's readiness "is achieved through a combination of collective, sequenced training known as FORGEN and the process of continuous modernisation."³

¹ Australian Army, "Chief of Army Opening Address to Land Forces 2014," *Army*, September 24, 2014.

² Army preparedness is defined as the Army's ability to deploy appropriately trained and equipped units and individuals, at short notice, and to support these units and individuals for the duration of their deployment. These two aspects of preparedness are referred to as "readiness" and "sustainability" (David Morrison, LTJG, "Army Individual Readiness Notice," Australian National Audit Office [ANAO], June 16, 2010).

³ Australian Army, "Australian Army Modernisation and Strategic Planning: Enabling a Small Land Force to Achieve Large Effects," Australian Army Modernisation Projects, 2017.

To fulfil anticipated roles and missions, the Australian Army has been implementing a FORGEN and modernisation plan that was announced by the Australian Government in November of 2011 and reaffirmed in the 2016 Defence White Paper.⁴ The plan, known as Plan Beersheba, focused on four major objectives aimed at increasing Army readiness:

- Restructuring the 1st, 3rd, and 7th brigades into multirole combat brigades (MCBs) to make them fundamentally alike, which will enable sustained operations within the context of the new FORGEN model
- Establishing a new 36-month FORGEN cycle
- Implementing a centralisation plan in the Army's three existing enabler brigades (6th Brigade [Combat Support, Intelligence, Surveillance, Target Acquisition, and Reconnaissance], 16th Aviation Brigade, and 17th Combat Service Support Brigade) to mitigate shortfalls in the Army's ability to mass capability
- Establishing a training concept that enables the Reserve units to be more similar to the Regular units by pairing the six Reserve Brigades in the 2nd Division and aligning each pair with an MCB.⁵

Plan Beersheba called for a cyclical FORGEN process, as well as modernisation of its operating forces portfolio through the implementation of the MCBs. The MCBs and Enabler Brigades are tactical-level capabilities that exist in the Australian Army. FORGEN, force restructuring, and modernisation are inherently risky management areas based on their ability to affect the readiness and sustainability of the MCBs and the Enabler Brigades and ultimately the ability of Army to meet the security demands of the nation.

Project Overview

This study examined the Army's FORGEN challenges in ensuring that the Army is continuously ready to execute its roles and missions in support of the Government. In general, when studying military organisations and the challenges they face, it is necessary to consider levels of war—which can also be viewed as levels of decisionmaking and action: tactical, operational, military strategic, and strategic.⁶ The tactical level focuses on the battles, engagements, and activities of tactical units or task forces that carry out specific missions. The operational level focuses on planning and executing operations. The military strategic level focuses on “link[ing] military instrument[s] of national power to a

⁴ Australian Government Department of Defence, *2016 Defence White Paper*, Commonwealth of Australia, 2016.

⁵ ABC News Australia, “Defence Announce Major Army Restructure,” December 11, 2011. See also Australian Army, “Plan Beersheba,” *Army*, undated-d.

⁶ Australian Army, “Land Warfare Doctrine (LWD) 1: The Fundamentals of Land Power,” *Army*, 2014.

whole-of-government approach to national security,”⁷ and the strategic level focuses on developing and coordinating high-level plans to achieve “an end-state favourable to the national interest.”⁸

This study specifically analysed strategic challenges in generating forces to execute the Army’s current and emergent roles and missions that Army agreed upon with Government. We identified risks and, where possible, mitigating actions, to help decisionmakers in the Army, Joint Military, and Government determine how to address issues. In doing so, we leveraged the Government’s Defence Risk Management Framework.⁹

It is important to mitigate FORGEN challenges because they can lead to operational and strategic risk and the inefficient allocation of resources. Levers such as policy and doctrine changes, resource allocation decisions, and informed leadership decision-making can serve to address these challenges. This study will offer recommendations to inform policy and guidance, while also helping to shape resource allocation decisions.

Analytic Approach and Scope of Study

Table S.1 provides an overview of the project tasks and research activities in the study. This report primarily addresses the Active Component (AC) and how it relates to FORGEN requirements at the strategic level. Although there is some discussion of the Reserve Component (RC) and how Government civilians and contractors might be used as means of addressing challenges, the RC, civilians, and contractors are not the focus of this study and warrant additional attention in future research. Also, this study did not address the special operations community; this, too, is a potential area for future investigation.

Although the U.S. Army is larger than the Australian Army, French Army, Canadian Army, and U.S. Marine Corps, these military organisations are likely to have some similarities in their processes and functions as they navigate enterprise-level initiatives. In particular, certain complexities associated with Plan Beersheba’s objectives—reorganisation, modernisation, and implementing a new FORGEN model—exist in each of these organisations. We therefore examined the FORGEN and modernisation journeys of these militaries to anticipate challenges and derive lessons for the Australian Army.

Following the literature review on FORGEN experiences and the literature review on modernisation experiences, RAND conducted stakeholder interviews and other data collection to expand the identification and assessment of FORGEN challenges facing the Australian Army. Our next step (Phase 3) was to develop an analytic framework to help categorise and understand observations from the literature review and subject

⁷ Australian Army, “Land Warfare Doctrine (LWD) 1,” p. 19.

⁸ Australian Army, “Land Warfare Doctrine (LWD) 1,” p. 18.

⁹ Australian Government, Department of Defence, *2016–2017 Defence Corporate Plan*, Commonwealth of Australia, 2017, p. 15.

Table S.1
Phases and Research Approach

Phase	Research Activities
Phase 1—Outline potential short-term and long-term activities of Australian Army FORGEN	• Reviewed Australian Army doctrine, guidance, policies, and plans to synthesise information about current and future roles and missions of Army and the impact on FORGEN • Interviewed subject matter experts (SMEs) and practitioners to supplement the literature review
Phase 2—Review the FORGEN journeys of the militaries of the U.S., France, and Canada, and summarise relevant challenges and lessons identified	• Reviewed literature to document the U.S. military's FORGEN model journey as a benchmark for analysis (U.S. Marine Corps and U.S. Army Force Generation model) • Based on literature review, selected and documented the FORGEN journeys of France and Canada • Conducted interviews with SMEs and did research to glean information and lessons identified from these journeys
Phase 3—Characterise potential challenges, causes, and effects associated with FORGEN in the Australian Army	• The research team leveraged the Defence Enterprise Risk Management Framework (National, Enterprise, and Operational), to organise the challenges identified in Phases 1 and 2. Operational challenges were further categorised using Defence's Fundamental Inputs to Capability (FIC) Framework (Personnel, Organisation, Collective Training, Major Systems, Supplies, Facilities and Training Areas, Support, Command and Management, and Industry). The FIC Framework helps assess capabilities within management areas—thereby making operational-level recommendations actionable. RAND created an annotated framework to view challenges from these sources.
Phase 4—Prioritise potential challenges associated with the Australian Army's FORGEN model, and develop recommendations to mitigate these challenges	• Drawing on the product of Phase 3, the research team prioritised challenges based on risk • The team also developed recommendations to address these challenges with recommended deep dives in areas that would require further analysis
Phase 5—Final report and briefing	• The team prepared this report and a corresponding briefing

matter expert (SME) interviews. We drew on the analytic framework (integrating several typologies) to identify and categorise challenges and assess their potential effects. Then we prioritised the challenges and recommended mitigation strategies.

Summary of Key Findings and Recommendations

Through the aforementioned methods, RAND identified 25 key challenges to Army's strategic FORGEN. Table S.2 lists those 25 challenges, prioritised by risk level, along with our high-level recommendations. The risk level determines at what level(s) of decision-making a problem resides on the spectrum of tactical to strategic. This vertical framework also allows us to see how the same problem can manifest in different ways in each tier,

Table S.2
Challenges and Recommendations for FORGEN

Challenge	Recommendation
National Security–Level Risks	
Seeing, understanding, and reacting to the new norms for the future or emergent nature of war and character of warfare	Develop planning systems to promote increased communication among Government, Australian Defence Force Headquarters (ADFHQ), and Army to strategically plan for future roles and missions
Prioritising roles and missions among global, regional, and domestic objectives and allocating resources to appropriately meet those mission sets	Develop a process for prioritising roles and missions based on intelligence community threat assessment products and a corresponding menu of responses
Enterprise-Level Risks	
Communicating capability gaps among Government, ADFHQ, and Army	Analyse the communications processes and content streams between Army and ADFHQ, and ultimately to Parliament to identify problematic areas
Sharing Army capabilities with the Joint Force and other government agencies (OGAs), most often those enablers that are high-demand/low-density capabilities	Implement a comprehensive force management review process to determine total demand for Army capabilities
Misaligning the vision of being a world-class army with the resources (capabilities, size, sustainment, funding, time) to achieve it	Prioritise missions and validate the vision for operational effectiveness with Parliament and develop a plan to upgrade capabilities in accordance with the collaboratively communicated plan and vision
Connecting lessons identified to concepts to actual doctrinal and process upgrades	Use lessons identified processes to update doctrine, policy, and guidance
Current risk framework is not well integrated; Army lacking standard, well-defined, widely understood system for tracking enterprise risks or challenges	Establish an integrated process that tracks gaps from the tactical levels of the services up to the strategic level to be overseen by Government
Army naming conventions for capabilities are not aligned with or integrated into naming conventions for Joint Capabilities	Develop and implement a capability naming convention that better aligns with the joint structure
Managing growth of Army in accordance with Defence White Paper and the Defence Planning Guidance	Establish institutional mechanisms to capture growth initiatives, and then to subsequently track and monitor their progress
Operational-Level Risks	
Capability gaps hindering becoming a world-class army	Continue to develop a plan to upgrade capabilities in accordance with the collaboratively communicated plan and vision
Paradigm for discussing preparedness	Develop and implement institutional mechanisms to better assess, report, and monitor preparedness
Geographic locations and dispersion of some units with respect to training and support relationships	Conduct analysis of current basing plan to garner potential efficiencies
Tension with centralising support capabilities as opposed to organically assigning	Develop a strategic communications plan to acculturate the Army to roles and mission of the enabler community
Multirole combat brigades (MCBs) being perceived as deployable entities as opposed to FORGEN constructs	Develop a strategic communications plan to fully explain that the MCB construct is for FORGEN to raise, train, and sustain ready forces

Table S.2—Continued

Challenge	Recommendation
Friction between force modernisation and FORGEN	Manage modernisation using a top-down approach
Misalignment of FORGEN cycles of the three services (Army, Navy, and Air Force)	Conduct analysis to determine where FORGEN cycles can be overlapped
FORGEN cycle not being strictly adhered to and being frequently broken for Government, ADFHQ, and Army needs	Analyse the current FORGEN model in relation to current Army force structure
Adverse effects related to operations tempo (OPTEMPO): costs, retention, recruitment, maintenance, stress on soldier and family, individual training opportunity costs	Develop a strategy to better manage subordinate unit OPTEMPO
Training focused on mid- to high-intensity combat to the detriment of training for other missions, including stability operations; Humanitarian and Disaster Relief (HADR); and Train, Advise, Assist	Prioritise roles and missions and establish and enforce a Mission Essential Task List (METL); in addition, the Army should also address cultural biases towards combat at the expense of other operations
Lack of subordinate unit assessments and certifications during major training exercises	Better integrate the large exercises into the subordinate unit training requirements
Hallmark of success in command tour is participation in combat-centric operations and training	Create institutional mechanisms that mandate or incentivise compliance with requirements beyond the spectrum of combat operations
Divergence between the Active and Reserve Components in terms of training and materiel readiness and interoperability	Identify current and emergent roles and missions of the Reserve Component and conduct FIC-based gap analysis across the component
Misalignment of manning and organisation of Army elements for optimal output, including alignment of the Reserve Component elements	Conduct deliberate force design assessment to determine the optimal way forward
Integration of women in the Army	Conduct targeted recruiting of the desired population set—in this case women
Lack of people in certain skill sets, particularly enablers	Establish or invigorate existing institutional mechanisms to ensure the sustainment of people serving in critical technical fields and/or their knowledge

which in turn allows RAND to pinpoint where the root of the challenge lies. In Chapter Three of this report, we describe in detail each of these challenges and their risk levels, and we outline potential solutions and recommendations using the “issue–discussion–recommendation” model from the Center for Army Lessons Learned (CALL).¹⁰

RAND grouped the 25 recommendations into nine “solution themes” which Table S.3 ranks and describes. The 25 challenges are interrelated; the operational challenges are nested in enterprise risks, which are in turn nested under national security risks. Table S.3 lists the nine solution themes in order of criticality to Army’s success—

¹⁰ See examples of this model employed in: Center for Army Lessons Learned, *Handbook: Military Decision Making Process (MDMP)—Lessons and Best Practices*, No. 15-06, Fort Leavenworth, Kan., March 2015, pp. 25–26.

Table S.3
Solution Themes

	Solution Theme	Emphasis
1	Prioritising roles and missions	Addressing resource, training, and other constraints on roles and missions of the Army
2	Force design	Addressing gaps and misalignment in Force Design
3	Communication	Improving communication inside Army; between Army and ADFHQ; and between ADFHQ and Government
4	Managing OPTEMPO	Decreasing OPTEMPO to reduce issues related to sustainment of equipment and personnel
5	Internal control	Introducing policies and procedures to meet objectives and mitigate risks
6	Managing modernisation	Managing the challenges that come with implementing new equipment, organisation, and/or capabilities
7	Human capital management	Dealing with recruitment and retention issues, having the right skill sets, and diversity in the workforce
8	Reserve Component (RC) utilisation	Addressing underutilisation of the RC
9	Basing plan	Organising and aligning of bases

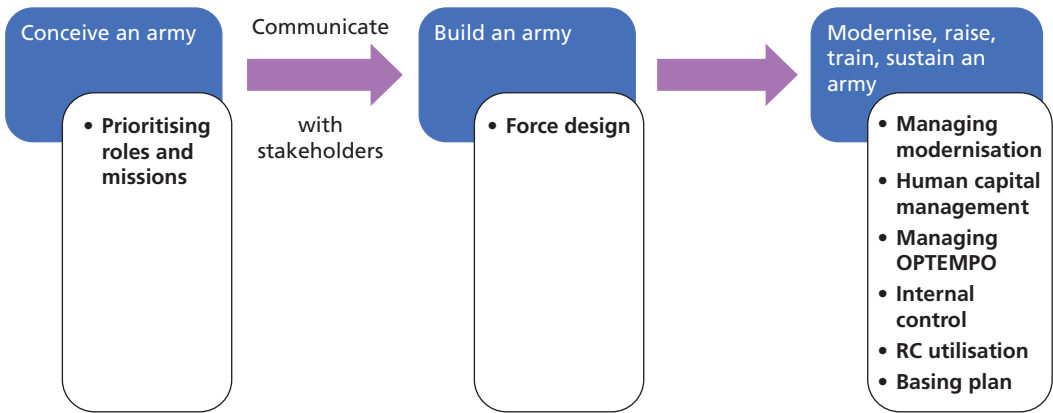
NOTE: OPTEMPO—which stands for “operations tempo” and is a form of jargon associated with militaries (Jim Garamone, “Optempo, Perstempo: What They Mean,” *U.S. Department of Defense, DoD News*, August 18, 1999). At the macro level, OPTEMPO is used to describe the pace of operations—day-to-day training, or deployments. OPTEMPO in the U.S. Army is a program used to provide the “critical resources required for Modified Table of Organization and Equipment units to conduct and support full-spectrum operations (FSO) training, maintain unit equipment, and sustain routine, day-to-day operations” (U.S. Army G3/5/7, “OPTEMPO and Full-Spectrum Operations Training,” *U.S. Army STAND-TO!* January 26, 2011). OPTEMPO can also have an effect on people and PERSTEMPO is a specific program developed by the U.S. “to track and manage individual rates of deployment (time away from home), unit training events, special operations/exercises and mission support temporary duty” (U.S. Army Human Resources Command, PERSTEMPO FAQs, *HRC*, November 9, 2017).

with respect to their associated challenges (see Chapter Four for mapping of challenges to solution themes).

RAND identified three areas of principal importance: (1) prioritising the roles and missions of the Army, (2) designing a force to align with these roles and missions, and (3) continued communication across all levels of Defence and with Government to be able to perform the agreed roles and missions. Prioritising these three themes should enable the remaining six: once the purpose of the Army is agreed upon, how the Army achieves these goals then can begin to take shape. Figure S.1 depicts this idea and how the solution themes are related.

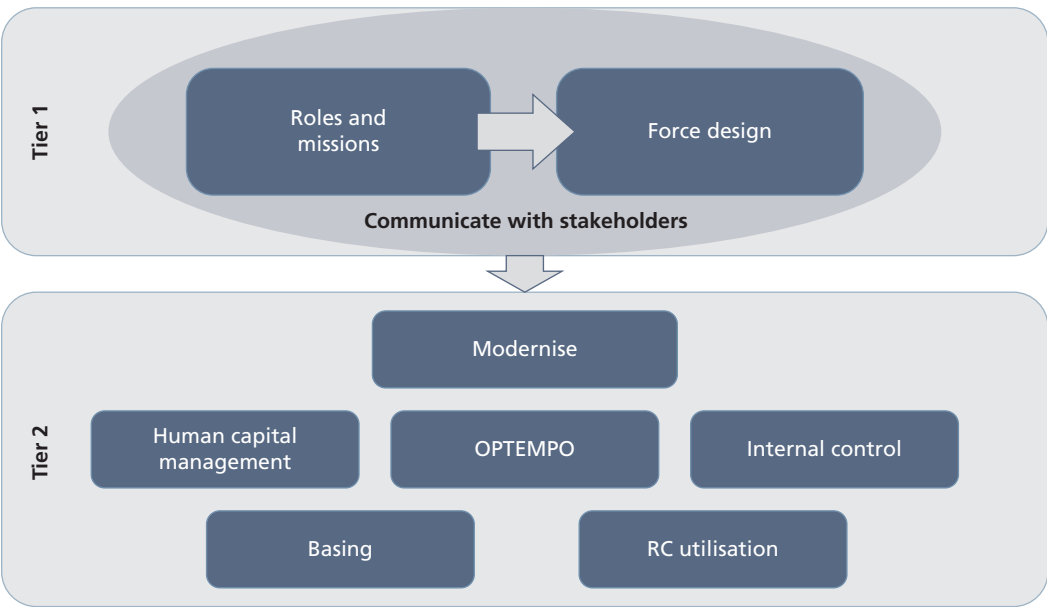
Figure S.2 organizes solution themes into two priority levels. RAND recommends addressing Tier 1 themes—Prioritising Roles and Missions, Force Design, and Communication with Stakeholders—to adequately set conditions for addressing those in Tier 2. Tier 1 solutions—e.g., how to conceive and build an army—will support Tier 2 efforts—e.g., how to modernise, raise, train, and sustain an army. During the study, the Australian Army had in parallel begun their own strategic assessment initiative,

Figure S.1
Recommendation Theme Framework



RAND RR2382-S.1

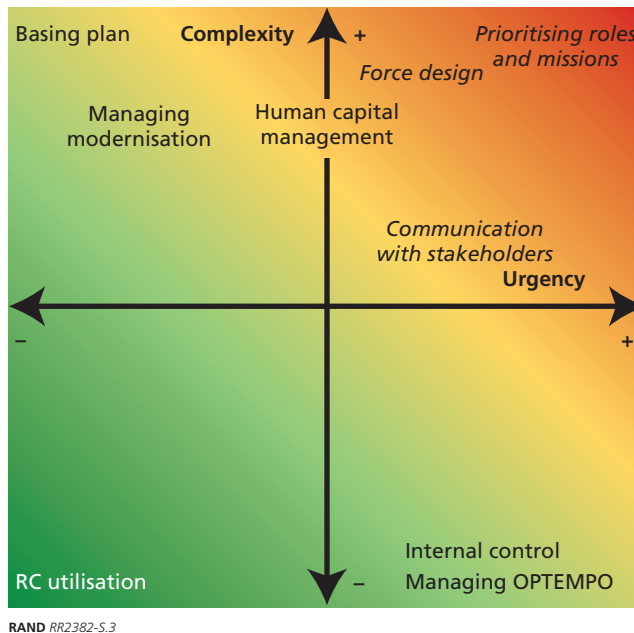
Figure S.2
Conceptualisation: From Vision to Action



RAND RR2382-S.2

referred to as the Master Question List, which had come to similar conclusions about the need to build a narrative around the land force before deciding how to modernise it. For implementation purposes, RAND offers Figure S.3 to help leadership consider the urgency, timeliness, and resources needed to mitigate challenges. Prioritising Army’s roles and missions serves as the bedrock of all other efforts. However, RAND acknowledges the heavy undertaking of doing so; therefore, several other initiatives could be

Figure S.3
Urgency vs. Complexity of Recommendations



explored concurrently to manage immediate stress points. Figure S.3 compares the complexity (how difficult it would be due to size and magnitude) and urgency (the risk associated with not resolving a certain issue of each of the nine solution themes). We scored these solution themes based on the Australian context, lessons identified from experiences in the Canadian, U.S., French, and Australian militaries, our understanding of organisational complexity, and SME evaluation inside RAND.

Prioritising Roles and Missions and Force Design, the root of many of the FORGEN problems the Australian Army is facing, are highly complex. There tends to be broad debate over where Australia should accept national security risk; additionally, how to force generate based on this accepted risk is a question that calls for rigorous analysis of a process with many elements. On the other hand, addressing issues related to Internal Control and better managing OPTEMPO (“operations tempo”) are low on the complexity scale because they largely call for updating policies and procedures to improve monitoring to ensure careful management of resources and decrease cost risk.

RAND has highlighted the three solution themes in the upper right quadrant of Figure S.3: Prioritising Roles and Missions, Force Design, and Communication with Stakeholders. Addressing these themes will require more resources and urgent attention. Solution themes in the lower right quadrant—Internal Control and Managing OPTEMPO—could be described as options for “quick wins,” whereas complex challenges will require adequate time and resourcing to overcome. RAND advises implementing high-urgency solutions soonest, and, as outlined in Figure S.2, it notes

that outcomes from Prioritising Roles and Missions, Force Design, and Communication with Stakeholders will feed into efforts to address Managing OPTEMPO and Internal Control. Low-urgency recommendations do not require immediate attention and could be reexamined after high-urgency recommendations are implemented. The rationales for the nine recommendations are discussed below, along with what implementing these solutions might entail. Some solution themes have more problems associated with them than others (see Chapter Four) and their discussion reflects the depth RAND case studied these problems and their associated solutions.

Prioritising Roles and Missions

Without a clear understanding of the Army's role, the Army cannot design, plan, train, or resource its forces to the right mission sets. Tension between what the Australian Defence Force (ADF) believes its roles and missions should be and what Government and the public believe the roles of the military should be is natural. However, such gaps (divergent perspectives) should be monitored and addressed—especially when resources are constrained. Australia currently has gaps between Army and ADFHQ, and both have gaps with Government.

Force Design

There is a misalignment in the current force structure, and it affects the ability of the FORGEN cycle to fulfil intended goals. The Army faces the challenge of imposing yet another change to the current force design (implemented as recently as 2011), as opposed to leaving things in place, considering current challenges. Improving internal control mechanisms and managing the OPTEMPO can help mitigate the immediate stress on resources, but a force design change still needs to be considered in the near future. Once the roles and missions of the Army are more clearly defined and there is a better understanding of lessons identified in force design journeys (currently being explored by the DSTG), the Army will be in a better position to benefit from a deliberate and rigorous look at its force design, considering both force generation and force structure.

Communication with Stakeholders

We demonstrate through a classic communication model that each node has problems to be resolved to improve the overall communication. The sender node, Army, has cultural features that can affect the message being sent to Defence and Government. For example, Army tends to be focused on training for high-intensity conflict, which does not reflect the strategic objectives outlined in the 2016 Defence White Paper. As such, information being sent to ADFHQ or Government tends to be influenced by this bias towards wanting to develop high-intensity warfighting.¹¹ Next, the message itself can be faulty because

¹¹ This was identified as one of the challenges to force generation as several interviewees discussed concerns on the focus of training.

the content is inaccurate or does not provide the appropriate information designed to help the recipients (Government) make informed decisions. Readiness reporting is an example of incomplete or inconsistent messaging. (RAND found no issues in the modes of communication—i.e., documents, hearings, and other methods.) Lastly, the recipient, Government and ADFHQ, may not interpret a message correctly, or there could be debate inside Government about what kind of roles the Army should have, regardless of the information being sent. For these reasons, RAND sees the major problem in communication as the content of the messaging and not the actors. Improving communication can be closely linked to prioritising roles and missions—and therefore has some complexity and urgency.

Managing OPTEMPO

One of the more straightforward solutions to implement is better management of the OPTEMPO of forces. Streamlining or reducing the number and magnitude of training exercises and even the types of deployments will reduce the overuse of resources: equipment, funding, and people. Developing systems to track and monitor the impact at the specific level is useful in demonstrating and mitigating the impacts that deployments and training can have on a force. For example, the U.S. Congress mandated a program called PERSTEMPO to be implemented and directed by the Office of the Secretary of Defense that each service uses “to track and manage individual rates of deployment (time away from home), unit training events, special operations/exercises and mission support temporary duty.”¹²

Internal Control

Internal control mechanisms to enforce standards, especially related to the use of resources, could help reduce issues related to overuse and overtraining. Approvals and checks are likely to enforce discipline in a FORGEN system and ensure the cycle runs as intended. A few simple measures could go a long way to improving the burden on resources. For example, in 2017, 16th Brigade implemented a flying hours cap on certain aircraft which has improved quality of life of pilots and crews as well as improving the sustainability and maintainability of these systems.¹³

Managing Modernisation

Modernisation is a complex undertaking. The U.S. Army is in the process of forming a command focused primarily on modernisation to provide dedicated focus to the several major activities that need to be integrated to modernise an army.¹⁴ Additionally,

¹² U.S. Army Human Resources Command, PERSTEMPO FAQs, *HRC*, November 9, 2017.

¹³ 16th Brigade, interview with the authors, Brisbane, Queensland, Australia, July 24, 2017.

¹⁴ As part of the effort to consolidate modernisation functions under a single command, the U.S. Army has established a task force to craft the Army’s forthcoming Futures and Modernization Command: Courtney McBride, “Hix: Modernization Command Task Force Seeking ‘Best Practices’ for Acquisition,” *Inside Defense*, December 7, 2017.

modernisation efforts must be grounded in the roles and missions Army is expected to accomplish. The Australian Army has been challenged in modernising its force as it would like due to friction with the current FORGEN model. Although modernisation is a complex undertaking, modernisation is being directly affected by FORGEN and force design issues, and once those are addressed, modernisation problems should decrease and be less difficult to overcome.

There are also issues with modernising as a joint force. Modernisation plans currently do not consider interoperability with the other services and partner nations as well, especially since coalition warfare continues to be common.

Human Capital Management

Human capital issues can be challenging and complex because of their dependence on multiple factors such as the available labour pool; organisational practices; and the social, political, and economic climate. Consequently, they tend to require frequent monitoring and deliberate action. ADF has already put in place measures to improve issues related to retention, recruitment, diversity, and skills management. For example, the 2016 Defence White Paper outlined plans to grow the force in currently lacking enabler capabilities such as cyber; intelligence, surveillance, and reconnaissance (ISR); health; and electronic warfare (EW). As such, human capital management was not deemed very urgent, because there are steps currently being taken to mitigate human capital challenges. It is important, however, that such efforts, and more like them, continue, given that attracting and training a skilled and diverse workforce is still a problem inside the ADF.

Reserve Component Utilisation

This report did not focus on the RC; however, Australia is paying for an RC capability. Using the RC to address capability gaps could help avoid incurring additional costs for contractors. Better utilisation of the RC is therefore an appropriate objective, but it is not an urgent or complex problem.

Basing Plan

Realigning and closing bases is an extremely costly and difficult task to undertake and should be considered only if there is a stable force design. Better management of OPTEMPO is likely to make geographical/distance barriers have less impact. A basing plan is therefore not urgent to consider at this time.

Conclusions

The array of challenges and proposed solutions in this study underscores the complexity of FORGEN; the process encompasses many aspects and functions of the Army

beyond those covered by Plan Beersheba. As the Army continues to develop and refine its FORGEN plans, it will be important to consider what kind of army Australia needs, for what purposes, and how much Australia is willing to pay for it. Information gathered in this study suggests that, currently, the resources Government is willing to invest in the Army are not commensurate with the Army's ambitious goals—which is a common tension between armies and their governments across the globe. The dynamic in Australia is slightly exacerbated by a need to better clarify and prioritise Army's roles and missions. If additional resources cannot be allocated, goals are likely to need adjustment, and it will be important to consider tradeoffs—and how to maximise the yield from investments—when making such adjustments.

Relatedly, the Army may not have the resources to implement all recommendations in this study. Thus, it will need to consider both the priority (risk levels) of the challenges and the costs of the solutions, as well as the operational risks and missed opportunities for cost avoidance of not undertaking measures to overcome certain challenges. The highest-priority problems are those expected to pose a national security risk: (1) seeing, understanding, and reacting to the new norms for the future/emergent nature of warfare, and (2) prioritising roles and missions among global, regional, and domestic objectives and allocating resources to meet those mission sets.¹⁵ However, challenges that present enterprise and operational risks should also be addressed to the extent that resources permit. A potential direction for study is to further develop and refine the solutions proposed here—and then to assess their costs. This additional information will help the Army determine which recommendations are affordable.

In addition to further developing and estimating the costs of the solution set offered, an important next step is to articulate the challenges and risks identified here to officials outside of the Army to generate support for proposed changes. Indeed, many of the challenges faced by the Army might be self-evident to those within the service yet opaque to Defence, Government, or the general public. Some examples include the difference between force generation brigades and the actual operation generated (OPGEN) fighting force that must be assembled to deploy on a mission or participate in a major training event. Another has to do with the ramifications of enabler units not having enough mass to match the FORGEN tempo of combat units. It is an aim of this study to assist the Army in pinpointing such problems, communicating them to others, and implementing feasible solutions.

¹⁵ The nature of warfare is evolving rapidly in light of technological advances and changes in diplomatic relationships; keeping leadership abreast of these changes is a critical task. The Army has recently published a study by Jeffrey Record considering future warfare entitled "Defining Victory in Modern War: E. G. Keogh Oration 2016" (2017); however, it has yet to be included in leadership discourse.

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Introduction

Force Generation (FORGEN) for current and future operations has become a key concern of modern armies facing a range of threats. In the Australian Army, FORGEN has been described as the Army's ability to "provide rapid and scalable forces with combined arms combat proficiency at their core" that afford the government both "the utility of an immediately deployable force for the most likely scenarios and a strategic hedge against the uncertainty of the future." The desired objective of FORGEN in Australia is to provide "credible options to Government for posture (providing strategic weight), engagement (shaping the region), and response."¹ Given that the process tends to have considerable implications for national defence, the Army recently has revised its approach to FORGEN to better provide ready forces capable of fulfilling Army's roles and missions and protecting Australia's domestic, regional, and global interests. The purpose of our study was to identify and help Army address strategic FORGEN challenges.

While FORGEN was our primary focus, we also examined modernisation and preparedness—which encompasses readiness and sustainability in the Australian Army.² The Army's modernisation strategy emphasises that "modernisation is a cycle of continual change within the Army" and that "it requires constant inputs of time, resources and personnel to ensure that the Army is capable of delivering on its promise to the Australian Government and the Australian people."³ Modernisation calls for a clear understanding of the roles and missions civilian leaders will ask of the force. Similarly, how an army defines readiness and trains, assesses, and certifies the readiness of its forces depends on its understanding of precisely what it must be ready to do. How a nation generates forces likewise depends on anticipated roles and missions. Army officials have acknowledged this interrelatedness, noting that an army brigade's readiness "is achieved through a combination of collective, sequenced training known as

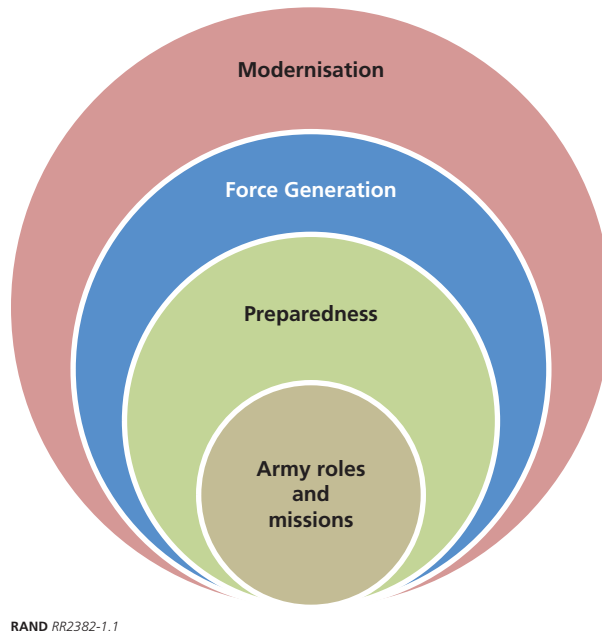
¹ Australian Army, "Chief of Army Opening Address to Land Forces 2014."

² Army preparedness is defined as the Army's ability to deploy appropriately trained and equipped units and individuals, at short notice, and to support these units and individuals for the duration of their deployment. These two aspects of preparedness are referred to as readiness and sustainability (Morrison, "Army Individual Readiness Notice").

³ Australian Army, "Australian Army Modernisation and Strategic Planning."

Figure 1.1

Interrelatedness of Modernisation, FORGEN, Preparedness, and Army Roles and Missions



FORGEN and the process of continuous modernisation.”⁴ Figure 1.1 illustrates how modernisation ties into FORGEN to produce forces that are ready to execute a suite of roles and missions.

The roles and missions of an army can be determined by considering strategic questions such as those outlined by Paul Mayberry, former U.S. Deputy Undersecretary for Readiness:

- Within what context? For example, a key consideration is whether the context is domestic, regional, or global⁵ and whether the role of Army is supporting or pivotal.
- To do what? This addresses the suite of defence-specific missions which the Army might undertake and are often set forth at the national or defence level. (For example, the United States uses the term National Defense Missions [NDMs] to describe ten types of missions in which the U.S. Army could be employed.)

⁴ Australian Army, “Australian Army Modernisation and Strategic Planning.”

⁵ A long-standing deliberation in Australia focuses on the actual roles and missions of the Army with respect to its regional and domestic requirements as balanced against its global security requirements. In environments of constrained resources, risk decisions must be made in terms of whether to prioritise resources to the most likely operations in which the Army will participate and which are not in the near region or towards supporting domestic and regional preparedness or actual requirements. This deliberation has implications for the Army’s ability to force generate and will be addressed later in this report.

- With what forces? This addresses force design (size, types of formations, and equipment) that are needed to accomplish the expanse of mission requirements.
- At what risks? This report heavily focuses on defence risk framework to identify challenges or risks—a first step towards managing or mitigating them.
- With what resource considerations? Resource constraints need to be considered when prioritising roles and missions of the army.⁶

Plan Beersheba

To prepare for anticipated roles and missions, the Army has been implementing a FORGEN and modernisation plan that was announced by the Government of Australia in November 2011 and reaffirmed in the 2016 Defence White Paper.⁷ The plan, known as Plan Beersheba, focused on four major objectives aimed at increasing Army readiness:⁸

- Restructuring the 1st, 3rd, and 7th Brigades into multirole combat brigades (MCBs) to make them fundamentally alike, which will enable sustained operations within the context of the new FORGEN model.
- Establishing a new 36-month FORGEN cycle.
- Implementing a centralisation plan in the Army's three existing enabling brigades (6th Brigade [Combat Support, Intelligence, Surveillance, Target Acquisition, and Reconnaissance], 16th Aviation Brigade, and 17th Combat Service Support Brigade) to mitigate shortfalls in the Army's ability to mass capability.
- Establishing a training concept that enables the Reserve units to be more similar to the Regular units by pairing the six Reserve Brigades in the 2nd Division and aligning each pair with an MCB.

Plan Beersheba calls for a cyclical FORGEN process, as well as modernisation of its operating forces portfolio through the implementation of the MCBs. (Appendix A provides more information about the structure of the Army and this recent initiative.) The MCBs and Enabler Brigades are tactical-level capabilities that exist in the Army. FORGEN, force restructuring, and modernisation are inherently risky management areas based on their ability to affect the readiness and sustainability of the MCBs and the Enabler Brigades—and ultimately the ability of Army to meet the security demands of the nation.

⁶ Derived from Paul Mayberry, Presentation on Strategic Planning, and RAND researcher interview, in person, Kenyan Ministry of Defense, September 13, 2017.

⁷ Australian Government, Department of Defence, *2016 Defence White Paper*.

⁸ ABC News Australia, "Defence Announce Major Army Restructure." See also Australian Army, "Plan Beersheba."

Combat versus Enabler Forces

It is useful here to note that most professional armies divide their formations into two major categories: combat forces and enabler forces. Not every country clusters the units within the categories in the same manner; however, the conceptual application is largely the same. For example, a 2016 U.S. Government Accountability Office (GAO) report to Congressional Committees described U.S. Army combat forces as follows:

The Army's combat units are responsible for fighting enemy forces in a contested environment and include the Army's Brigade Combat Teams (Armored, Infantry, and Stryker) and combat aviation brigades.⁹

The Australian Army, however, does not include its aviation brigade in the combat forces category. The same GAO report described U.S. Army enabler forces as

Units that provide support to the Army's combat units when they are deployed. They often provide critical support in early deployment (such as port opening), as well as for long-term sustainment (such as those that transport supplies or establish bases from which combat units can operate). Combat units are dependent on enabler units for long-term sustainment in theater and the Army generally deploys both types of units to meet operational requirements.

In short, in the U.S. Army, combat forces conduct combat operations, and enabler forces are those that support the combat forces. In the Australian Army, MCBs are the combat forces, and every other unit is an enabler force.¹⁰ Thus, the two countries have some differences in how they categorise units into combat and enabler forces, but their interpretations of the two kinds of forces are largely similar.¹¹

Enabler functions can be loosely linked to the classic descriptions of sustainment—which are directly linked to an army's ability to mobilise, force project, and conduct operations for durations directly related to the capability and capacity of said sustainment.

⁹ U.S. Government Accountability Office (GAO), "Army Planning: Comprehensive Risk Assessment Needed for Planned Changes to the Army's Force Structure," GAO-16-327, *GAO*, April 13, 2016, p. 10.

¹⁰ The distinction between combat and enabler is not as clear-cut in an army as robust as the U.S. Army. In the U.S. Army, enabler forces have more of an expeditionary focus. We discuss this more expeditionary focus later in this report when delving into capabilities and capacities of the enabler forces in the Australian Army. As discussed in the Defence Science & Technology Group (DSTG), the capability and capacity of the enabler forces in Australia are significant issues—making generating enabler forces a management challenge or an area of risk. It is notable as well that when Australian forces deploy the enabler force functionality is typically carried out by partner nations such as the United States.

¹¹ Note also that enabler forces include both combat support (defined as "fire support and operational assistance provided to combat elements") and combat service support (which "integrates many of the personnel, equipment and infrastructure service processes that were traditionally provided to combat forces through 'stovepipe' administrative and logistic arrangements," including supply support, maintenance support, transport support, engineer sustainability support, personnel support, and combat health support). See Australian Army, "Land Warfare Doctrine LWD 4-0: Combat Service Support," Puckapunyal, VIC: Army Knowledge Group, September 22, 2009.

The Australian Army's "Land Warfare Doctrine 4-0: Combat Service Support" also suggests that sustainment spans a continuum from the tactical to strategic level.¹² Sustainment is increasingly being recognised as a critical element of warfighting. Formally defined as "the provision of personnel, logistics, and other support required to maintain and prolong operations or combat until successful accomplishment of the mission or national objective," sustainment generally refers to combat support functions.¹³ Although key figures in military theory suggest that wars are won and enemies deterred with strong support to combat,¹⁴ defence departments have historically under-emphasised sustainment;¹⁵ however, recent military spending patterns reflect the strong emphasis that many military organisations are now placing on combat support.¹⁶

Project Overview

This study examined Australian Army's FORGEN challenges in ensuring that Army is continuously ready to execute its roles and missions in support of the needs of the Australian Government. In general, when studying military organisations and the challenges they face, it is necessary to consider levels of war—which can also be viewed as levels of decisionmaking: tactical, operational, military strategic, and strategic.¹⁷ The

¹² Australian Army, "Land Warfare Doctrine LWD 4-0," Section 1-1.

¹³ Australian Army, "Land Warfare Doctrine LWD 4-0," p. 23.

¹⁴ See Lt. Col. George Cyprus Thorpe, *Pure Logistics: The Science of War Preparation*, New York: Frank Hudson Publishing Company, 1917; *The Art of War*, titles by both Jomini and Tzu, with various translations.

¹⁵ "The DoD has historically placed significantly greater emphasis on the acquisition side of the equation. Meanwhile, sustainability considerations have been perennially neglected or subordinated to acquisition requirements or program survival"; E. Ryan, D. Jacques, J. Colombi, and C. Schubert, "A Proposed Methodology to Characterize the Accuracy of Life Cycle Cost Estimates for DoD Programs," *Procedia Computer Science*, Vol. 8, 2012, p. 362.

¹⁶ Although the ratio of "tooth" (combat units) to "tail" (enabler organisations supporting the fight) varies dramatically among countries, a study of 33 countries—countries incurring more than 90 percent of global defence spending—found that the average tooth-to-tail ratio (number of combat personnel as a percent of total active military personnel) was 26 percent (Australia was not included). This suggests that as many as 74 percent of active military personnel were performing sustainment functions. Definitions of tooth and tail were adapted from Scott Gebicke and Samuel Magid, "Lessons from Around the World: Benchmarking Performance in Defense," *McKinsey on Government*, Issue 5, Spring 2010, p. 3; and Jacques S. Gansler and William Lucyshyn, *Improving the DoD's Tooth-to-Tail Ratio*, College Park, Md.: Center for Public Policy and Private Enterprise, School of Public Policy, University of Maryland, February 2014, p. iv. Figures are from Gebicke and Magid, "Lessons from Around the World," p. 4; the same study also concluded that average global military spending on active military personnel accounted for 45 percent of total defence budgets. In short, support—or sustainment—functions called for a large percentage of human resources (number of personnel and funding for personnel) in global militaries. Defence research has also found that sustainment tends to account for the majority of the lifecycle cost of military equipment (Office of the Secretary of Defense, Cost Assessment and Program Evaluation, "Operating and Support Cost Estimating Guide," 2014, p. 2-2, notes: "For many programs, the system O&S costs [the bulk of sustainment cost] will be the largest of the four [lifecycle] cost categories," constituting more than 60 percent of the lifecycle cost of a system).

¹⁷ Australian Army, "Land Warfare Doctrine (LWD) 1."

tactical level focuses on the battles, engagements, and activities of tactical units or task forces that carry out specific missions. The operational level focuses on planning and executing operations. The military strategic level focuses on “link[ing] [the] military instrument of national power to a whole-of-government approach to national security,”¹⁸ and the strategic level focuses on developing and coordinating high-level plans to achieve “an end-state favourable to the national interest.”¹⁹

This study specifically analysed, through a whole-of-Army perspective, the strategic challenges in generating forces to execute Army’s current and emergent roles and missions that Army set and agreed upon with Government. Discussing challenges in terms of risk can help decisionmakers in Army, Defence, and Government determine which ones have higher priority and what resources to devote to them. This study therefore leveraged the Australian Government Defence Risk Management Framework as the overarching construct to organise our findings and recommendations.

While this study largely focused on the strategic level of war or decisionmaking, it also integrated and expanded on research conducted by the Land Analytical Decision Support section of the Australian Defence Science & Technology Group (DSTG) in 2016 that examined more tactical-level challenges associated with the capability and capacity of Army’s enabler forces. The present study bridges the applicable DSTG findings into the higher-level context of strategic challenges. This study further explored the Australian Army experience, while also drawing on lessons identified from other countries that have modernised their formations and FORGEN inputs. Observations in this report should help the Australian Army mitigate FORGEN challenges as well as categorise risks, with a key goal of assisting Army with the articulation of its needs to secure adequate resources from Government.

RAND’s use of the Defence Risk Management Framework to shape our approach results in challenges being addressed in three tiers:²⁰

1. National security risks: These are risks managed as shared risks with Commonwealth, international, and industry partners. Understanding of the national security risk environment informs the risk tolerance for enterprise risks.
2. Enterprise-level risks: These are events which may limit or compromise Defence’s collective ability to meet the obligations and requirements set by Government. These risks may arise from four “enterprise vulnerabilities,” which are: integration across Defence; integration with key external partners; compliance with legislation and Government policy; and efficient and effective use of resources.
3. Operating risks: These are risks to Defence’s achieving efficient and effective operating intent. They are the inward focus of how Defence undertakes the activities in this Plan.

¹⁸ Australian Army, “Land Warfare Doctrine (LWD) 1,” p. 19.

¹⁹ Australian Army, “Land Warfare Doctrine (LWD) 1,” p. 18.

²⁰ Australian Government, Department of Defence, *2016–2017 Defence Corporate Plan*, p. 15.

Table 1.1
Phases and Research Approach

Phase	Research Activities
Phase 1—Outline potential short-term and long-term activities of Australian Army FORGEN	• Reviewed Australian Army doctrine, guidance, policies, and plans to synthesise information about current and future roles and missions of Army and the impact on FORGEN • Interviewed subject matter experts (SMEs) and practitioners to supplement the literature review
Phase 2—Review the FORGEN journeys of the militaries of the U.S., France, and Canada, and summarise relevant challenges and lessons identified	• Reviewed literature to document the U.S. military's FORGEN model journey as a benchmark for analysis (U.S. Marine Corps and U.S. Army Force Generation model) • Based on literature review, selected and documented the FORGEN journeys of France and Canada • Conducted interviews with SMEs and did research to glean information and lessons identified from these journeys
Phase 3—Characterise potential challenges, causes, and effects associated with FORGEN in the Australian Army	• The research team leveraged the Defence Enterprise Risk Management Framework (National, Enterprise, and Operational), to organise the challenges identified in Phases 1 and 2. Operational challenges were further categorised using Defence's Fundamental Inputs to Capability (FIC) Framework (Personnel, Organisation, Collective Training, Major Systems, Supplies, Facilities and Training Areas, Support, Command and Management, and Industry). The FIC Framework helps assess capabilities within management areas—thereby making operational-level recommendations actionable. RAND created an annotated framework to view challenges from these sources.
Phase 4—Prioritise potential challenges associated with the Australian Army's FORGEN model, and develop recommendations to mitigate these challenges	• Drawing on the product of Phase 3, the research team prioritised challenges based on risk • The team also developed recommendations to address these challenges with recommended deep dives in areas that would require further analysis
Phase 5—Final report and briefing	• The team prepared this report and a corresponding briefing

We use these tiers to group recommendations by solution theme, to prioritise them, and to organise them into complexity and risk categories for subsequent development of courses of action for implementation.

It is important to mitigate FORGEN challenges because they can lead to risk at all levels. Levers such as policy and doctrine changes, resource allocation decisions, and informed leadership decisionmaking can serve to address these challenges. This study will offer recommendations to inform policy and guidance, while also helping to shape resource allocation decisions. Table 1.1 provides an overview of the project tasks and research activities in the study.

Analytic Approach

After outlining potential activities of Australian Army FORGEN (Phase 1), we reviewed the FORGEN and modernisation journeys of the U.S., French, and Canadian militaries (Phase 2). Although the U.S. Army is larger than the Australian Army, French Army, Canadian Army, and U.S. Marine Corps, all of these military organisations are likely to have some similarities in their processes and functions as they navigate enterprise-level initiatives. In particular, certain complexities associated with Plan Beersheba’s objectives—reorganisation, modernisation, and implementing a new FORGEN model—exist in each of these organisations.

Following the literature review on FORGEN experiences and the literature review on modernisation experiences, RAND undertook stakeholder interviews and other data collection to expand the identification and assessment of FORGEN challenges facing the Australian Army. Our next step (Phase 3) was to develop an analytic framework to help categorise and understand observations from the literature review and subject matter expert (SME) interviews. We drew on the analytic framework (integrating several typologies) to identify and categorise challenges and assess their potential effects. Then we prioritised the challenges and recommended mitigation strategies.

Scope of the Study

The current Chief of Army (Australia), Lieutenant General Angus Campbell, in an address to the Royal United Services Institute (Victoria), on July 27, 2017, described the present Australian Army as “a highly trained and professional force of 45,000 soldiers that is an integrated ‘total’ force of some 30,000 full-time and 15,000 part-time citizens.”²¹ The Australian Army’s FORGEN has two primary lines of effort: FORGEN itself, in which it is preparing for “a war,” and Operations Generation, which prepares forces for a specific war or “the war.”²²

FORGEN is conducted by Forces Command. In contrast, Operations Generation (OPGEN) prepares forces for a specific directed operation that they have been tasked to conduct. OPGEN is conducted by Headquarters 1st Division based on the force assignment of capability to Joint Operations Command (preparing for “the war”).

While the above quote highlights two major subordinate elements of Army, the Australian Army has the “standard” suite of subordinate organisations to prepare itself to conduct operations. Examples of these organisational structures include

²¹ Australian Army, “Australian Army Reserve Transformation—Chief of Army Speech to the Royal United Services Institute (VIC) 27 Jul 17,” *Army*, July 30, 2017.

²² Forces Command, interview with the authors, Rockhampton, Queensland, Australia, July 22, 2017.

the components—active and reserve; special and conventional forces; and uniformed and civilian personnel—including contractors and Government civil servants.

This report primarily addresses the Active Component (AC) and how it relates to FORGEN requirements at the strategic level. Although there is some discussion of the Reserve Component (RC) and how Government civilians and contractors might be used as means of addressing challenges, the RC, civilians and contractors are not the focus of this study and warrant additional attention in future research. Also, this study did not address the special operations community; this, too, is a potential area for further investigation.

Enterprise-Level Management Challenges and Risks Relevant to Force Generation and Modernisation

This chapter opens with a discussion of enterprise-level initiatives and challenges in the U.S. Army, U.S. Marine Corps, the French Army, and the Canadian Army. Although the U.S. Army is larger than the Australian Army, the armies of both France and Canada, and the U.S. Marine Corps, all of these military organisations are likely to have some similarities in their processes and functions. In particular, certain complexities in initiatives associated with Plan Beersheba's objectives—reorganisation, modernisation, and implementing a new FORGEN model—are likely to exist in each of these organisations.

Organisational complexity has been defined in terms of three properties: multiplicity (the number of potentially interacting organisational entities), interdependence (how connected those elements are), and diversity (degree of heterogeneity of elements).¹ The multiplicity of elements will be greater in the U.S. Army, but interdependence and diversity of elements are likely to be similar across these military organisations. Some U.S. Army FORGEN and modernisation observations are therefore likely to apply to Australia. Similarly, some lessons from the U.S. Marine Corps experiences are likely to be applicable to Australian Army FORGEN. In addition, we examine the Canadian and French Army FORGEN and modernisation experiences because of the relevance of the recent reforms for Australia.² The French, moreover, have been

¹ Gökçe Sargut and Rita McGrath, "Learning to Live with Complexity," *Harvard Business Review*, September 2011.

² The U.S. Army has 460,000 active soldiers and 335,000 reservists. The U.S. Marine Corps has 182,000 active-duty members and 38,500 reservists; U.S. Department of Defense, "Department of Defense (DoD) Releases Fiscal Year 2017 President's Budget Proposal," press release, February 9, 2016.

The French Army in March 2017 had 106,000 active servicemen and between 10,000 and 20,000 reservists, according to the French Army's website. Publicly available figures regarding reservists unfortunately are imprecise reflecting different kinds of reservists.

The Australian Army had, as of June 2015, 29,366 active members and 14,301 reservists; Australian Government, Department of Defence, *Defence Annual Report 2014–2015, Volume 1, Part 3: Governance and Accountability*, Chapter 8, 2015.

Canada's force size is 22,800 active members, 18,700 reserve personnel (i.e., part-time citizen-soldiers), 5,000 Rangers, and 4,500 civilian employees; Canadian Army, "History and Heritage," *Canadian Army*, December 5, 2017.

maintaining a high operational tempo for over a decade, meaning that they have been putting their FORGEN systems to the test, revealing challenges that might have some bearing for the Australian Army.

An army’s ability to force generate is influenced by several other enterprise-level initiatives and requires a whole-of-Army approach. As such, to put the expanse of FORGEN into perspective, we first explore enterprise-level initiatives of each army. This chapter then more deeply explores FORGEN experiences and looks at modernisation challenges of the aforementioned militaries. The chapter ends with a summary of observations that will be considered when assessing the strategic planning for the generation of forces for the Australian Army.

Enterprise-Level Initiatives

Enterprise-level initiatives at the defence or service level can be extremely complex and often result in their officially being categorised as management challenges or risk areas. The U.S. Department of Defense (DoD) Inspector General (IG) prepares an annual report that lists and describes the management challenge areas for each fiscal year. Correspondingly, Defence in Australia reports annually on risk areas in accordance with the requirements of the Defence Enterprise Risk Management Framework. Defence’s treatment of risks is nested into the Commonwealth Risk Management Policy at the government level.³ In similar fashion, in the United States, the GAO, which is an independent, nonpartisan agency that works for Congress, also tracks enterprise-level initiatives in terms of risk.⁴

Such initiatives are important to examine not only because of their association with risk, but also for other reasons: (1) Plan Beersheba itself is an enterprise-level campaign; (2) the objectives of Plan Beersheba are managed at the enterprise level through the institutional base of Army and/or Defence; and (3) other enterprise-level initiatives may need to be considered based on their relevance to FORGEN, modernisation, and implementation of the MCB concept. Our review of other armies’ enterprise-level challenges and risks—and how they address those challenges and risks—will help inform our recommendations to the Australian Army.

A Closer Look at Enterprise-Level Challenges in the United States Military

Table 2.1 presents a list of management challenges from the U.S. DoD IG from fiscal year (FY) 2015. The items highlighted in red relate directly to FORGEN.

Table 2.2 shows the trends of the IG’s top-ten management challenges over the last ten years and indicates that several problems have been persistent.

³ Australian Government, Department of Defence, *2016–2017 Defence Corporate Plan*.

⁴ See the “About GAO” description on its homepage, www.GAO.gov.

Table 2.1
The Top-Ten List of Management Challenges from the U.S. Department of Defense Inspector General

FY 16 Top Ten Challenges	Descriptions
Countering global strategic challenges	Maintaining a level of preparedness to address five evolving global challenges related to Russia, China, North Korea, Iran, and terrorism (p. 1)—primarily through interagency cooperation (p. 6)
Countering the terrorist threat	Countering nonstate actor threats; insider threats (p. 10); force protection of troops and DoD facilities—primarily through building partner capacity (p. 11) and insider threat mitigation (p. 15)
Enabling effective acquisition and contract management	Three main areas: <i>Acquisition programs</i> that exceed the cost and strategy defined in the program's strategy documents (p. 18). <i>Contract management oversight challenges</i> with sustainment contracts, procuring domestically produced items, contracting with small business, oversight of contracting oversight representatives (CORs), and completion of assessment reports on contractor performance (p. 23). <i>Illegal technology transfer</i> related to theft, espionage, reverse engineering, and illegal export (p. 26).
Increasing cyber security and cyber capabilities	The Director of National Intelligence identified this as a top strategic global threat based on a wide range of potential adversaries seeking to disrupt or manipulate U.S. activities relying on digital technology or the internet (p. 29)
Improving financial management	Providing reliable, timely, and useful financial and managerial information to support operating budgeting, and policy decisions related to the DoD financial statements lacking fitness for full financial statement auditability (pp. 39–40)
Protecting key defence infrastructure	Maintaining and sustaining defence infrastructure such as installations, space, and the defence industrial and technology base, as well as addressing supply-chain vulnerabilities to efficiently and effectively support operational mission requirements (pp. 48–49)
Developing full-spectrum total-force capabilities	Designing, building, and posturing a total force, active and reserve, capable of executing a wide range of missions across the full spectrum of potential conflict (p. 53)
Building and maintaining force readiness	Ensuring forces are manned in terms of HR functions and health care, trained, and equipped to deter and defeat current and future adversaries and to protect current and future U.S. interests at home and abroad (p. 65)
Ensuring ethical conduct	Minimising and holding people accountable for misconduct or criminal acts—such as high-profile scandals, corruption, waste, abuse of authority, acts of reprisal, and sexual assault—while stressing a culture in which honesty, accountability, respect, and integrity guide individual actions and decisions (p. 73)
Promoting continuity and effective transition management	Ensuring transition to new leadership is smooth, effective, timely, and seamless through the presidential transition in terms of presidential appointments and continuous operations (pp. 81–83)

Table 2.2
The Top Management Challenges of the U.S. DoD for the Past Ten Years

FY 07	FY 08	FY 09–FY 10	FY 11–FY 12	FY 13–FY 14	FY 15	FY 16
Financial management	Financial management	Financial management	Financial management	Financial management	Financial management	Countering global strategic challenges
Acquisition processes and contract management	Acquisition processes and contract management	Acquisition processes and contract management	Acquisition processes and contract management	Acquisition processes and contract management	Acquisition processes and contract management	Countering the terrorist threat
Joint warfighting and readiness	Joint warfighting and readiness	Joint warfighting and readiness	Joint warfighting and readiness	Joint warfighting and readiness	Joint warfighting and readiness	Enabling effective acquisition and contract management
Information assurance, security, and privacy	Information assurance, security, and privacy	Information assurance, security, and privacy	Information assurance, security, and privacy	Cyber security	Information assurance, security, and privacy	Increasing cyber security and cyber capabilities
Health care	Health care	Health care	Health care	Health care	Health care	Improving financial management
	Equipping and training Iraqi and Afghan security forces	Equipping and training Iraqi and Afghan security forces	Equipping and training Iraqi and Afghan security forces	Equipping and training Iraqi and Afghan security forces	Equipping and training Iraqi and Afghan security forces	Protecting key defense infrastructure
	Nuclear enterprise	Nuclear enterprise	Nuclear enterprise	Nuclear enterprise	Nuclear enterprise	Developing full-spectrum total-force capabilities
		American Recovery and Reinvestment Act				Building and maintaining force readiness
						Ensuring ethical conduct
						Promoting continuity and effective transition management

The items highlighted in red in Tables 2.1 and 2.2 relate to FORGEN. It is particularly noteworthy that the most recent year in the table has the most FORGEN-related risk areas. The titles of these challenge areas indicate that the role and mission requirements have affected the areas being managed and/or their associated challenges.

A Closer Look at the French Enterprise-Level Challenges

Table 2.3 presents a “top ten” list of challenges facing the French Armed Forces Ministry (known as the Ministry of Defense until this year) and the French Army in Fiscal Year 2016. The items highlighted in bold and red relate to FORGEN. The items reflect an effort by the French to revamp laws, plans, and practices that suddenly had become out of date in the aftermath of the events of 2013–2015 (Operation Serval) and to transition into a brigade-level mission in the Sahel (Operation Barkhane); and they reflect that a series of terrorist attacks at home prompted Paris to institute a homeland defence operation (Operation Sentinelle), which puts as many as 10,000 troops in the streets of France, guarding “sensitive” locations such as major tourist attractions and synagogues. The open-endedness and expense of both Barkhane and Sentinelle (which come in addition to all of France’s commitments such as participating in the air and ground coalition against the Islamic State and contributing to NATO’s ability to dissuade aggression) have rendered extant French military planning and associated budget instruments irrelevant. France has since been rethinking its force structure and end strength, renegotiating the military’s share of the budget and the Army’s share within that, and drafting the appropriate laws and planning documents required for France’s military to move forward and fulfil the missions now being asked of it.

What we see on the table, then, are efforts directed at increasing the French Army’s strength by increasing both its AC and its RC to provide badly needed manpower while also rationalising the financing of its overseas operations and ensuring better funding for other aspects of readiness, including equipment availability and improved living conditions. Investment in the Army’s manpower also translates into greater capacity, which in turn affects France’s ability to be a full-spectrum force. Basically, meeting the manpower needs of Operation Sentinelle has affected negatively France’s ability to train units for different types of missions, among them high-intensity conventional warfare. Thus, the more the French can draw on Reserves, for example, for Sentinelle, the better able the French Army is to train others for tank warfare. The French are also affirming their commitment to modernisation; much of the French Army’s equipment, including its standard-issue assault rifles and its vehicles, date to the 1970s and 1980s and are reportedly “in urgent need of replacement.”⁵ The French are replacing them with newer models while also investing in state-of-the art technology.

To these we should add significant attention paid towards cyber security. France in late 2016 stood up a “Cyber Command” or COMCYBER and has been investing

⁵ IHS Markit, “Enter the Scorpion: French Army Vehicle Fleet Modernisation,” *IHS Jane’s Defence Weekly*, 2017.

Table 2.3
The Top-Ten List of Challenges or Risk Areas Facing French Armed Forces Ministry and Army

FY 16 Top Ten Challenges		Descriptions
1	Updating five-year policy planning document (Military Programming Law, or LPM)	Rewriting key documents and budget programs in light of new strategic context defined by events of 2013-2016 (heightened counterterrorism threat, return of Russian threat)
2	Revising budget law in light of new LPM	Redrafting budgets to realise policy outlined by LPM
3	Reinforcing national protection posture to counter terrorist threat	Financing French military homeland security operations, including manpower requirements and new programs to reduce burden on Active Component (AC) through increased use of reserves and volunteers
4	Boosting the military reserve	Expanding ranks of reservists to make it a viable and economical way to lessen burden on AC and increase AC readiness
5	Improving financing of ongoing operations and replacing/repairing equipment	Increasing availability of equipment through acquisition and repair as well as increasing maintenance capacity
6	Major weapon system acquisition	Increased spending to increase inventory especially of new helicopters, fighter and transport aircraft, cruise missiles, and a frigate
7	Experimenting with voluntary military service program	Program designed to recruit young volunteers for short service terms, largely for reasons of “social insertion” but also to free up some manpower
8	Consolidating budget for overseas operations	Ensuring overseas operations are adequately and regularly financed
9	Investing in defence infrastructure	Maintaining, modernising, and building new infrastructure
10	Pursuing transformation of the Ministry	Enterprise-level reforms to improve efficiency and efficacy of the Armies Ministry with a particular emphasis on supporting “protection” mission and strengthening intelligence and cyber-defence activities

SOURCE: Derived from République Française, “Projet de loi de finances pour 2016—Mission Défense,” *Forum de la Performance*, 2017.

heavily in cyber-defense capabilities at both the joint and the service level, including the Army.⁶

A Closer Look at the Canadian Enterprise-Level Challenges

Table 2.4 presents a list of the top ten challenges facing the Canadian Army and Ministry of Defence, as identified in Prime Minister Justin Trudeau’s November 2015 Mandate Letter to the newly named Minister of Defence, Harjit Sajjan.⁷ Items highlighted in bold and red relate to FORGEN.

⁶ Nathalie Guibert, “L’Armée française consolide son commandement cyber,” *Le Monde*, December 12, 2016.

⁷ Justin Trudeau, “Minister of National Defence Mandate Letter,” November 12, 2015.

Table 2.4
The Top Ten Priorities for the Canadian Ministry of Defence

	FY 16 Top Ten Challenges	Descriptions
1	Ending Canada's combat mission against ISIL in Iraq and Syria	The Ministries of Defence and Foreign Affairs are to work together to end Canada's combat mission against ISIL in Iraq and Syria by "refocusing Canada's efforts in the region on the training of local forces and humanitarian support"
2	Ensuring that the Canadian Armed Forces (CAF) have the equipment they need	Effort to achieve this goal are to include: • working with the Minister of Finance to maintain current National Defence spending levels, including current planned increases • working with the Minister of Public Services and Procurement to launch an open and transparent competition to replace the CF-18 fighter aircraft, focusing on options that match Canada's defence needs • working with the Minister of Public Services and Procurement to invest in strengthening the Navy, while meeting the commitments that were made as part of the National Shipbuilding Procurement Strategy
3	Renewing Canada's commitment to United Nations peace operations; including by quickly providing well-trained personnel	The Ministries of Defence and Foreign Affairs are to work together in pursuit of this goal; efforts will include: • making Canada's specialised capabilities—from mobile medical teams, to engineering support, to aircraft that can carry supplies and personnel—available on a case-by-case basis • working with the Minister of Foreign Affairs to help the United Nations respond more quickly to emerging and escalating conflicts and providing well-trained personnel to international initiatives that can be quickly deployed, such as mission commanders, staff officers, and headquarters units • leading an international effort to improve and expand the training of military and civilian personnel deployed on peace operations, while insisting that any peacekeepers involved in misconduct be held accountable by their own country and the United Nations
4	Upholding commitments to security in North America and Europe	Continue to maintain Canada's strong commitments to the North American Aerospace Defence Command (NORAD) and to the North Atlantic Treaty Organization (NATO)
5	Drafting a new defence strategy to replace the now-outdated Canada First Defence Strategy	Conduct an open and transparent review process to create a new defence strategy for Canada
6	Bolstering surveillance and defence of Canadian territory, particularly in the Arctic; to include increasing requirement of additional Canadian Rangers	Renew Canada's focus on surveillance and control of Canadian territory and approaches, particularly the Arctic regions, and increase the size of the Canadian Rangers
7	Establishing and maintaining a workplace free from harassment and discrimination	The Minister of Defence is to work with senior leaders of the CAF to establish and maintain a workplace free from harassment and discrimination
8	Bolstering partnerships and cooperation between the ministries of National Defence and Veterans Affairs	The Minister of Defence is to work with the Minister of Veterans Affairs and Associate Minister of National Defence to reduce complexity, overhaul service delivery, and strengthen partnerships between National Defence and Veterans Affairs

Table 2.4—Continued

	FY 16 Top Ten Challenges	Descriptions
9	Protecting Canadians and critical infrastructure from cyber threats	The Minister of Defence is to support the Minister of Public Safety and Emergency Preparedness in a review of existing measures to protect Canadians and Canadian critical infrastructure from cyber threats
10	Developing a suicide-prevention strategy for CAF personnel and veterans	The Minister of Defence is to work with the Minister of Veterans Affairs and Associate Minister of National Defence to develop a suicide-prevention strategy for CAF personnel and veterans

SOURCE: Justin Trudeau, “Minister of National Defence Mandate Letter,” November 12, 2015.

In 2017, Canada released a new National Defence Policy: “Strong, Secure, Engaged.”⁸ It “presents a new strategic vision” for the Canadian Armed Forces (CAF) and seeks to ensure the CAF is “equipped and prepared to protect Canadian sovereignty, defend North America, and contribute to global security.”⁹

The National Defence Policy has six overarching themes and priority areas, detailed in Table 2.5. Two challenges that recur in these themes are personnel and procurement. While setting ambitious goals for end strength and recruitment of women, the CAF have recently had difficulty in meeting more modest recruitment numbers for women and minorities in relative and in absolute terms, and have experienced lower than expected retention. The conclusion of the Auditor General in the 2017 review was that the CAF had no feasible plan for meeting its end strength and diversity goals, and that many targets that were met were the result of over-enrolment in some occupations, leaving others well below necessary strength.¹⁰ Procurement has been equally difficult for the Canadian military, with purchases for all the services habitually overrunning budgets and timelines, without delivering promised capabilities.¹¹ Additionally, the imperative of interoperability with allies, particularly NATO partners and above all the U.S. military, imposes constraints upon the selection of systems ranging from firearms to major platforms, and significantly more so in the post-9/11 world.¹²

⁸ Ministry of Defence, Government of Canada, “Strong, Secure, Engaged: Canada’s Defence Policy,” *Government of Canada*, 2017.

⁹ See Canadian Army, “Mandate of National Defence and the Canadian Armed Forces,” *National Defence and the Canadian Armed Forces*, January 30, 2018.

¹⁰ Office of the Auditor General of Canada, *Report 5—Canadian Armed Forces Recruitment and Retention—National Defence*, Ottawa, ON: Office of the Auditor General of Canada, 2016, sections 5.11–5.13.

¹¹ Scott Gilmore, “Military Procurement Is a National Disgrace,” *Maclean’s*, June 19, 2015.

¹² Paul Pryce, “Interoperability, Not Integration: Canadian Army Renewal,” *NAOC*, February 20, 2015; Danford W. Middlemiss and Denis Stairs, “The Canadian Forces and the Doctrine of Interoperability: The Issues,” *Policy Matters/Enjeux Publics*, Vol. 3, No. 7, June 2002.

Table 2.5
Themes in Canada's National Defence Policy

Theme	Description
A New Vision for Defence	Canada will be "strong at home," "secure in North America," and "engaged in the world." ^a
Well-supported, diverse, resilient people and families	"We will also resource the CAF sufficiently, with the right number of personnel possessing the right skills to get the job done. This means we need to rethink 'how' we recruit, as well as increase the volume, skill sets, and diversity of 'who' we recruit. To deliver on the goals set out in 'Strong, Secure, Engaged', the CAF will grow the size of the Regular Force by 3,500 (to 71,500) and the Reserve Force by 1,500 (to 30,000) members. The Department of National Defence (DND) will also hire an additional 1,150 civilian employees to enable and support military operations in fields such as intelligence, logistics, procurement, and maintenance to name a few." ^b
Investments to enhance capability and capacity	Targeted and strategic investment in capabilities and equipment will enable the CAF to "deliver across a spectrum of operations" both domestic and international. 'Strong, Secure, Engaged' will renew, replace, and maintain core equipment, and continue to support Canada's multirole, combat-ready defence force by: • Investing in modern defence for Canada; • Providing secure, stable, long-term, predictable funding for Defence; • Protecting Canadians at home and demonstrating leadership in the world; • Enabling the CAF to become more capable, diverse, multi-purpose and self-sustaining; • Creating a more strategically relevant, combat-ready force that will anticipate, adapt, and act within a constantly changing security environment; • Replacing and modernising core land, sea, and air capabilities, as well as investing in joint enablers (space, cyber, intelligence) to ensure the CAF has the modern capabilities to succeed on operations; and • Ensuring interoperability with key allies and partners, through NORAD, NATO, and the Five Eyes community to enable effective operations."^c
Defence innovation	"We will identify needs and compete for the best ideas to take advantage of the most creative concepts that academics, universities, and the private sector can generate. Defence can be the first customer for many exciting, new inventions." ^d
Modernising the business of defence	"Canada's Defence Policy ['Strong, Secure, Engaged'] will mark real progress toward streamlining defence procurement, improving the timely acquisition of much needed military capabilities, and increasing economic benefits and creating jobs for Canadians. It will also encourage modernised management of lands and buildings, support infrastructure renewal, and help meet greening targets for government." ^e
Stable, predictable, realistic funding	The "Annual defence budget will increase from \$18.9 billion in 2016/17 to \$32.7 billion in 2026/27 (\$17.1 billion in 2016/17 to \$24.6 billion in 2026/27 on an accrual basis). This policy includes new defence funding of \$62.3 billion on a cash basis over 20 years from today's budget (\$48.9 billion on an accrual basis). Total funding available to Defence over the next 20 years will be \$553 billion on a cash basis (\$497 billion on an accrual basis). These investments reflect Canada's most rigorously costed defence policy in history. It is also fully funded." ^f

SOURCE: See subpages of Ministry of Defence, Government of Canada, "Strong, Secure, Engaged: Canada's Defence Policy," *Government of Canada*, 2017.

^a Canadian Army, "Canada's New Vision for Defence," *Government of Canada*, November 3, 2017.

^b Government of Canada, "Well-Supported, Diverse, Resilient People and Families," *Government of Canada*, February 2, 2018.

^c Government of Canada, "Investments to Enhance Capability and Capacity," *Government of Canada*, December 13, 2017.

^d Government of Canada, "Modernizing the Business of Defence," *Government of Canada*, December 1, 2017.

^e Government of Canada, "Modernizing the Business of Defence."

^f Government of Canada, "Stable, Predictable, Realistic Funding," *Government of Canada*, June 7, 2017.

Historically, Canadian defence policy and strategy have emphasised bilateral cooperation with the United States. However, recent U.S. political shifts—most notably, Canada’s perception that the United States may be less committed to its allies or international defence—may lead to some evolution in this approach.¹³ In June 2017, Foreign Minister Chrystia Freeland announced that Canada would increase defence spending and reduce its dependence on the United States, signalling “a major foreign policy shift toward a bigger role on the world stage.”¹⁴ Freeland noted that

On the military front, Canada’s geography has meant that we have always been able to count on American self-interest to provide a protective umbrella beneath which we have found indirect shelter. Some think, some even say, we should therefore free ride on U.S. military power. Why invest billions to maintain a capable, professional, well-funded and well-equipped Canadian military? The answer is obvious: To rely solely on the U.S. security umbrella would make us a client state. And although we have an incredibly good relationship with our American friends and neighbours, such a dependence would not be in Canada’s interest.¹⁵

Freeland went on to emphasise that continued cooperation with the United States for regional and global security is “critical”—but also that Canada needed to commit to “a substantial investment” in national defence.¹⁶ As Canada ramps up defence spending, sustainment, procurement, and budget-related aspects of these defence priorities will take on additional importance.

Force Generation

One of the core competencies of any military service is the ability to generate capabilities required to execute the national security strategy. These capabilities take the form of various kinds of capable military units, and FORGEN is the process by which these units are produced.¹⁷ Military institutions employ a FORGEN process to supply the ready and capable military units demanded by national policymakers. FORGEN enables mil-

¹³ On the U.S. withdrawal from the Paris Climate Accords, Freeland said: “The fact that our friend and ally has come to question the very worth of its mantle of global leadership, puts into sharper focus the need for the rest of us to set our own clear and sovereign course. For Canada that course must be the renewal, indeed the strengthening, of the postwar multilateral order”; Chrystia Freeland, “Address by Minister Freeland on Canada’s Foreign Policy Priorities,” *Government of Canada*, June 6, 2017.

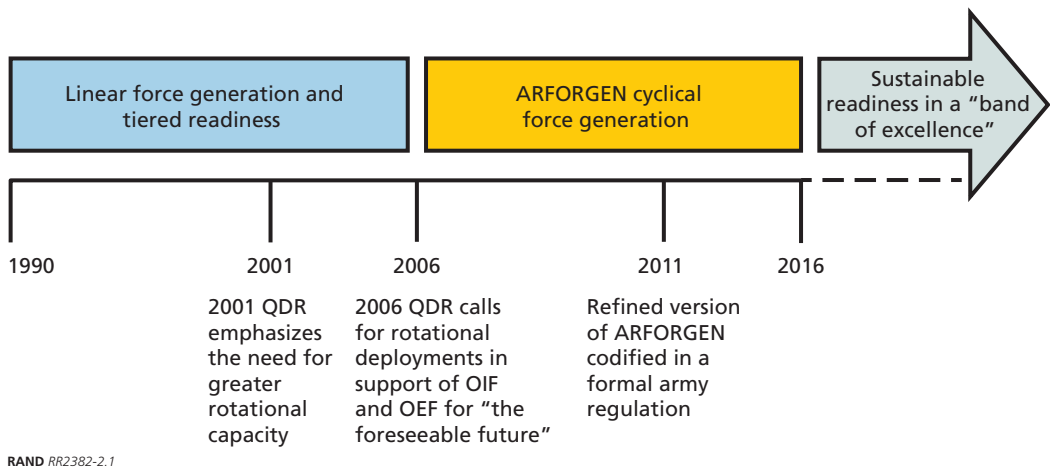
¹⁴ Agence France Presse, “Canada to Rely Less on US Defense in Major Policy Shift,” *Military.com*, June 6, 2017.

¹⁵ Freeland, “Address.”

¹⁶ Freeland, “Address.”

¹⁷ Force generation does not lend itself to a simple and precise definition, as the processes by which military capabilities are developed and produced can vary widely depending on a variety of factors. In general, however, force generation can be thought of as a production process.

Figure 2.1
Timeline of U.S. Army FORGEN Processes



itary institutions to coordinate and prioritise all the various inputs required to produce these units: personnel, equipment, training, facilities, and financial resources.¹⁸

In addition, FORGEN provides a potential means for military institutions to manage the organisational complexities inherent in synchronising the efforts of operational and generating forces. The following section will explore the evolution of the FORGEN processes of the U.S. Army, U.S. Marine Corps, French Army, and Canadian Army.

U.S. Army FORGEN
Goals, Challenges, and Changes over Time

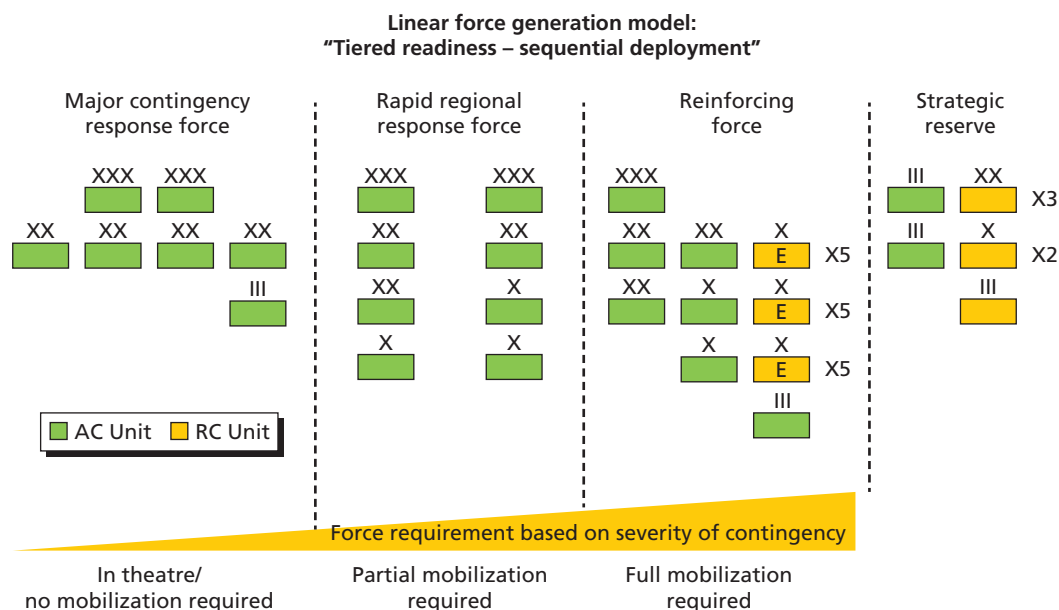
To meet the varying demands stemming from an evolving strategic environment, the U.S. Army has undertaken multiple efforts to adapt the process it uses to produce ready and capable operational units. By examining the Army’s experience adapting and changing its FORGEN process, we can better understand the various organisational complexities inherent in producing ready and capable military units. The assessment will also help to identify critical variables that drive changes in how militaries produce the capabilities called for by different strategic environments.

A Legacy of Cold War-Era Processes

After the Vietnam War, the U.S. Army returned to a posture that best positioned it to respond to a well-defined Soviet threat in Eastern Europe. The Army maintained a significant presence throughout Europe during the Cold War, and the units stationed within the European theatre were expected to be the first response to any con-

¹⁸ Laura J. Junor, *Managing Military Readiness*, Strategic Perspectives, No. 23, Washington, D.C.: National Defense University Press, February 2017, p. 5.

Figure 2.2 Linear FORGEN and Tiered Readiness



SOURCE: Adapted from U.S. Army Forces Command, "Panel: Army Institutional Adaptation Readiness Core Enterprise," U.S. Army PowerPoint presentation, General Hondo Campbell, October 6, 2009.
NOTE: "E" in figure stands for Expeditionary.

RAND *RR2382-2.2*

tingency involving the Soviet Army. The U.S. Army's process for generating capable units was structured to address this primary threat. Accordingly, units were resourced with personnel, equipment, and training inputs based upon how they would be used in the underlying operational plans. This linear approach for FORGEN effectively created a system of tiered readiness, where the "immediate response force" was resourced at a higher level than subsequent "follow-on forces."¹⁹

The highest-priority units that were scheduled to fight or deploy at the start of any contingency were provided with enough resources to maintain a continuously high state of readiness. Lower-priority units, however, received fewer resources and therefore required greater time to become ready for operations when called upon. Figure 2.2 presents a graphic representation of how this approach to FORGEN worked in practice.

Linear FORGEN and tiered readiness represented a rational approach to the strategic environment during both the Cold War and the period immediately after the breakup of the Soviet Union. As previously stated, the threat posed by Soviet forces in Europe had been comprehensively assessed, and the operational demands and deployment timelines were well understood. Tiered resourcing of units allowed the U.S. Army

¹⁹ Junor, *Managing Military Readiness*, p. 18.

to sustain a large standing presence in peacetime to both respond quickly to contingencies and act as a deterrent to large-scale aggression.²⁰

The underlying assumptions of rapid action and predictable timelines were not strongly challenged by the operational demands faced by the Army in the period immediately before and after the fall of the Berlin Wall. The Army's experiences in both relatively small-scale operations, such as Grenada and Panama, and Desert Storm, confirmed the validity of the linear, tiered approach to FORGEN during that period.²¹ This approach to readiness and FORGEN proved highly effective in allowing the Army to meet the demands for forces in a strategic environment calling for high-intensity, yet shorter duration missions.

Strategic Shifts and a Need for Rotational Forces

The diverse and geographically dispersed commitments of the U.S. military in the 1990s and early 2000s, however, began to reveal the potential shortcomings of a linear, sequential approach to FORGEN and readiness within the context of a complex and unpredictable strategic environment. In addition to the foundational activities of homeland defence, major combat operations, and forward deterrence, the 2001 Quadrennial Defense Review (QDR) codified the strategic imperative of having the flexibility to respond to unforeseen contingencies of varying duration and size. To meet the demand for forces stemming from these contingencies, the force-sizing construct of the 2001 QDR emphasised the importance of maintaining a larger base of rotational forces.²²

The 2001 QDR revealed that deployment burdens in this period were not evenly distributed across the entire military, "due in part to the belief that deployments were temporary and that permanent changes in rotational procedures and forward presence were not required."²³ This call for increased rotational capacity did not immediately lead to changes in the Army's FORGEN process; however, it suggested that upcoming contingencies of indeterminate length could stress the U.S. military.

The Global War on Terror (GWOT) fully exposed the critical limitations of the Army's Cold War-era FORGEN model. As early as June 2003, Army Chief of Staff Eric Shinseki expressed concerns regarding the Army's ability to sustainably meet the increased demand for operational units posed by Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). In his End of Tour Memorandum from June 2003, Shinseki warned that the prevailing Army force structure and approach to FORGEN were incompatible with what he anticipated to be long-term commitments to both those

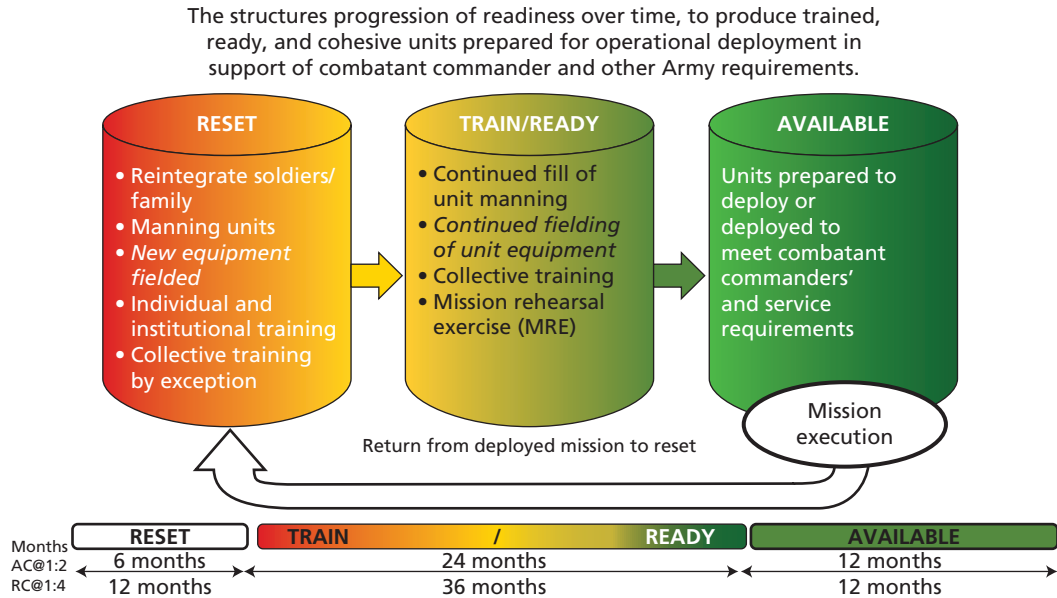
²⁰ National Commission on the Future of the Army, Report to the President and the Congress of the United States, January 28, 2016, pp. 75–76.

²¹ Timothy Frambes, *Form Follows Function: Sixty Years of Army Force Generation and Structure*, Fort Leavenworth, Kan.: School of Advanced Military Studies, 2010, p. 3.

²² U.S. Department of Defense, *Quadrennial Defense Review Report*, September 30, 2001, pp. 18, 21.

²³ Australian Army, "Land Warfare Doctrine LWD 4-0," p. 58.

Figure 2.3
The Army Force Generation (ARFORGEN) Model



SOURCE: Adapted from Army Regulation 525-29 Army Force Generation, 14 March 2011, Figures 1-1 and 1-2.

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campaigns.²⁴ Two and half years later, the 2006 QDR explicitly acknowledged the need to adapt FORGEN processes to the ongoing requirements of the GWOT. The 2006 QDR called for the FORGEN processes of the military services to be capable of “surging” to meet requirements of “a large-scale, *potentially long-duration* irregular warfare campaign.”²⁵ Furthermore, the report instructed the services to account for rotational requirements in support of Iraq and Afghanistan “for the foreseeable future.”²⁶

To meet the persistent need for rotational deployments, beginning in 2006, the Army shifted away from a linear approach to FORGEN and developed the cyclical model that came to be known as Army Force Generation (ARFORGEN). As depicted in Figure 2.3, the ARFORGEN process placed Army units in one of three force pools that corresponded with different phases across the spectrum of readiness and availability. Units were manned, equipped, trained, and resourced in accordance with the readiness milestones they were expected to achieve as they progressed from one pool to the next at predetermined intervals. After completing a deployment of either 12 months

²⁴ Eric K. Shinseki, “Memorandum for Secretary of Defense: End of Tour Memorandum,” Department of the Army, Washington, D.C., June 10, 2003, p. 8.

²⁵ U.S. Department of Defense, *Quadrennial Defense Review Report*, February 6, 2006, p. 37, emphasis added.

²⁶ Australian Army, “Land Warfare Doctrine LWD 4-0,” p. 36.

or another amount of time within the “available” period, units would cycle back to the reset phase and commence the process of rebuilding readiness. Some of the critical benefits of the cyclical ARFORGEN process were that it

- increased predictability in unit availability
- consistently generated ready units across both the AC and RC
- was able to manage stress on the force by establishing expected ratios for deployment and dwell times
- established a potential framework for synchronising efforts across both the operational and institutional Army.²⁷

Challenges Encountered by the U.S. Army

While the implementation of ARFORGEN enabled the Army to respond more effectively to the demand for rotational forces, the transition to a cyclical FORGEN model was not without challenges and drawbacks. Although the operational Army officially transitioned to a cyclical FORGEN process in 2006, the institutional Army adapted at a slower pace. Writing in 2009 regarding the status of ARFORGEN implementation, General Charles Campbell, the commanding general of U.S. Army Forces Command at that time, observed that the various institutional systems drawn up by ARFORGEN were still governed by policies and processes associated with the linear force-generation model.²⁸ This created challenges between the various institutional systems that supported the manning, equipping, training, and resourcing of the units progressing through the FORGEN process.

The inability to effectively synchronise the Army’s institutional capabilities with the ARFORGEN process resulted in a number of problems, including turbulent and unpredictable dwell times for soldiers in reset. The lack of coordination between institutional systems and ARFORGEN also limited the ability of the Army to make resource-informed planning decisions regarding FORGEN and readiness, leading to an operating principle of “readiness at any cost.”²⁹ The lack of coordination between institutional manning and equipping functions and ARFORGEN further exacerbated these inefficiencies, as units could often not complete critical collective training tasks until immediately prior to scheduled deployments.³⁰

²⁷ Charles C. Campbell, “ARFORGEN: Maturing the Model, Refining the Process,” *Army Magazine*, Vol. 59, No. 6, June 2009; U.S. Army, “2006 Army Posture Statement, Addendum E: Army Force Generation Model,” *U.S. Army*; U.S. Army, “2007 Army Posture Statement, Addendum H: Army Force Generation,” *U.S. Army*.

²⁸ Charles C. Campbell, “Institutional Adaptation: Improving Army Force Generation,” *Army Magazine*, Vol. 59, No. 10, October 2009, p. 81.

²⁹ Robert E. Durbin, Charles C. Campbell, Ann E. Dunwoody, Dean G. Popps, “Adapting Our Institutions: The Enterprise Approach to ARFORGEN,” briefing presented at ILW Contemporary Military Forum, October 6, 2009, slide 3.

³⁰ Campbell, “Institutional Adaptation,” p. 82.

Mitigations Applied by the U.S. Army

Beginning in 2009, the Army initiated a wide-ranging Institutional Adaptation initiative to more effectively synchronise the variety of critical institutional functions with the ARFORGEN process. Disparate institutional functions that had previously been narrowly “stove-piped” across the Generating Force were consolidated into four Core Enterprises: Human Capital, Materiel, Readiness, and Services and Infrastructure. The Core Enterprise consolidation allowed for increased coordination of related functional areas and more effective, timely development of the institutional outputs required for cyclical FORGEN.³¹ In addition to the Core Enterprise consolidation, the Army also enhanced efforts to synchronise institutional efforts with ARFORGEN by increasing the number of cross-domain coordination forums and anchoring their schedules and process to the ARFORGEN decision cycle.³²

The Army’s RC adapted to ARFORGEN during this period. The ARFORGEN cycle is five years for the RC (as opposed to the three years for AC)—i.e., a 1:4 RC deploy-to-dwell ratio. One year is dedicated as a reset year, three years for the training/ready phase, and one year in availability phase.³³ In the availability phase, reserve units are expected to have platoon- and company-level units ready to deploy, while the AC requires brigade and battalion-sized units trained for deployment.³⁴ During the three years of the training/ready phase, the RC should receive higher levels of training and resources than before so they match their AC counterparts when entering the availability phase. This increase in training beforehand should decrease the amount of postmobilisation training needed.³⁵ That is, units should have resources and training days increased to make sure they reach an appropriate level of readiness before entering the availability phase.³⁶

In 2008, two years after ARFORGEN was introduced, the DoD released Directive 1200.17 titled “Managing the Reserve Components as an Operational Force.” This directive envisioned all three Army components serving in roles as “strategic depth, reserve, and Operational Force based on their position in the service’s readiness or FORGEN cycle.”³⁷ During operations in Iraq and Afghanistan, the RC was heavily used to sustain operations and to meet surge capacity needs. It was difficult to deploy RC units in a timely matter, however, because units required large amounts of training postmobilisation.

³¹ Durbin et al., “Adapting Our Institutions,” slides 6–10.

³² Campbell, “ARFORGEN,” p. 54.

³³ William Ayers, “ARFORGEN: Means to an Operational Reserve,” United States Army War College, Strategy Research Project, March 22, 2012, p. 8.

³⁴ Andrew Feickert and Lawrence Kapp, *Army Active Component(AC)/Reserve Component (RC) Force Mix: Considerations and Options for Congress*, Washington, D.C.: Congressional Research Service, December 5, 2014, p. 26.

³⁵ National Guard Bureau, “Implementing the Army Force Generation Model in the Army National Guard: A Formula for Operational Capacity White Paper,” August 1, 2011, pp. 5–6.

³⁶ National Guard Bureau, “Implementing the Army Force Generation Model,” p. 5.

³⁷ National Guard Bureau, “Implementing the Army Force Generation Model,” p. 3.

tion to get them ready to deploy.³⁸ Additionally, a RAND study found that due to this longer mobilisation time and a greater ratio of inactive RC units (dwelling) to active ones (boots-on-the-ground or BOG), it would take at least two RC units to provide the same output as one AC unit.³⁹ The drawdown after Iraq and Afghanistan meant that focus turned from surging to sustaining, which created an opportunity to address these challenges in the form of a “supply-based” ARFORGEN model for the RC.⁴⁰

The Army’s approach to equipping units also evolved over this period. The legacy of Cold War planning continued to influence Army equipping practices during the initial period of ARFORGEN implementation. Specifically, the Army endeavoured to equip both the AC and RC units with 100 percent of equipment listed in the tables of organisation and equipment (TO&E). Continuously equipping units to 100 percent of TO&E required keeping and maintaining a substantial inventory of major vehicle platforms at home station, even in a situation where a unit did not need the equipment to meet the readiness levels called for by its ARFORGEN phase.⁴¹ This created inefficiencies both in terms of the cost associated with keeping idle inventories for certain items, but also in terms of providing units with the necessary levels of items from lower-density equipment stocks.

To better synchronise the provision of equipment with the readiness cycles dictated by ARFORGEN, the Army developed a rotational approach to unit equipping. The Army introduced its ARFORGEN-based equipping in a 2009 white paper outlining the overall equipping strategy for FY 2010. The new strategy called for equipping units at lower percentages of modified tables of organisation and equipment during the reset and train/ready phases, and then bringing units up towards full equipment fill in the final availability phase.⁴² The ARFORGEN-based equipping strategy linked the equipping requirements for both AC and RC units to the ARFORGEN cycle. The strategy acknowledged, however, that the Army National Guard (ARNG) element of the RC required sufficient equipping for certain homeland defence responsibilities—and allowed for higher levels of equipping for certain items needed to support these responsibilities regardless of ARFORGEN phase.⁴³

³⁸ National Guard Bureau, “Implementing the Army Force Generation Model”; Joshua Klimas, Richard E. Darilek, Caroline Baxter, James Dryden, Thomas F. Lippiatt, Laurie L. McDonald, J. Michael Polich, Jerry Sollinger, and Stephen Watts, *Assessing the Army’s Active-Reserve Component Force Mix*, Santa Monica, Calif.: RAND Corporation, RR-417-1-A, 2014.

³⁹ Klimas et al., *Assessing the Army’s Active-Reserve Component Force Mix*.

⁴⁰ National Guard Bureau, “Implementing the Army Force Generation Model,” p. 3.

⁴¹ Christopher Pernin, Edward Wu, Aaron L. Martin, Greg Midgette, and Brendan See, *Efficiencies from Applying a Rotational Equipping Strategy*, Santa Monica, Calif.: RAND Corporation, MG-1092, 2011, pp. 2–3.

⁴² Headquarters, Department of the Army, *The Army Equipping Strategy*, white paper, Washington, D.C., 2009, pp. 4–5.

⁴³ Australian Army, “Land Warfare Doctrine LWD 4-0,” p. 7.

After the introduction of ARFORGEN-based equipping in 2009, the Army further refined its approach to unit equipping for 2011. Based on the initial results from ARFORGEN-based, also referred to as Unit-based, equipping, the Army determined that the goals for equipping readiness in the earlier ARFORGEN phases were unlikely to be met.⁴⁴ In addition to lowering the expected levels of equipment readiness during the reset and train/ready phases, the Army attempted to create further flexibility in available equipment stocks through a Tailored-Equipping initiative. This effort allowed the Army to reallocate equipment across units not just based on ARFORGEN phase, but also based on a unit's assigned mission. Accordingly, if a unit's current ARFORGEN phase or assigned mission did not require certain elements of equipment, the equipment could be reallocated elsewhere.⁴⁵

Although the Army was able to address a number of the problems that arose during the transition from linear FORGEN to ARFORGEN, critical challenges persisted. The requirement for consistent, predictable generation of ready forces at fixed intervals narrowed the focus of unit training. The time allotted for units to progress through the train/ready phase was not consistent with the unit training programs in place for the combination of counterinsurgency (COIN) and full-spectrum operations, resulting in adverse effects on training proficiency. As a result, training plans were developed in an increasingly centralised manner over time, diminishing unit commanders' ability to generate and adjust plans for unit training and preparation.⁴⁶ Units were required to emphasise skill proficiency most relevant for COIN-focused deployments, at the expense of skills needed for full-spectrum operations.⁴⁷ Furthermore, the reset phase of the cycle typically caused units to fall off a proverbial "readiness cliff," as personnel turnover and required equipment upkeep resulted in extended periods of low readiness and unavailability.⁴⁸

Changing Strategic Environment and Sustainable Readiness

Beginning in 2015, the Army began transitioning away from ARFORGEN as a FORGEN model. This change was driven by a number of factors:

- drawdowns in Iraq and Afghanistan reduced the demand for a predictable stream of COIN-oriented deployment-ready units

⁴⁴ Headquarters, Department of the Army, *The Army Equipping Strategy*, Fiscal Year 2012, Washington, D.C., 2011, pp. 7–8.

⁴⁵ Australian Army, "Land Warfare Doctrine LWD 4.0," pp. 10–11.

⁴⁶ Chad R. Foster, "Sustainable Readiness and Regional Alignment of Forces," *Military Review*, July–August 2016, p. 117.

⁴⁷ Mark A., Milley, "Army Readiness Guidance, Calendar Year 2016–2017," Memorandum for All Army Leaders, January 20, 2016, p. 1.

⁴⁸ Flem B. Walker Jr., "Building and Sustaining Readiness across Forces Command Formation," *Army*, May 2, 2016, p. 28; Foster, "Sustainable Readiness and Regional Alignment of Forces," p. 117.

- increased instability in multiple regions required a reorientation towards a flexible expeditionary force that could effectively respond in a complex environment
- there was a need to maximise readiness across the total force in order to effectively respond to unpredictable demands
- fiscal constraints limited the resources available for generating ready units.

The confluence of these factors indicated to the Army that its FORGEN process needed to orient away from supporting predictable rotations in support of COIN and towards increasing its ability to respond to emergent threats in an uncertain security environment.⁴⁹

The FORGEN process that replaced ARFORGEN is referred to as Sustainable Readiness. Under this concept, the Army “will shift from a regimented event driven resource strategy to one that is synchronised and fluid with the overriding objective of maximising the readiness posture of the total Army.”⁵⁰ Sustainable Readiness embodies the Army’s attempt to better balance the need to meet current operational requirements with the ability to maintain sufficient ready forces to rapidly surge for contingencies. One of the primary goals of Sustainable Readiness is to prevent units from falling off the “readiness cliffs” that were the inevitable by-product of ARFORGEN cycles, and to maximise acceptable levels of readiness across the entire force.⁵¹ As depicted in Figure 2.4, units are separated into three modules defined by varying goals for readiness and availability. In practice, this represents at least a partial return to a tiered readiness paradigm, as units are resourced based upon in which module they are placed.

Lessons Identified

A FORGEN Process Must Adapt to Changes in Strategic Requirements

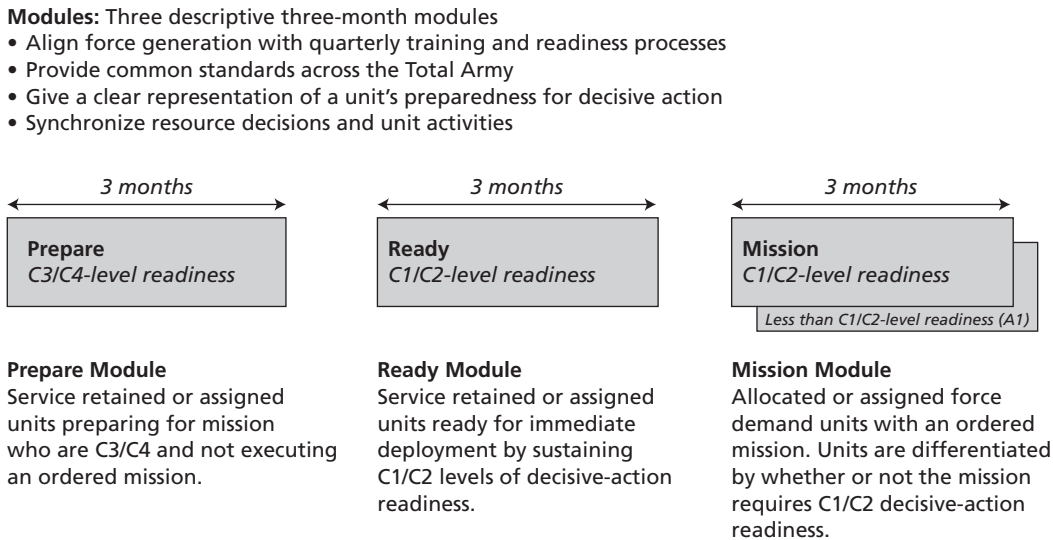
The experience of the U.S. Army indicates that a military institution must adapt its FORGEN process to the prevailing strategic environment. Over the course of 16 years and two distinct shifts of strategic requirements, the U.S. Army employed three different approaches to FORGEN. This experience underscores the link between the strategic environment and the demand signal a military institution receives for the output of ready and capable units. The strategic environment will determine not only the number of ready units needed to meet strategic requirements, but also the capabilities those units must possess in order to execute national strategy effectively. The FORGEN process employed by a military institution must adapt to achieve the needed balance between quantity and capability.

⁴⁹ Institute of Land Warfare, *Profile of the United States Army*, July 1, 2016, p. 26; U.S. Army, “A Statement on the Posture of the United States Army,” March 2015, pp. 18–19.

⁵⁰ Milley, “Army Readiness Guidance, Calendar Year 2016–2017,” p. 4.

⁵¹ Foster, “Sustainable Readiness and Regional Alignment of Forces,” p. 117.

Figure 2.4
Overview of Sustainable Readiness



SOURCE: Adapted from Institute of Land Warfare, *Profile of the United States Army*, July 1, 2016, p. 27.

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FORGEN Involves Significant Organisation Complexity, and Lack of Coordination Between the Operational and Generating Force Will Create Challenges

The difficulties that resulted from the lack of coordination between the U.S. Army operating force and generating force during the transition to ARFORGEN underscore the need for an institutional approach to FORGEN. Operational complexity is inherent in the process of coordinating institutional activities such as manning, equipping, training, and sustaining with operational requirements for deployment ready units. An effective FORGEN model must anticipate these complexities and build measures for coordination and synchronisation into the relevant processes.

Prolonged Periods of Rotational Deployments Will Likely Produce Extended Periods of Low Unit Readiness

The proverbial “readiness cliff” proved to be a persistent problem affecting the Army’s cyclical approach to FORGEN. The need to reset units after extended deployments was inevitable, but the U.S. Army was still able to meet the requirements for rotational forces due to the total number of units progressing through the ARFORGEN process. With more limited force structure, however, a cyclical approach to FORGEN to support prolonged rotational deployments would likely have placed unsustainable stress on the Army.

Cyclical FORGEN During Prolonged Periods of Rotational Deployments Has the Potential to Create Tension Between the Output Measures of Quantity and Capability

The rigid timelines imposed on units progressing through ARFORGEN cycles created tension between the need to produce a sufficient number of deployment-ready units for rotation schedules and the need have units appropriately trained to respond to strategically important contingencies. Due to limited training time and available windows for executing benchmark collective exercises, units were required to emphasise skill proficiency most relevant for their scheduled deployments. For much of the ARFORGEN era this meant focusing on COIN proficiency, but this came at the expense of obtaining proficiency in various skills related to full-spectrum operations.

U.S. Marine Corps FORGEN

Challenges and Changes over Time

Although the service had supported rotational deployments of units for decades, the earliest codification of a formal Marine Corps FORGEN process that could be identified was from 2010. Marine Corps Order (MCO) 3502.6 established the Marine Corps force generation process (FGP) as a formal process for preparing units for rotational deployment. It specifically referenced the combined requirements of supporting OIF/OEF and “steady state” Marine Corps activities such as marine expeditionary unit (MEU) deployments as a key factor in establishing the FGP.⁵²

MCO 3502.6 established a general sequence of events that culminated in the generation of deployment-ready units. It did not, however, articulate a precise timeline across which these events occurred. The sequence of events began with the reconciliation of joint force requirements with available Marine Corps assets and the synchronisation of the manning, equipping, and training for these units to be ready to meet the assigned missions. Subsequently, unit leaders developed appropriate Mission Essential Task Lists that corresponded with assigned mission requirements, and then established an appropriate training schedule to ensure the development of skill proficiency. Assessment, reporting, and certification through culminating exercises constituted the final stages of this initial FGP.

The 2010 FGP established a standardised system for unit training based on four “building blocks.” The building block approach embraced a progressive approach to training. Block I consisted of individual skill training, followed by small unit (company-level and below) collective training in Block II. This progressed into Advanced Collective training in Block III, where units trained up to battalion-level tasks, before culminating in the final predeployment exercise to ensure mission essential task list (METL) proficiency in Block IV.⁵³

⁵² Department of the Navy, Headquarters United States Marine Corps, Marine Corps Order 3502.6: Marine Corps Force Generation Process, April 29, 2010.

⁵³ Department of the Navy, Marine Corps Order 3502.6, p. 6.

The Marine Corps refined the FGP in 2013. MCO 3502.6A references the need to generate ready operational units more rapidly in time-compressed environments as the primary factor driving the revision of the FGP.⁵⁴ While the general framework of events established by the 2010 FGP remained largely intact, the 2013 FGP established clear, distinct phases for the process of generating ready units.

- Phase I—synchronise the force: assess capabilities and capacities vs. operational requirements—and develop force-sourcing solutions for deployments
- Phase II—generate the force: identify units to support operational deployments, and staff/equip units to readiness goals so that they can execute predeployment training
- Phase III—ready the force: deploying units, task-organised forces, and standing crisis-response forces complete additional training, begin readiness reporting against their METL, conduct a mission rehearsal exercise (MRX), and have deployment readiness certified
- Phase IV—deploy the force: review operational lessons identified by deployed units, and prepare forces to deploy
- Phase V—redeploy the force: redeployed units prepare postdeployment reports, and Marine Corps approves and implements recommended process changes.⁵⁵

In addition to articulating more precise phases, the 2013 FGP also established a clear timeline and readiness milestones that provided more structure to the overall FORGEN process. From the perspective of the Marine Corps as an institution, the 2013 FGP was a two-year process. Phase I encompassed the entire first year of this process, and culminated in the identification of units to satisfy force requirements one year prior to the ultimate deployment. Phase II commenced one year from the scheduled deployment and ended six months later, at which point the unit was manned and equipped to readiness levels sufficient to undertake the training program developed in preparation for deployment. The final six months prior to deployment were dedicated to Phase III, during which the unit implemented the four-block approach to training established in the 2010 order and progressed towards full readiness. After deploying (Phase IV), units underwent a six-month redeployment period (Phase V), the first month of which required units to remain ready for crisis-response actions.⁵⁶

While articulated as a two-year institutional process, in practice the deployment cycle from the perspective of Marine Corps is typically around one and a half years. This stems from the Marines' limiting deployments to lengths of six to seven months,

⁵⁴ Department of the Navy, Headquarters United States Marine Corps, Marine Corps Order 3502.6A, Marine Corps Force Generation Process, 2013.

⁵⁵ Australian Army, "Land Warfare Doctrine LWD 4-0," pp. 2–3.

⁵⁶ Australian Army, "Land Warfare Doctrine LWD 4-0," pp. 5–6.

as well as the standard six-month training period that all units perform immediately before deploying.⁵⁷ The remaining factor is the period of time units spend in redeployment, which determines the deployment-to-dwell ratio, a measure of OPTEMPO or stress on a unit. Recent history demonstrates that this varied depending on operational requirements.

Based on guidance from the Department of Defense, the Marine Corps established policy specifying that the service should strive towards a deployment-to-dwell ratio of 1:2 or greater.⁵⁸ This translates to a FGP cycle of at least 21 months, consisting of a six-month workup, seven-month deployment, and eight-month redeployment period. Over the last decade, however, the Marine Corps has struggled to meet this goal and, as a result, has had periods of high stress placed on the force.

Challenges Encountered by the Marine Corps

The operational demands of OIF and OEF represent one instance that created stress on the Marine Corps as it attempted to meet both contingency and steady-state requirements. Wanting to preserve the foundational elements of the FGP, the Marine Corps limited deployments to Iraq and Afghanistan to seven months, to have combat tours of comparable length to the steady state rotations of units to MEUs or Okinawa. To satisfy the demand for operationally ready units while keeping deployment lengths down, however, the Marine Corps had to subject units to 1:1 deployment-to-dwell ratios for extended periods.⁵⁹ Thus, the redeployment period at these times was only about one month, and the FGP cycle lasted for just over a year.

The Marine Corps also faced challenges in ensuring a 1:2 ratio at times even after the large operational requirements of OIF and OEF receded. Speaking to Congress in 2015, the Marine Commandant Joseph Dunford indicated that most infantry battalions at that time operated below the 1:2 ratio, and anticipated the operational tempo to continue at that pace “ad infinitum.”⁶⁰ The protracted period of stress on the force stemmed from two converging trends: reductions in Marine Corps end strength (from high points achieved during OIF and OEF) and calls for increased forward presence in support of crisis-response capabilities.⁶¹ Under such conditions, there have been concerns that the Marine Corps cannot sustain the current level of support and forward

⁵⁷ Norman Wade, *The Marine Expeditionary Unit (MEU) SMARTbook*, Lakeland, Fla: Lightning Press, 2010, pp. 1–7.

⁵⁸ U.S. Marine Corps, “Deployment-to-Dwell, Mobilization-to-Dwell Policy Revision,” *Marines*, July 14, 2014.

⁵⁹ Dakota L. Wood, “The US Marine Corps: Fleet Marine Forces for the 21st Century,” *Center for Strategic and Budgetary Assessments (CSBA)*, November 17, 2008, p. 15.

⁶⁰ General Joseph Dunford, “Posture of the Department of the Navy Testimony,” statement before the United States Senate Committee on Armed Services, March 10, 2015.

⁶¹ Bryan Clark and Jesse Sloman, “Deploying Beyond Their Means: America’s Navy and Marine Corps at a Tipping Point,” *Center for Strategic and Budgetary Assessments (CSBA)*, November 18, 2015, pp. 17–19. See also General James F. Amos, “2014 Report to Congress: The Posture of the United States Marine Corps,” March 12, 2014, p. 12.

presence in the long term—and that the overall level of global commitments placed on the Corps will ultimately have to be reduced.⁶²

Recent reports (e.g., by Hicks, Cancian, Metrick, and Schaus⁶³) have noted that the Marine Corps is likely to face requests for more frequent and more complex engagements/partnerships with close allies. (For example, Japan, Australia, and South Korea are making investments to expand their amphibious capabilities.) Training needs will vary, depending on the capability of the partner nation, so U.S. amphibious forces will need to tailor their training to different countries. Thus, one challenge will be to balance these dual demands: meeting requests for engagements or partnerships to work with allies while “ensuring its forces are available and ready to engage in major combat operations” or other contingencies.⁶⁴

A related challenge is that the U.S. amphibious fleet has decreased by 50 percent since 1991 (half as many vessels). As Hicks and colleagues have noted, “Each ship is more capable and more efficient than its predecessors, but ships can only be in one place at a time.”⁶⁵

French Army FORGEN

Challenges and Changes over Time

France, since the end of the Cold War, has reformed its Army reiteratively to accommodate significant decreases in end strength and commensurate budget cuts, all while regearing its force to make it as expeditionary as possible. To that end, the French Army adopted a structure that used brigades as force providers to generate modular battalion- and company-sized combined arms task forces—with a focus on medium-weight multipurpose units, a cyclical FORGEN scheme, and a rotational equipping system to maximise readiness, notwithstanding a greatly reduced vehicle fleet. The French Army’s experience has not gone without problems, and above all the French have had to cope with greater than anticipated operational requirements that have obliged them to adapt and modify their systems in response to specific points of stress.

During the Cold War, France maintained what was in effect two armies and a tiered readiness system, all of which added up to roughly 250,000–300,000 soldiers. One army consisted of conscripts who, by law, could not be deployed overseas. The other was a professional, expeditionary force with what amounted to a colonial vocation, meaning that most of the time it provided contingents for duties in France’s former colonial holdings, above all in Africa. One problem with this force structure was that France had little deployable capacity relative to the overall size of its force, a reality

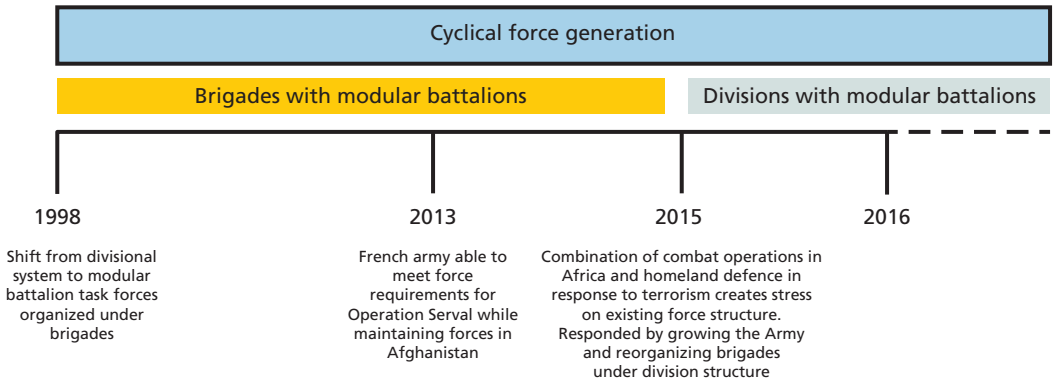
⁶² Australian Army, “Land Warfare Doctrine LWD 4-0.”

⁶³ Kathleen H. Hicks, Mark F. Cancian, Andrew Metrick, and John Schaus, *Landing Together: Pacific Amphibious Development and Implications*, Washington, D.C.: Center for Strategic & International Studies, June 28, 2016, p. x.

⁶⁴ Hicks et al., *Landing Together*, p. x.

⁶⁵ Hicks et al., *Landing Together*, p. x.

Figure 2.5
Timeline of French Army Force Structure and FORGEN



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revealed during the Persian Gulf War, when France could field no more than a division with about 12,000 men, despite having at the time 250,000 soldiers, while Britain was able to deploy 35,000 out of a total force of 160,000.⁶⁶

The lesson for France as it went about scaling down its Cold War military was to ensure that as large a portion of its force structure as possible was deployable and expeditionary in nature. France ended conscription in 1996, making the entire force professional, and proceeded to cut the Army’s end strength down to just over 100,000 today, a level that the French have come to regard as the limit for how small its Army can be without having to renounce major capabilities. French objectives as the country cut its force were: (1) to preserve the ability to conduct high-end conventional warfare against a peer state; (2) to maintain rapid reaction capabilities; (3) to have enough capacity to engage in several simultaneous operations at the battalion and brigade scale; and (4) to have enough funds available to invest in “transformation” and modernise a force reliant on 1970s-era vehicles.

In 1998 the French dissolved their division-based structure in favour of a brigade format and modularity, with the essential building block of France’s operational army consisting of company- and battalion-sized combined arms task forces tailored to meet specific mission requirements. Its manoeuvre brigades participated in a cyclical FORGEN scheme designed to ensure that at all times a broad selection of capabilities would be available. Certain units with certain capabilities were grouped around a new organisation that in some ways assumed the functions of divisional and corps headquarters, the Ground Forces Command.⁶⁷

⁶⁶ Irondelle Bastien, *La Réforme des armées en France*, Paris: Presses de la Fondation Nationale des Sciences Politiques, 2011, p. 50.

⁶⁷ Général Paul Brutin, “L’Armée de terre, les réformes, l’armée de demain,” *La Jaune et la Rouge*, No. 529, November 1997.

The French approach to modularity is one key to understanding the French Army's system, and it has proven a boon with respect to getting the most out of a reduced force structure as well as maximising the force's expeditionary qualities. What the French have done is to turn brigades and even regiments into force providers that generate elements required to put together company- or battalion-scale combined arms task forces. The company-sized groups, referred to as combined arms tactical subgroups (SGTIAs, in French), have a basic structure consisting of three elements (platoons, squads) of infantry and a fourth of armour, or vice versa, with more (up to a total of eight) or different elements attached depending on mission requirements. These generally include some kind of engineering capability, communications, and fires—perhaps a few mortars or howitzers, with the number and calibre depending on the need.⁶⁸ Above that is a tactical combined arms group (GTIA, in French), which has the same structure but is scaled up, built essentially around four company-sized elements. When more than one GTIA is in the field, the whole is defined as a brigade and led by a one-star brigade commander.⁶⁹ To be clear, while a given brigade might have provided its commander and perhaps even a preponderance of the GTIAs' forces, by no means should a brigade in the field be equated with a standing brigade as depicted on an order-of-battle diagram. Both GTIA and SGTIA can consist of a heterogeneous collection of units taken from different regiments and even different brigades, depending on mission requirements as well as availability. They also can form and reform on the fly, with different units first tasked to one GTIA/SGTIA and then another. This occurred during Operation Serval.⁷⁰

The GTIA/SGTIA system is well suited to French doctrine, which emphasises combined arms. The French Army also, like the Australian Army, has embraced “manoeuvrist” theory and mission command, taking the latter to a far greater extreme than the U.S. Army. Their system enables flexibility and empowers commanders at even the lowest echelons to act autonomously. It also enables the French to tailor deployments precisely based on the idea of *juste mesure*, that is, just enough to get the job done with an acceptable amount of risk, but no more. Sending a larger force requires tying down more forces, not to mention dedicating a greater logistical and sustainment effort. One way to compare the French and the American armies is by thinking in terms of smaller versus larger denominations of money. The French deal in smaller denominations, enabling them to put down precise amounts. Americans, generally speaking, deal only

⁶⁸ *Manuel du Sous-Groupement Tactique Interarmes, Armée de Terre*, Centre de Doctrine d'Emploi des Forces, 2009; Lieutenant-Colonel François Villanueva, “L'Intégration des appuis au niveau du SGTIA,” *Doctrine Tactique*, No. 21, March 2011, pp. 15–18.

⁶⁹ Ministère de la Défense, *Manuel d'emploi du groupement tactique interarmes à dominante infanterie*, INF 223, 2001.

⁷⁰ For more on how the French operated in Mali during Operation Serval, including their approach to task organisation, see Michael Shurkin, *France's War in Mali: Lessons for an Expeditionary Army*, Santa Monica, Calif.: RAND Corporation, 2014.

in larger bills, which has the advantage of lowering risk, but it also requires much greater logistical and sustainment capabilities.

At the climax of France's brigade system and accompanying cyclical readiness system roughly at the time of Serval (2013), the French Army maintained eight manoeuvre brigades including two heavy armoured brigades, but not including the light Franco-German Brigade, which for all intents and purposes is not deployable, although both France and Germany from time to time strip away and deploy component parts. The eight brigades could be divided into three categories: heavy (2x), medium (4x), and light (2x). The two heavy armoured brigades, which own the Army's remaining Leclercs (main battle tanks), were (and remain) intended for high-intensity combat and play the role of torchbearers for combined arms fire and manoeuvre conventional warfare. According to a French military publication, these heavy cavalry brigades are intended to be capable of the full spectrum of operations but will maintain the "unique and essential role of *Ultima ratio regum*" because of their "feline" power of "fire and shock."⁷¹ The bulk of the force, however, consisted of four medium-weight "multirole brigades" geared to be able to handle as broad a swathe of the spectrum of conflict as possible. The French built these brigades around a new, 25-ton infantry fighting vehicle, which along with upgrades to the Leclercs represents the first important instalment in a major modernisation program discussed below.

The French Army from roughly 2011 to 2016 operated a five-stage FORGEN cycle built around six-month deployments and the basic requirement that two brigades always be available, of which one must be a medium or heavy brigade, so that Army commanders have some choice regarding how big a hammer to apply to a particular situation.⁷² The cycle began with a period of postdeployment leave and reset and then proceeded through two training stages, each punctuated by rotations through France's national training centres. First came a core course built around a standard set of warfighting skills. Those skills were not defined as a formal set of what the U.S. Army refers to as Mission Essential Tasks but nonetheless were fairly uniform. Units that reached a certain phase within this stage of their training were regarded as an available surge force, known as *Guépard* (Cheetah). Commanders facing a contingency thus had the option of directing elements from the two operational brigades or tapping *Guépard* for the mission. The next phase of training was tailored for units assigned missions, known as *Mise en condition avant projection* (MCP), or Predeployment Training. Troops at this stage of training are not available for *Guépard*. The length and resources invested in MCP varied according to the assigned mission. Afghanistan-bound units were given the highest priority, and the Army, after the massacre of a French patrol in the Uzbini

⁷¹ *Ultima ratio regum*, or "last argument of kings," was the motto Louis XIV had cast on his cannon. General Arnaud Sainte-Claire Deville, "La brigade de décision," *Héracles: La lettre d'information et d'échange de la communauté doctrinale*, No. 34, 2009, p. 3.

⁷² For an official description of the force generation cycle, see "Lettre d'information du chef d'état-major de l'armée de Terre (destinée aux associations)," *Armée de Terre*, November 2011.

Valley, Afghanistan, in 2008, spared little expense, making their training as rigorous, complete, and realistic as possible. The MCP curriculum offered to units heading for Afghanistan combined more advanced training in conventional warfighting skills—so that troops could handle spikes in violence—as well as theatre-specific expertise, including cultural training and exercises in mock Afghan villages. In the meantime, savings were sought elsewhere: Troops not destined for Afghan deployments received less specialised training, much of it consisting, in effect, of on-the-job training provided by the commanders responsible for France’s many deployments, which range from homeland security operations to counter illegal mining operations in the jungles of French Guyana and various duties in Africa.

Challenges Encountered by the French Army

The French system functioned, but it ran up against three challenges that merit attention. The first has to do with the French Army’s miscalculation regarding the amount of training required to prepare soldiers, a miscalculation related to an underestimation of the intensity of the fight. Basically, the level of violence experienced in Afghanistan (Uzbin) brought painfully home the fact that French forces had become too habituated to the relatively low-intensity nature of most of its expeditionary operations, notwithstanding official policy, which dictated that French troops be capable of the “full spectrum” of conflict. The French found it necessary to redesign their FORGEN cycle at least once so as to build in more training time for all troops in general but also to provide more extensive training to units slated for deployments to Afghanistan. Basically, the French introduced a degree of flexibility with respect to timing; that need plus the desire to provide more rest for a worn-out force after the drawdown from Afghanistan motivated the switch in 2011 from a four-stage, 16-month cycle to a five-stage 24-month one in order to give the worn-out force more time to train in exchange for longer deployments.⁷³

The second challenge relates to capacity and the strain of the French Army’s mounting workload. The extant system was sufficiently robust for the French Army to invade Mali in 2013 with a brigade-sized medium-weight force and do so without breaking its stride, so to speak. However, what was originally intended to be a short-term mission (Operation Serval) evolved into an open-ended regional counterterrorism mission (Operational Barkhane). Much worse from a force management point of view, the terrorist attacks in France in 2015 prompted France to commit as many as 10,000 troops (the numbers have fluctuated) to Operation Sentinelle, which has soldiers securing “sensitive locations” and patrolling places such as train stations and Jewish schools. Maintaining Sentinelle indefinitely while also carrying out Barkhane and several other operations forced the French Army to cut training significantly (above all the kinds of larger-scale collective training required for conventional warfare), and there have been

⁷³ “Lettre d’information du chef d’état-major de l’armée de Terre (destinée aux associations).”

numerous reports of poor morale among an exhausted force. (For example, a recent *New York Times* article noted that “maintaining the deployments at current levels is a drain on the French armed services, in terms of personnel and morale.”⁷⁴) Indeed, according to one report, in 2015 the Army cancelled 70 percent of the scheduled rotations of units through France’s specialised warfare training centres.⁷⁵ Similarly, whereas the budget law calls for units to undergo 90 days of general training each year (as distinct from specialised predeployment training), the numbers in 2015 fell to between 51 and 64 days.⁷⁶ The French Army general staff noted, moreover, a net “progressive erosion” of Army’s capacity to train, something that is particularly problematic, given plans to recruit heavily and induct 14,000 new soldiers.⁷⁷

The French Army has taken several steps to mitigate the damage done. The first was a decision taken in 2015 to grow the force for the first time since the Algerian War. More specifically, France resolved to grow the size of the deployable force from 66,000 soldiers to 77,000. The second, also announced in 2015 and put in place progressively over the course of 2016, was a new structure referred to as *Au Contact*. *Au Contact* revives the division system for the combat units (which the French now refer to collectively as “Scorpion forces”), creating two divisions (the 1st and the 3rd), each with three brigades (one heavy, one medium, and one light), not including the Franco-German Brigade. The French have also set aside a brigade’s worth of forces for overseas duties. In addition, there is a separate aviation brigade, special forces brigade, logistics brigade, and so on.⁷⁸ The divisions take turns being on alert for a year, and within each division provisions are made for there to be a brigade-sized element on alert for four-month periods. An upcoming third step—one expected to breathe life into the Army’s reserves—will be to reinstitute a National Guard. While the French do have reserves, they are not part of the order of battle and reserve units did not figure into FORGEN cycles. They function more as a pool of individuals who can be called upon to serve. (Some serve as a “citizen reserve” that gets familiar with the military and serves as a liaison between the armed forces and citizens, and some serve as an “operational reserve”—available to serve as military officers in homeland defence missions and sometimes overseas operations. During peacetime, they typically serve five to 30 days per year, and during war, they may serve for an extended period.⁷⁹) The French plan is to

⁷⁴ Celestine Bohlen, “Soldiers Calm French Nerves, but Are Paying a Steep Price,” *New York Times*, July 25, 2016.

⁷⁵ Laurent Lagneau, “Sentinelle oblige, le dispositif de préparation opérationnelle de l’Armée de terre va évoluer,” *Zone militaire Opex360.com*, November 13, 2015; Laurent Lagneau, “La Préparation opérationnelle des forces n’est ‘pas négociable,’ prévient le Général de Villiers,” *Zone militaire Opex360.com*, October 28, 2015.

⁷⁶ Lagneau, “Sentinelle oblige.”

⁷⁷ Lagneau, “Sentinelle oblige.”

⁷⁸ For a full description of *Au Contact*, see “L’Armée de terre *Au Contact* (Dossier),” *TIM Terre Information Magazine*, No. 276, July–August 2016.

⁷⁹ NATO National Reserve Forces Committee, “National Reserve Forces Status—France,” 2004.

grow the reserves while also involving them more in operations, above all for homeland defence (Sentinelle).

Presently, under the Au Contact plan, France's six brigades go through a 24-month cycle consisting of roughly six four-month phases. These are

1. Mission training
2. Deployment
3. Reset
4. Training and Operation Sentinelle
5. Combined arms training and alert
6. Training and Operation Sentinelle.⁸⁰

As one can see, troops involved in stages 4 and 5 are obliged to combine their training regimens with participating in Operation Sentinelle. If, in an emergency, the French feel the need to reinforce Sentinelle, they are prepared to commit all of the forces involved in the first three stages who are not deployed overseas.

Au Contact also represents a restructuring of how the French Army manages its combat support (CS) and combat service support (CSS) units as well as its generating force, placing on the divisional level a number of elements that had been directly subordinate to France's Ground Forces Command. Au Contact establishes a set of two-star commands for a variety of activities and ostensibly makes CS, CSS, and generating force elements more responsive to the two manoeuvre divisions.⁸¹

The third challenge has to do with equipping. As mentioned above, the French Army in 2008 adopted a rotational equipping system, which is known as *Politique d'emploi et de gestion des parcs* (PEGP), or Fleet Use and Management Policy.⁸² The idea was to find a way to make the most of diminishing resources and, to the greatest extent possible, protect or even increase vehicle availability rates and overall force readiness. PEGP became operational in 2010–2012. PEGP works by pooling and centralising vehicles and repair operations. Units only have on hand a small portion of the vehicles on their TO&E—just enough for day-to-day training requirements—but are guaranteed a full equipment set in good working order when they rotate through training centres or deploy for operations. They fall in on equipment at the training centres or when they arrive on station for ongoing overseas operations or forward-deployed bases.

⁸⁰ Personal communication from French reserve officer (colonel) attached to French Ground Forces Command, March 12, 2017.

⁸¹ For more details on Au Contact, see "L'Armée de terre Au Contact (Dossier)."

⁸² On the French application of Whole Fleet Management, see Commandant C. Bourgeois, Hadrien Hugot, Vincent Legendre, and Laurent Pajou, "La Recherche opérationnelle au service de la politique d'emploi et de gestion des parcs (PEGP)," Versailles, France: Eurodecision, 2010; J. Mienville, "Premiers Pas . . . vers une politique d'emploi et de gestion des parcs (PEGP)," *Cavaliers Blindés*, No. 5, November 2006, pp. 2–3; Murielle Delaporte, "Le Soutien des forces terrestres en mutation (première partie)," *TTU*, November 2008; and Pierre Tran, "Lt. Gen. Jean-Tristan Verna," *DefenseNews*, May 9, 2011.

In an emergency, French army units might bring some vehicles with them but otherwise they expect to be joined with additional vehicles drawn from other pools, enough to reach 100 percent of their TO&E either at the point of departure from France or when they arrive in theatre.

PEGP divides French Army vehicles into four basic pools. These are

1. Alert Fleet (*Parc d'alerte*)
2. Training Fleet (*Parc d'entraînement*)
3. Permanent Service Fleet (*Parc de service permanent*)
4. Management Fleet (*Parc de gestion*).

The Alert Fleet consists of a fleet of vehicles maintained at the highest possible state of readiness for use in any emergencies or unplanned contingencies. The fleet is housed in at least one location in climate-controlled fabric shelters; items are periodically taken out of storage for preventative maintenance. According to a French army publication, in 2013 there were 400 vehicles in the Alert Fleet, including about 12 Leclerc main battle tanks and 12 AMX RCR light tanks.⁸³

The Training Fleet consists of vehicles located at the site of France's two principal national training centres for the use of units that rotate through them. In other words, the units fall in on the vehicles maintained by the Training Fleet rather than bring their own. According to the source cited above, in 2013 there were about 800 vehicles in the Training Fleet.⁸⁴

The Permanent Service Fleet consists of vehicles that are distributed among units for routine use and training purposes. The numbers of vehicles in this fleet are well below units' authorised vehicle sets as defined by their TO&E; the point is to have enough on hand for day-to-day use, that is, training, but not for deployment or actual operational purposes. In 2013, there were 17,000 vehicles in the Permanent Service Fleet.⁸⁵

The Management Fleet is often described in French Army sources as the "lungs" of the system. Vehicles from the other fleets as well as from overseas deployments and other operations make their way to the Management Fleet, which has two subsections, the *Parc de gestion technique* (Technical Management Fleet) and the *Parc de gestion dynamique* (Dynamic Management Fleet). The former is a large facility that repairs and refurbishes worn equipment to return it to a state of readiness. Once that is accomplished, the vehicles move to the Dynamic Management Fleet, which can be thought of as a reservoir that supplies the other fleets (Alert, Permanent Service, and Training)

⁸³ Sabine Fosseux, "Une Marche en Avant (Point sur la PEGP)," *Terre Information Magazine*, No. 248, October 2013, p. 21; La Commission de la Défense Nationale et des Forces Armées, *Rapport d'information . . . en conclusion des travaux d'une mission d'information sur les conséquences du rythme des opérations extérieures sur le maintien en condition opérationnelle des matériels*, Paris: Assemblée Nationale, 2015, p. 79.

⁸⁴ Fosseux, "Une Marche en Avant," p. 79.

⁸⁵ Fosseux, "Une Marche en Avant," p. 79.

as well as provides vehicles for overseas use. Some of the vehicles in the Dynamic Management Fleet might also go to the *Parc de gestion remisé* (Storage Management Fleet), which represents something of a long-term storage pool. In 2013, there were 7,300 vehicles in the Management Fleet.

If the Management Fleet is the lungs of PEGP, the brains of the system is the *Système d'analyse pour la gestion et l'emploi des équipements* or SAGEE information system, which refers to a software suite that integrates two separate functions. One is to keep track of the entire vehicle fleet and monitor the condition and status of each vehicle. The other manages the demand side of the process, namely keeping track of the status of French Army units and providing the means for units to request vehicles for various purposes. The SAGEE system's ability to match demand with availability enables the French military to make sure that units have the vehicles they need, when they need them.

According to a French Army publication, in 2013 there were about 17,000 vehicles in the Permanent Service Fleet, 780 vehicles in the Training Fleet, 400 in the Alert Fleet, and 7,300 in the Management Fleet.⁸⁶ Other sources suggest that main weapons systems such as tanks and infantry fighting vehicles are distributed differently, with fewer available to the Permanent Service Fleet. For example, in a French tank regiment, the TO&E calls for about 52 Leclerc tanks. However, because of PEGP, French tank regiments have on hand only 15 to 18 tanks.⁸⁷ Given that France has three Leclerc-equipped tank regiments, that means approximately 45 to 54 Leclercs are part of the Permanent Service Fleet out of a total Leclerc inventory of about 250 tanks, with the remaining 200 tanks distributed among the three other fleets. Similarly, regiments that on paper should have roughly 50 AMX-10 RCR tanks in fact have only 15 on hand.⁸⁸ (There are 12 AMX-10 RCR tanks in the Alert Fleet and a similar number of Leclercs.)⁸⁹

The available data suggest that PEGP has worked relatively well at least to the extent that deploying troops have received the equipment they needed, when they needed it, and in the condition they needed the equipment to be. That said, *Sentinelles* has placed unexpected strains on the fleet. Perhaps more importantly, Barkhane stresses the French Army vehicle fleet far more than anticipated when the system was put in place. For example, a French parliamentary report from late 2015 confirmed that French Army vehicles are returning above all from the Sahel in particularly bad shape and in need of extensive work that requires significant investments of time and money. The report noted, for example, that a *Véhicule de l'avant blindé* (VAB) that had deployed to Mali in 2013–2014 was likely to have travelled in one week four times the distance it would normally be expected to travel back in France in an entire year of routine

⁸⁶ Fosseux, "Une Marche en Avant," p. 79.

⁸⁷ Juliette Deroo, "Réalités d'un régiment de chars en 2013: l'Ifri au 501e RCC," *Ultima Ratio*, October 16, 2013.

⁸⁸ Alice Pannier, "Le Spahis et la réforme des armées," *Ultima Ratio*, October 15, 2010.

⁸⁹ Pannier, "Le Spahis et la réforme des armées"; "Interview FOB: Colonel de L'Estoile (2ème partie)," *Forces Operations Blog*, August 2, 2012.

use.⁹⁰ Moreover, a kilometre travelled in Mali is not the same as one in France, given the road conditions and extreme temperatures in the Sahel. A report from September 2016 noted that the Army had lost 250 armoured vehicles in a year due largely to rough conditions in the Sahel but also to damage from violence (mostly improvised explosive devices) and quite simply the poor condition of a fleet that has outlived its service life and needs to be replaced as soon as possible.⁹¹

The bottom line is that the high demands placed on the French system have placed a great strain on it. Its effectiveness depends on the amount of money put into it, the total number of vehicles in circulation, and, ultimately, its responsiveness. One can find a counterexample in Germany's brief experiment in recent years with a rotational equipping system, which the Army in 2015 declared a failure apparently because it was an excuse to cut the vehicle fleet size and could not respond adequately to the demands placed on it. The German Army found it had enough modern equipment for its Afghanistan-bound deployments, but little else.⁹² PEGP appears to work better than the German system, but it, too, is stressed. Indeed, in October 2016, a senior French commander testified in the French Senate that the system needs to be modified, although he did not explain how.⁹³

Lessons Identified

The French Army's move to modular forces, a cyclical FORGEN system, and a rotational equipping strategy points to ways to make the most of a limited force structure. In other words, the French succeeded in building a force that optimised its resources for the sake of generating expeditionary units and preserving as broad a range of capabilities as possible, even including higher-end conventional capabilities. The French experience, however, demonstrates how difficult it is to build a system around assumptions about the demands the system is intended to meet. The very idea of a "steady state" implies steady and predictable demands. Yet the French miscalculated in Afghanistan and found its troops unprepared. Then came Barkhane and, finally, Sentinelle. Arguably, the real strength of the French system, then, is in its adaptability, and the willingness of French planners to change course.

Canadian Army FORGEN

Challenges and Changes over Time

Since the end of the Cold War and during the GWOT era, Canada has sought to build and sustain Armed Forces capable of defending Canadian and North American territory,

⁹⁰ Commission de la Défense Nationale et des Forces Armées, *Rapport d'information*, p. 31.

⁹¹ Laurent Lagneau, "L'armée de Terre a perdu 250 véhicules blindés en un an," *Zone Militaire Opex360*, September 2, 2016.

⁹² Rolf Clement, "Man muss die Mangelwirtschaft wieder abschaffen," *Deutschlandfunk*, August 30, 2015.

⁹³ French Senate: Commission des affaires étrangères, de la défense et des forces armées, "Comptes rendus, Loi de finances pour 2017—Audition du général Jean-Pierre Bosser, chef d'état-major de l'armée de terre," October 19, 2016.

projecting power in concert with and in support of allies, and supporting international peacekeeping commitments. Today's Canadian Army is composed of roughly 25,000 active and 16,000 reserve soldiers; these force levels are significantly smaller than at the end of the Cold War, when there were 35,000 active and 22,000 reserve soldiers.⁹⁴

In 1968 the Canadian Army, Air Force, and Navy were merged as one service under unified command. From the services' unification until 1993, most Canadian land forces fell under Mobile Command (in 1987, two brigade groups consisting of "battalion-sized units" of armour, artillery, and infantry, along with support units; and the Special Service Force, "a light, air-transportable force"); Canadian land forces deployed in Europe—while generated from Mobile Command—fell under Canadian Forces Europe while in theatre.⁹⁵ In 1993, Mobile Command was renamed "Land Force Command," and in the 2011 reforms was once again titled the Canadian Army. The CAF Reserve, also called the Militia, incorporated 131 "units and subunits" organised across five geographic areas.⁹⁶

Towards the end of the Cold War, the Ministry of Defence began to embrace the concept of shifting towards a Total Force construct, as the 1987 Defence Policy noted that "if the reserve force is to be used fully and effectively, the distinction between Regular and Reserve personnel must be greatly reduced"; the policy called for improved training and equipment for Reserve forces, and also proposed manning units responding to emergencies with a mix of Regular and well-trained Reserve forces.⁹⁷ After the end of the Cold War and through the 1990s, the Canadian Army began to shift towards a Total Force Construct. For example, the militia areas were consolidated and aligned with geographically designated Land Force areas.

Today, the Canadian Army remains organised into four geographically oriented divisions, each composed of a mix of active and reserve brigades; additionally, one headquarters division is responsible for joint operations activities. In the early 2010s, geographic divisions were renamed and restructured to their current organisation:

- 1st Canadian Division (Kingston): a deployable, high-readiness joint headquarters that is capable of leading joint, interagency, and multinational forces. Falls under

⁹⁴ International Institute for Strategic Studies. *The Military Balance*, London: Brassey's for the IISS, 1992.

⁹⁵ In 1987, meanwhile, Canadian land forces in Europe consisted of one mechanized brigade group with "an artillery regiment, two mechanized infantry battalions, and engineer regiment, a signals squadron, a service battalion and a helicopter squadron." Ministry of Defence, Government of Canada, *Challenge and Commitment: A Defence Policy for Canada*, Ottawa, ON: National Defence/Défense nationale, 1987, pp. 34–35.

⁹⁶ Ministry of Defence, Government of Canada, *Challenge and Commitment*, p. 35.

⁹⁷ The report also noted that: "It is now clear that it is both impractical and undesirable to try to meet all our personnel requirements through the Regular Force. The costs attached to an all-volunteer, full-time military force have become too high. In many cases, the tasks which the Regulars are called upon to undertake can be carried out by trained Reserve personnel"; Ministry of Defence, Government of Canada, *Challenge and Commitment*, pp. 65–66.

Canadian Joint Operations Command and is therefore not officially part of the Canadian Army.

- 2nd Canadian Division (Montreal): previously Land Force Quebec Area, is responsible for Canadian Army units located in Quebec, including the 5 Canadian Mechanized Brigade Group, the 2nd Cdn. Div. Support Group, 34 (Res.) Brigade Group, and 35 (Res.) Brigade Group.⁹⁸
- 3rd Canadian Division (Edmonton): previously Land Force Western Area, is responsible for Canadian Army units located in western Canada, including the 1 Canadian Mechanized Brigade Group, the 3rd Cdn. Div. Support Group, 38 (Res.) Brigade Group, 39 (Res.) Brigade Group, and 41 (Res.) Brigade Group.
- 4th Canadian Division (Toronto): previously Land Force Central Area, is responsible for most Canadian Army units located in Ontario, including the 2 Canadian Mechanized Brigade Group, the 4th Cdn. Div. Support Group, 31 (Res.) Brigade Group, 32 (Res.) Brigade Group, and 33 (Res.) Brigade Group.
- 5th Canadian Division (Halifax): previously Land Force Atlantic Area, is responsible for Canadian Army units located in Canada's four Atlantic Provinces. The 5th Canadian Division does not, like the other geographic divisions, have a mechanized brigade, however, it does include the 4th Artillery regiment, the 3rd Cdn. Div. Support Group, 36 (Res.) Brigade Group, and 47 (Res.) Brigade Group.⁹⁹

The Army Reserve's ten brigade groups are distributed across the four geographic divisions and train so as to be interchangeable with regular forces. *IHS Jane's Defence Weekly* notes that: "Army Reserve regiments are kept at cadre strength and have a theoretical administrative capacity to support a full battalion upon mobilisation. The standing force equates to a reduced company."¹⁰⁰

Each of the geographic divisions (2, 3, 4, and 5) has a training centre associated with it, however, the Canadian Army Doctrine and Training Center (CADTC) is recognised as the lead entity for Canadian Army training.¹⁰¹ CADTC includes a number of organisations, among them the Canadian Army Command and Staff College (CACSC), the Directorate of Army Training, the Directorate of Army Doctrine, and the Army Lessons Learned Centre. It also houses the Peace Support Training Centre (PSTC), which has emerged as an Army center of excellence for information operations, and trains roughly 1,000 CAF personnel prior to peacekeeping deployments.

⁹⁸ Three mechanized brigade groups are distributed across three geographically designated divisions; each mechanized brigade group is composed of three infantry battalions, an artillery regiment, a combat engineer regiment, and support units.

⁹⁹ "Canada—Army," *IHS Jane's Defence Weekly*, August 17, 2017.

¹⁰⁰ "Canada—Army."

¹⁰¹ And, organisationally, is separate from the divisions. Canadian Army, *Advancing with Purpose: The Army Strategy*, 3rd ed., Ottawa, ON: Department of National Defence, 2014, p. 18.

Additionally, CADTC incorporates a center of excellence for both individual and collective training up to the company/squadron level, the Combat Training Centre (CTC). CTC incorporates Advanced Warfare Centre, Armour School, Infantry School, Artillery School, Canadian Forces School of Military Engineering, Electrical and Mechanical Engineering School, Tactics School, and a Test and Evaluation Unit. Finally, the Canadian Manoeuvre Training Centre (CMTC) offers collective training in full-spectrum operations, using “weapons effects simulation technology, purpose-built urban infrastructure, role-playing civilians, and resident opposing forces.”¹⁰²

Challenges Encountered by the Canadian Army

Canadian combat force commitments to the War in Afghanistan from 2001 to 2011 stressed Canadian Army cyclical FORGEN capabilities.¹⁰³ In the face of limited budgets and increased demands, the Army has had to make difficult choices when balancing between funding training or equipment and infrastructure sustainment; the Army has also faced challenges in the areas of recruitment and retention. In response to some of the challenges facing it in the area of sustainment, the Canadian Army developed its Army Managed Readiness Plan—leveraging tiered readiness to meet short-term force requirements.¹⁰⁴

Successful delivery and maintenance of equipment and supplies proved to be a challenge that the CAF generally met during the War in Afghanistan. A 2008 Auditor General Report on “Support for Overseas Deployments” found

National Defence has been able to deliver to troops its equipment and supplies that they need to do the job in Afghanistan. While we did note that commanders have expressed concerns over some supply chain shortcomings, we found no reports of supply chain problems that had significantly affected operations. This is largely because the high level of dedication and hard work of Canadian Forces personnel enabled them to deliver the needed support.¹⁰⁵

Nonetheless, the same report did identify some deficiencies in the supply chain; for example, auditors found delays in moving critical equipment and spare parts, shipment tracking challenges, and increasing reliance on contractors for maintenance and other services. The report cautioned that unless National Defence addressed deficien-

¹⁰² “Canada—Army.”

¹⁰³ After the end of combat operations, Canadian forces trained Afghan army and police forces from 2011 to 2014.

¹⁰⁴ Canadian Army, *Advancing with Purpose*, p. 11. For more on the Canadian Army Managed Readiness Plan, see: Chad Young, Raman Pall, and Mike Ormrod, *A Framework & Prototype for Modelling Army Force Generation*, Defense Research and Development Canada—Centre for Operational Research and Analysis, DRDC CORA TM 2007–54, December 2007.

¹⁰⁵ Office of the Auditor General of Canada, “Support for Overseas Deployments—National Defence,” in *2008 May Report of the Auditor General of Canada*, Chapter 2, Ottawa, ON: Office of the Auditor General of Canada.

cies identified in the supply chain, “the Department’s ability to provide timely and appropriate support could be at risk over time.”¹⁰⁶

The 2011 Auditor General Report on “Maintaining and Repairing Military Equipment” concurred with the 2008 report’s tone that the CAF are rising to the challenge and performing in the immediate term:

Overall, National Defence has planned and managed the maintenance and repair of military equipment to meet operational priorities in the short term. The annual process of allocating available funds provides an effective forum to discuss priorities, with wide participation of those responsible for maintaining and repairing military equipment and those who need it for operations and training.¹⁰⁷

However, the Office of the Auditor General also flagged some worrying findings:

National Defence’s ability to meet training and operational requirements over the long term is at risk due to weaknesses in implementation and oversight of its contracting approaches for maintenance and repair, deficient management information systems, and the lack of sufficient cost and performance information.¹⁰⁸

Poor follow-through and delayed implementation of new policies, procedures, and approaches to business processes and practices has enabled inefficiencies to continue for longer than necessary and resulted in lost opportunities to improve performance and better serve the warfighter.

Additionally, the report highlighted “deficiencies in information management systems” that impair National Defence’s maintenance and repair decisionmaking processes.¹⁰⁹ Because the asset management information systems do not capture costs such as salaries and infrastructure, National Defence has incomplete and unreliable information on the actual costs of maintenance and repair activities. This dearth of accurate, complete, and integrated costing data may indeed contribute to a final finding of the 2011 report: “there is a significant gap between the demand for maintenance and repair services and the funds made available.”¹¹⁰

¹⁰⁶ Office of the Auditor General of Canada, “Support for Overseas Deployments,” Chapter 2.

¹⁰⁷ Office of the Auditor General of Canada, “Maintaining and Repairing Military Equipment—National Defence,” in *2011 Fall Report of the Auditor General of Canada*, Chapter 5, Ottawa, ON: Office of the Auditor General of Canada.

¹⁰⁸ Office of the Auditor General of Canada, “Support for Overseas Deployments,” Chapter 2.

¹⁰⁹ Office of the Auditor General of Canada, “Support for Overseas Deployments,” Chapter 2.

¹¹⁰ The report continues: “In addition, National Defence has indicated it is likely that its long-term investment plan for new equipment has allocated insufficient funds for equipment lifecycle costs. Although National Defence knows that postponing maintenance and repair tasks creates future risks—such as reduced availability of equipment, more laborious and expensive repairs, and reduced life expectancy of military equipment—the Department does not regularly monitor these impacts. Consequently, it does not know the specific long-term

In addition to equipment and supply challenges, Regular and Reserve CAF have been facing recruiting and retention shortfalls, often exacerbated by training timeline challenges. A 2016 Auditor General Report found a number of areas for improvement. First, the total number of Regular CAF personnel has decreased, and the gap between the number required and the number fully trained is growing. In the Auditors' opinion, it is "unlikely" that CAF will meet the targets it set both for personnel numbers and female representation (25 percent benchmark) by FY 2018–2019. Second, the Regular CAF's recruitment plans and targets do not reflect its actual needs; rather, CAF bases its recruiting targets on its "capability to process applications, enrol, and train new members." Additionally, the Regular CAF is at times "unable to attract a sufficient number of qualified applicants for some occupations," and so will overfill some occupations and underfill others. Then, while recruits faced minimal wait times to begin basic training, certain occupational specialties had very long training wait times; for example, average training duration for Army Communication and Information Systems Specialists was 11 months, including an average five-month wait before beginning training. Vehicle Technicians faced an average 20 months of training to include a seven-month wait. These slow training cycles and long wait times, the report found, "can lead to frustration and attrition," and further increase costs and inefficiencies as the Armed Forces struggle to find a suitable balance of occupations to maintain capabilities and accomplish its missions.¹¹¹

Finally, a lighter stress point: Canada's government and military are bilingual, with all recruitment, training, and other publications required to be made available in both English and French. *Jane's* reports that Army units are "generally either predominately English-speaking or predominately French-speaking," but that French speakers may serve in English-speaking units (and vice versa) with an "appropriate" level of language proficiency. Promotion and assignment often depend upon proficiency in both official languages, which can increase the training burden, and put further strain upon recruitment and retention.

Language proficiency can also have ramifications on interaction with allied forces, whether in the field as in Afghanistan, in terms of conducting combined training exercises, or filling exchange postings with French or UK forces.¹¹²

Lessons Identified

Similar to the French Army, the Canadian Army's approach to FORGEN seeks to maximise the capacity and capabilities of a limited force structure. The post–Cold

impacts of the funding gap on operations and training activities." See: Office of the Auditor General of Canada, "Support for Overseas Deployments," Chapter 2.

¹¹¹ Office of the Auditor General of Canada, *Report 5—Canadian Armed Forces Recruitment and Retention*.

¹¹² "Canada—Army."

War shift towards a Total Force structure and reorganisation into mixed active/reserve, geographically defined divisions has not completely resolved concerns mooted in the 1980s about underutilisation of Reserve forces. Brigadier General Rob Roy MacKenzie, Chief of Staff Army Reserve, has noted

As it stands today, all reserve units don't have tables for all the equipment suites that a unit might need. Things are pooled for collective training, and that's what we're taking an analysis of as to how best to look at where the needs are so that equipment is available for units when they need it.¹¹³

A May 2017 Senate Committee report found that for too long, “the Army Reserve Force has not received the resources it needs to recruit, equip and train for the full range of Canada’s defence requirements.”¹¹⁴ A 2016 Auditor General Report found additional challenges facing the Army Reserve’s integration into the Total Force: units lacked clear guidance when preparing for major international missions and deployments; and, while units did receive clear guidance on domestic missions, they were not required to provide formal confirmation that they were or had prepared.¹¹⁵ Thus, despite the shift towards a Total Force Concept after the end of the Cold War—as well as Reserves’ involvement in peacekeeping missions in the Balkans in the 1990s and in the War in Afghanistan—the Army Reserves remain under strength, underresourced, and undertrained.

Modernisation

U.S. Army Modernisation

Challenges and Changes over Time

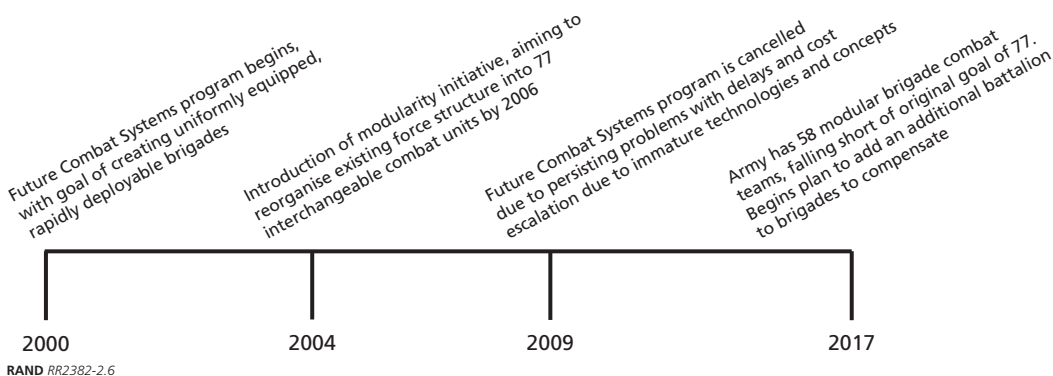
In the early 2000s, the U.S. Army began implementing a comprehensive modernisation and reorganisation plan. Specifically, the Army initiated two programs to transform from being Cold War–focused to preparing for a wider range of conflicts and missions. The first program, the Future Combat Systems (FCS) program, began in 2000. According to the Congressional Budget Office (CBO), General Eric Shinseki introduced the FCS program with the goal of having FCS brigade combat teams (FBCTs) that would be equipped uniformly, could deploy anywhere within 96 hours, would have armoured combat vehicles weighing less than 20 tons each, and would be equipped with new

¹¹³ Government of Canada, Standing Senate Committee on National Security and Defence, *Reinvesting in the Canadian Armed Forces: A Plan for the Future*, May 2017, p. 53.

¹¹⁴ Government of Canada, Standing Senate Committee on National Security and Defence, *Reinvesting in the Canadian Armed Forces*, p. 48.

¹¹⁵ Office of the Auditor General of Canada, *Report 5—Canadian Army Reserve—National Defence*, Ottawa, ON: Office of the Auditor General of Canada, 2016.

Figure 2.6
Timeline of U.S. Army Modernisation Efforts



systems.¹¹⁶ A later retrospective study of FCS noted that FCS was expected to be the largest acquisition program in U.S. Army history, and its purpose was to transform the U.S. Army into a more modern, agile force that could be dominant across the full spectrum of operations.¹¹⁷ The plan was to have “18 plus 1” FCSs—i.e., 18 systems plus a wireless network connecting them, and those systems included manned ground vehicles, unmanned air and ground systems, and unattended munitions and sensors.¹¹⁸

After FCS was initiated, a second modernisation program was introduced by General Peter Schoomaker in 2004: the Modularity Initiative. This initiative aimed to create interchangeable combat units from existing units, accomplish this conversion for \$21 billion, complete the conversion of active U.S. Army units by 2006, and increase the number of combat units without increasing the number of personnel in the U.S. Army.¹¹⁹ A key feature of this conversion was that brigade combat teams (BCTs) would have two battalions each, rather than the three-battalion composition of traditional brigades. In order to maintain combat effectiveness and ensure that the new BCT was as capable as the nonmodular unit it replaced, the BCT was to have “key enablers”—specialised equipment and personnel (e.g., combat support functions such as military intelligence, reconnaissance, and logistics).¹²⁰

¹¹⁶ Congressional Budget Office (CBO), *An Analysis of the Army's Transformation Programs and Possible Alternatives*, Washington, D.C.: Congressional Budget Office, 2009, p. 19.

¹¹⁷ Christopher G. Pernin, Elliot Axelband, Jeffrey A. Drezner, Brian Dille, John Gordon IV, Bruce Held, K. Scott McMahon, Walter L. Perry, Christopher Rizzi, Akhil R. Shah, Peter A. Wilson, and Jerry M. Sollinger, *Lessons from the Army's Future Combat Systems Program*, Santa Monica, Calif.: RAND Corporation, MG-1206, 2012, p. 2.

¹¹⁸ Pernin et al., *Lessons from the Army's Future Combat Systems Program*.

¹¹⁹ CBO, *Analysis of the Army's Transformation Programs and Possible Alternatives*, p. 19.

¹²⁰ U.S. Government Accountability Office (GAO), “Army Modular Force Structure: Annual Report Generally Met Requirements, but Challenges in Estimating Costs and Assessing Capability Remain,” GAO-14-294, GAO, April 16, 2014, p. 8.

Both FCS and the Modularity Initiative encountered implementation challenges. Although FCS was supposed to transform all of the Army's combat units, CBO noted that, "as conceived at the end of 2008, [the program] would have fully equipped fewer than 20 percent."¹²¹ In addition, while FCS was supposed to make heavy combat units more transportable, the planned composition of FBCTs would have made them weigh almost as much as heavy brigade combat teams. In addition to not meeting equipping and transport objectives, the FCS encountered schedule slips and escalating costs due to "vague and overambitious requirements, lack of mature technologies, and unforeseen risks"—and ultimately was cancelled in June 2009.¹²²

Unlike FCS, the Modularity Initiative was relatively successful, but the Army still encountered implementation challenges. The Army originally planned to have 77 modular BCTs but faced personnel shortfalls as more units were created. There were also equipment shortfalls—specifically, not enough key enabler equipment (e.g., command, control, and communications equipment).¹²³ (Also, the Army had expected to equip modular BCTs with FCS, but FCS was cancelled.) Cost and schedule overruns were a problem as well. By 2009, modular restructuring was taking longer than planned (expected to end in 2013 instead of 2006), and its estimated cost had more than doubled.¹²⁴ The U.S. Army ultimately stood up fewer modular BCTs than originally planned—58 so far, instead of 77¹²⁵—and is currently planning to return to the three-battalion brigade structure for most brigades.

Currently, the U.S. Army is in the process of forming a command focused primarily on modernisation to provide dedicated attention to the several major activities that need to be integrated to modernise an army. The U.S. Army has created a task force to determine the roles and organisational structure of what it is referring to as the Futures and Modernization Command.¹²⁶

Lessons Identified

In their retrospective analysis, Pernin and colleagues identified an array of lessons from the FCS program, which they note was "widely regarded as a failure."¹²⁷ Several generalisable lessons, which may inform Australian Army processes, are as follows: First, when exploring or generating concepts, it is important to provide opportunities for

¹²¹ CBO, *Analysis of the Army's Transformation Programs and Possible Alternatives*, p. 36.

¹²² Pernin et al., *Lessons from the Army's Future Combat Systems Program*, p. 2.

¹²³ Andrew Feickert, *U.S. Army's Modular Redesign: Issues for Congress*, Washington, D.C.: Congressional Research Service Report for Congress, January 24, 2007.

¹²⁴ CBO, *Analysis of the Army's Transformation Programs and Possible Alternatives*, p. 36; GAO, "Army Modular Force Structure," p. 19.

¹²⁵ Richard Sisk, "Most Army Brigades, Navy Planes Aren't Combat Ready: Leaders," *Military.com*, 2017.

¹²⁶ Courtney McBride, "Hix."

¹²⁷ Pernin et al., *Lessons from the Army's Future Combat Systems Program*, p. 2.

careful “deliberation, input, and consideration” across the Army—for example, increasing early interactions with the technical and acquisition community to determine what is feasible and to get a clear understanding of risks.¹²⁸ Second, it is critical to devote sufficient staffing and other resources to conduct detailed, sophisticated analyses of cost, technical feasibility, risk, and uncertainty. Third, use wargaming to test assumptions. Fourth, quality personnel—i.e., involving technical experts—is critical to the acquisition and management of complex systems. Fifth, independent review teams should be established to assess performance and risks.¹²⁹

Reviewing the U.S. Army’s Modularity Initiative, the U.S. GAO identified a similar set of lessons. First, a transformation process should begin with a “results-oriented plan with clear milestones”—including a staffing plan and a plan for the size and composition of the transformed force.¹³⁰ Second, it is important to devote the resources needed to develop detailed, realistic cost estimates—including equipment purchasing costs, personnel restationing costs, facilities costs, and other costs. Third, tracking outcome-oriented metrics—metrics that measure progress in achieving force restructuring goals—is useful for determining when plans need adjusting.

The United States additionally determined a need to consolidate its efforts under one command with a dedicated focus on modernisation. While some argue this added bureaucracy will impede efficiency, others feel the dedication and unity of command are pluses that negate the hindrances that extra layers can sometimes cause.

French Army Modernisation

Challenges and Changes over Time

The French Army, like the U.S. Army, has chosen to bet on “transformation” and the proposition that quality can make up for quantity. The French have the additional motivation of wanting to keep up with those who are transforming their forces (e.g., the Americans) so that they can cooperate fully in coalition operations. At the heart of France’s twenty-first-century army is a family of new vehicles designed to make use of digital networking technology, all part of a program referred to as SCORPION. SCORPION features an information architecture that networks every level of French field units and a family of new armoured vehicles. First the French modernised their Leclercs, and in 2008 they began introducing the *Véhicule blindé de combat d’infanterie* (VBCI), which is an eight-wheeled infantry fighting vehicle weighing roughly 25 tons and armed with a 25 mm cannon. Next to be introduced are two new vehicles. One, called the Jaguar, is a light tank intended to replace the venerable AMX-10 RC. The other, known as the Griffon, is intended to replace the 1970s-era VAB armoured personnel carrier. All feature advanced battle management software. Moreover, all are designed

¹²⁸ Pernin et al., *Lessons from the Army’s Future Combat Systems Program*, p. xviii.

¹²⁹ Pernin et al., *Lessons from the Army’s Future Combat Systems Program*.

¹³⁰ GAO, “Army Modular Force Structure,” p. 14.

to network with soldiers deployed with the FÉLIN system of personnel sensors and networking gear. Soldiers operating with FÉLIN and the VBCI have served in Afghanistan and the Sahel. The Griffon and Jaguar are expected within the next five years.

According to *Jane's International Defence Review*, the VBCI's Battlefield Management System (BMS) and communications links greatly enhance situational awareness, speed up planning and task execution, and make it possible for VBCI formations to conduct tactical manoeuvres without being within visual range of one another.¹³¹ Also according to *Jane's International Defence Review*, French commanders have already noted an important challenge posed by the VBCI's technology, which is that making full use of its capabilities requires a better trained, higher-quality crew than the AMX-10P. In particular, the gunner, who commands the vehicle in the standard VBCI model, must be adept at directing fires and coordinating with other vehicles and the FÉLIN-equipped dismounts to make full use of the BMS.¹³²

At higher levels, SCORPION connects vehicles and men to battalion-, brigade-, division-, and national-level joint sensors and fires. The aspiration is for the network to be a force multiplier that greatly enhances the capabilities of GTIAs and SGTIAs.

Figure 2.7 suggests the interesting of French combat elements within the larger information network. "Section" refers to companies, with FÉLIN-equipped soldiers operating with VBCI, Griffon, and Jaguar. Beyond that are SGTIAs, GTIAs, Brigades, and Divisions, with command posts (PCs, in French) operating as network hubs.

Canadian Army Modernisation

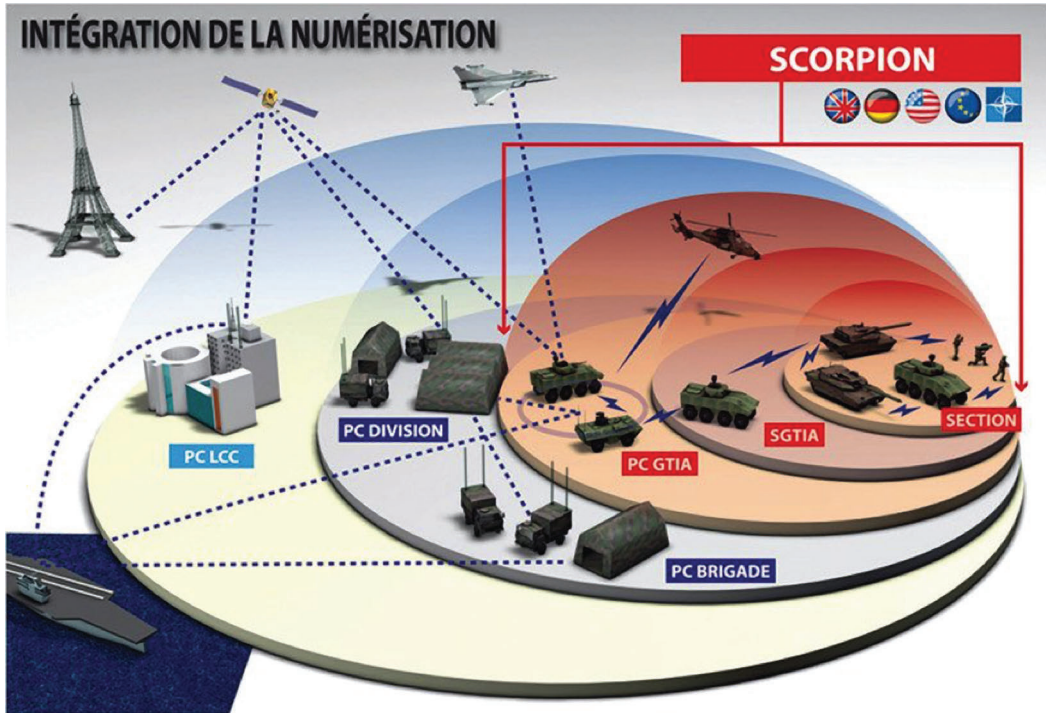
The 2017 Defence Policy highlights investments in Army capabilities that will improve interoperability across the Canadian Services as well as Canada's allies and partners, and will also help the Army maintain an operational advantage against potential adversaries:

- acquire ground-based air defence systems and associated munitions capable of protecting all land-based force elements from enemy airborne weapons
- modernise weapons effects simulation to better prepare soldiers for combat operations
- replace the family of armoured combat support vehicles, which includes command vehicles, ambulances, and mobile repair teams
- modernise the fleet of Improvised Explosive Device Detection and Defeat capabilities
- acquire communications, sustainment, and survivability equipment for the Army light forces, including improved lightweight radios and soldier equipment
- upgrade the light armoured vehicle fleet to improve mobility and survivability

¹³¹ Rupert Pongelley, "High-Performance VBCI Makes New Demands on French Infantry Training," *Jane's International Defence Review*, May 11, 2009.

¹³² Pongelley, "High-Performance VBCI Makes New Demands on French Infantry Training," p. 27.

Figure 2.7
"SCORPION," the French Army's Digitisation Program



SOURCE: www.defense.gouv.fr

RAND RR2382-2.7

- modernise logistics vehicles, heavy engineer equipment, and light utility vehicles
- improve the Army's ability to operate in remote regions by investing in modernised communications, shelters, power generation, advanced water purification systems, and equipment for austere environments
- modernise land-based command and control, intelligence, surveillance, and reconnaissance systems
- acquire all-terrain vehicles, snowmobiles, and larger tracked semiamphibious utility vehicles optimised for use in the Arctic environment.¹³³

The stated modernisation goals for the Canadian Army generally align with and support Canada's broader defence focus on integration and partnering with allies. And, like the French, there appears to be a focus on quality rather than quantity. Additionally, the Army modernised and acquired a number of new capabilities during the course of the war in Afghanistan, including: the main battle tank Leopard II, tactical

¹³³ Canadian Army, "Investments to Enhance Capability and Capacity," *Government of Canada*, December 13, 2017.

unmanned air vehicles (UAVs), medium-/heavy-lift helicopter Chinook Model Ds, and armed helicopters (via arming existing Griffon helicopters); since the end of the war, the Army has acquired Chinook Model Fs, upgraded light armoured vehicle capabilities, integrated tactical armed and unarmed UAVs into Army formations, and improved soldiers' battlefield situational awareness via the Integrated Soldier System.¹³⁴ Table 2.6 outlines Canada's current land-based projects.

Despite these efforts and stated goals, however, a May 2017 Senate Committee Report alleges that:

When one examines the spending on the military as a percentage of GDP, the government comes up well short of where we need to be. Based on testimony and public sourced information, a number of questions have arisen as to whether the government is in fact serious about providing the funding required by the military to not only maintain current operations, but to address significant capability gaps.¹³⁵

Thus, like most other countries and military organisations, Canada and the Canadian Army are forced to negotiate the trade space between funding gaps and capability gaps. While successive governments have pledged to fund capabilities for both Regular and Reserve forces, military personnel and leadership frequently feel underresourced. There has traditionally been little political penalty for either failing to deliver on campaign promises concerning the military, to include veterans' care, or for omitting it from the platform entirely, as much of the Canadian public subscribes to the notion of Canada as a peacekeeping country, sees twenty-first-century security concerns as less relevant to Canada than to its southern neighbour, or simply pays little attention to defence and security, with these issues seldom in the top five concerns of voters.¹³⁶ Since World War II, prime ministers from both major parties have made significant and lasting cuts to Canadian military and its capabilities, and have contributed to the decline of a permanent expeditionary capability with substantial reliance upon partners for logistical and operational support.¹³⁷

¹³⁴ Government of Canada, Standing Senate Committee on National Security and Defence, *Reinvesting in the Canadian Armed Forces*, p. 44. The Integrated Soldier System Project allows the Government of Canada to "acquire up to 4,144 wearable communications suites, complete with required accessories and support equipment. This equipment will allow soldiers to stay better connected with their teams during operations. This project will significantly enhance a soldier's situational awareness, generate precise navigational information and provide greater command and control for army units, thus improving their performance and protection. . . . The Integrated Soldier System Suite includes weapon accessories and electronics. It also features a radio, a smartphone-like computer to run battle management software, a GPS, and a communications headset"; Canadian Army, "Integrated Soldier System Project," *National Defence and the Canadian Armed Forces*, July 26, 2017.

¹³⁵ Government of Canada, Standing Senate Committee on National Security and Defence, *Reinvesting in the Canadian Armed Forces*, p. 44.

¹³⁶ Ian Austen, "Top Issues in the Canadian Election," *New York Times*, October 19, 2015.

¹³⁷ Jack L. Granatstein, *Who Killed the Canadian Military?* Toronto: HarperCollins Publishers, 2004.

Table 2.6
Current Canadian Land-Based Projects^a

Program		Notes
1	Medium Support Vehicle Project	An effort to replace the current fleet of logistics trucks with four components: "Militarised Commercial Off-The-Shelf (MilCOTS) trucks; Shelters; Kitting of Shelters; and Standard Military Pattern (SMP) trucks, including trailers, armour protection systems, and in-service support."
2	Tank Replacement Project	Replacing the Leopard I main battle tank with Leopard IIs [Leopard 2A4 CAN Tank; Leopard 2A4M (Mine Protected) CAN Tank; Leopard 2A6M (Mine Protected) CAN Tank; and Leopard 2 ARV 3 Armoured Recovery Vehicles].
3	Close Combat Vehicle	"The Government of Canada, based on the recommendation of the Canadian Armed Forces, <u>has decided not to proceed</u> with the Close Combat Vehicle (CCV) procurement project. <u>Significant capability improvements have served to address a number of force protection concerns</u> that existed when the CCV project was first conceived."
4	Tactical Armoured Patrol Vehicle (TAPV)	CAF will procure 500 TAPVs: "a wheeled combat vehicle that will conduct reconnaissance and surveillance, security, command and control, and armoured transport of personnel and equipment. The vehicle is highly mobile and provides a very high degree of protection for its crew." It replaces "the reconnaissance role currently carried out by the Coyote reconnaissance vehicles (LAV II), and the patrolling, liaison, and VIP transport roles formerly carried out by the Armoured Patrol Vehicle (RG-31). The TAPV will complement the Light Utility Vehicle Wheeled (G-Wagon)."
5	Force Mobility Enhancement Project	CAF is acquiring 18 Armoured Engineer Vehicles and 4 Armoured Recovery Vehicles "that will provide crucial support to the Leopard 2 tanks, the Light Armoured Vehicles, and the newly procured TAPV. The project will also deliver tactical mobility implements capable of being used on the fleet of Leopard 2 main battle tanks."
6	Light Armoured Vehicle III Upgrade	"The LAV III fleet will receive turret and chassis (hull) upgrades, which will improve the protection, mobility, and lethality of the LAV III platform, while maximising command support and improving crew ergonomics. The project will modernise a portion of the existing LAV III fleet to ensure it remains the backbone of domestic and expeditionary task forces. It will also extend the life span of the LAV to 2035."
7	Land Command Support System Life Extension (LCSS LE)	"The Land Command Support System is a highly integrated tactical command and control system composed of many sub-systems that support the Canadian Army-wide command function. It forms a part of every Canadian Army vehicle and platform-based weapon system and is made up of numerous hardware, firmware and software elements." The LCSS LE will improve information exchange through 1. "Tactical Vehicle Network Modernisation for selected Canadian Army tactical vehicles, which includes the upgrade of the current Local Area Network through the introduction of the Communications Selector Box and Power Distribution Unit—Small Form Factor"; and 2. "A new satellite communication on-the-move capability to be installed on a range of Army tactical vehicles to improve both command and control and the sharing of intelligence, surveillance and reconnaissance information while mobile."
8	Sniper Systems Project	"Phase 1: upgraded C14A1 and C15A1 medium and long range sniper rifles; new personal Semi-Automatic Sniper Weapons (SASW); new sniper rifles for training; new telescopic optical rifle sights; ballistic calculators; and ammunition."

Table 2.6—Continued

Program		Notes
		"Phase 2: personal protection systems; load carriage systems; night vision (Image Intensified and Thermal Imagery: II-TI) rifle sights; ammunition safety suitability testing; individual and collective concealment systems; and lightweight thermal and wet weather clothing."
9	Integrated Soldier System Project (ISSP)	"The Integrated Soldier System Suite includes weapon accessories and electronics. It also features a radio, a smartphone-like computer to run battle management software, a GPS, and a communications headset."
10	C6 General Purpose Machine Guns (GPMG)	"The C6 is a fully-automatic, air-cooled, gas- and spring-operated machine gun that is belt-fed from the left. The ammunition is 7.62 X 51MM NATO linked."

SOURCE: Canadian Army, "Current Projects: Land Projects," *Government of Canada*, November 3, 2017.

^a For quotes, see subpages of Canadian Army, 2017.

Summary of Key Observations

Table 2.7 presents a summary of the enterprise challenges faced by each country. Our literature review and discussions with Australian experts produced the list of challenges faced by Australia.

Each of the armies examined has gone through changes and challenges in its FORGEN (as highlighted in bold and red in the table) and modernisation processes, and lessons for the Australian Army can be drawn from these experiences. Some key lessons from the U.S. Army experiences are that armies need to remain flexible and adapt to changes in the strategic environment; that relevant processes need to be synchronised; that a cyclical approach to FORGEN could lead to low unit readiness (particularly during prolonged deployments) and may need to be mixed with some tiered readiness; that detailed estimates of cost, technical feasibility, risk, and uncertainty are needed to ensure that modernisation efforts are completed on time and within budget; and that metrics need to be monitored to determine when adjustments are needed to meet force restructuring goals.

The U.S. Marine Corps has been finding it difficult to sustain expected deployment-to-dwell ratios and balance competing demands, especially since it has faced reductions in end strength. A lesson is that global commitments and end strength need to be considered carefully when setting deploy-to-dwell targets.

The French Army also has identified lessons from the implementation of modularity, a FORGEN cycle, and a rotational equipment strategy, all part of an effort to ensure that its shrinking force structure remained as capable and as expeditionary as possible. The French found that miscalculations regarding the intensity of combat or quite simply unexpectedly high demands placed on manpower and material have obliged them to adjust repeatedly how they train and organise their forces.

As for French modernisation, although the VBCI and FÉLIN have met with good reviews, we have yet to obtain information that sheds light on whether or not "transformation" brings with it any of the promised advantages.

Table 2.7
Comparison of Enterprise-Level Risk Areas in U.S., French, Canadian, and Australian Militaries^a

	U.S. DoD	French DoD	Canadian DoD	Australian Defence ^b
1	Countering global strategic challenges	Updating five-year policy planning document (Military Programming Law, or LPM)	End Canada's combat mission against ISIL in Iraq and Syria	Joint force-in-being
2	Countering the terrorist threat	Revising budget law in light of new LPM	Ensure that the Canadian Armed Forces have the equipment they need	Workforce
3	Enabling effective acquisition and contract management	Reinforcing national protection posture to counter terrorist threat	Renew Canada's commitment to United Nations peace operations; including by quickly providing well-trained personnel	Cost management
4	Increasing cyber security and cyber capabilities	Boosting the military reserve	Uphold commitments to security in North America and Europe	Ability to reform
5	Improving financial management	Improving financing of ongoing operations and replacing/repairing equipment	Draft a new defence strategy to replace the now-outdated Canada First Defence Strategy	Compliance
6	Protecting key defence infrastructure	Major weapon system acquisition	Bolster surveillance and defence of Canadian territory, particularly in the Arctic; to include increasing requirement of additional Canadian Rangers	Work health and safety
7	Developing full-spectrum total-force capabilities	Experimenting with voluntary military service program	Establish and maintain a workplace free from harassment and discrimination	Protective security
8	Building and maintaining force readiness	Consolidating budget for overseas operations	Bolster partnerships and cooperation between the Ministries of National Defence and Veterans Affairs	Government security and vetting services
9	Ensuring ethical conduct	Investing in defence infrastructure	Protect Canadians and critical infrastructure from cyber threats	Information management
10	Promoting continuity and effective transition management	Pursuing transformation of the Ministry	Develop a suicide-prevention strategy for Canadian Armed Forces personnel and veterans	

^a We use the term *militaries* here though the U.S. Marines is not an army and is included in the analysis as well as the ministerial and defence levels. In that armies are the focus, we are nesting into the defence level and also looking at the U.S. Marines.

^b Australian Government, Department of Defence, *2015–2016 Defence Corporate Plan, Commonwealth of Australia*, 2016, p. 4.

The Canadian Army is still working to find an optimal approach to FORGEN and the active/reserve balance as it seeks to maximise the capacity and capabilities of limited force structure and funding. The post–Cold War shift towards a Total Force structure and reorganisation into mixed active/reserve, geographically defined divisions has not completely resolved concerns about underutilisation of Reserve forces. Ongoing challenges in meeting existing personnel requirements, the burden of meeting ambitious increases in end strength and diversity goals for recruiting and retention, and a historically troubled procurement system make it difficult for the CAF and the Canadian Army to sustain the tactical and operational excellence they have demonstrated into the future.

When it comes to both modernisation and FORGEN, Canada and the Canadian Army, as many other countries and military organisations, have been forced to balance limited resource and capability risk, while still continuing to perform their missions at a high level.

Identifying and Discussing Concerns in the Australian Army

In the previous chapters, we took a broad look at various issues related to FORGEN and modernisation, drawing on U.S., Canadian, and French examples to provide points of comparison. This chapter identifies more specific areas of concern for Australia that emerged in interviews conducted in Australia by RAND Australia's research team. RAND used several structured methods to sift through the data collected and generate a list of issues broken down by general levels of concern (from the strategic to the operational), and the basic government functions to which they pertain. This chapter, after first detailing the analytical process, discusses each issue in turn. We also offer suggestions drawn from U.S., Canadian, and French lessons. While we cannot be certain that the lessons are "best practices" or gold standards, they provide points of comparison for the Army to consider in planning and decisionmaking. At a minimum, they may inform discussions about what Australia does differently and whether or not an alternative approach would be advantageous.

Interviews and Analytical Methodology

After conducting the literature review discussed in Chapter Two, we created a semistructured interview protocol for engagements with SMEs inside the Australian Defence Force (ADF) during the infield research phase of the project. The research team worked in concert with the Land Warfare Group to develop the list of interviewees. The Land Warfare Group developed and coordinated the interview schedule, and escorted the RAND team to all site visits to provide additional relevant context both to the interviewed organisations and to the research team. The principal investigator and an accompanying team member met with SMEs in person to discuss readiness and FORGEN challenges experienced by both Army and ADFHQ. RAND met with organisations across the levels of war: units at the tactical and operational level including 7th Brigade (an MCB), 17th Combat Service Support Brigade, and 6th Aviation Brigade; Army Headquarters for strategic planning and resourcing decisions; and lastly

Defence-level organisations including the Joint Capability Management and Integration Division (JCMI) in the office of the Vice Chief of the Defence Force. See Table 3.1 for an overall list of field activities and comparative analysis case studies.

Although RAND tailored questions for its interviewees according to their position in Australia’s defence establishment, all questions focused on what the Australians themselves considered problems or issues that impeded the Army from achieving its various objectives. To identify the FORGEN challenges at each level of war, the research team used information gleaned from the literature review and general team expertise to develop a list of questions and talking points to guide the discussions with SMEs from the various organisational levels.

Defence-Level Stakeholders

- What is/are the primary role(s) of Army?
 - Past (for impact on current), current, and future?
 - Assessing the balance between security of the nation and global security commitments
 - With emphasis on how much to commit and for how long?
- Does Army understand and agree with these roles?
- Is Army adequately resourced (personnel, funding, equipment) to fulfil these roles?
 - How are resourcing decisions made?
 - What are the near-term and long-term investment strategies?
- What are the gaps in Army’s ability to fulfil these roles?
 - Does Army effectively communicate its readiness needs to Defence and higher?
- What is the biggest impediment to Army’s readiness?
- Any thoughts on overall Risk Management Framework and Army’s contribution to overall defence-level risk?

Table 3.1
Field Activities and Case Studies

Interviewed Organisations and Case Studies				
Tactical Sources	Operational Sources	Strategic Sources	Executive-Level Sources	Partner Nation Sources
• 3rd Brigade • 6th Brigade • 7th Brigade • 16th Aviation Brigade • 17th Combat Service Support Brigade	• Commander FORCOMD • G3 FORCOMD • G4 FORCOMD (including Health) • G5 FORCOMD	• JCMI • DG Land—Defence • DSTG • DG LOG-Army • Future Land Warfare	• 2016 Defence White Paper • Joint Standing Committee on Foreign Affairs, Defence and Trade	• United States • France • Canada

Strategic- and Operational-Level Army Stakeholders

- What are the roles of Army?
- Is Army adequately resourced (personnel, funding, equipment) to fulfil its roles?
- What are the top challenges facing leaders across the levels of decisionmaking—from own and others' perspectives?
 - Is there a system in place to track challenges at the Army level?
 - What keeps either level up at night?
- What are the biggest impediments to readiness in terms of metrics and/or reporting mechanisms?
- How can these impediments be mitigated in your current operating context—fiscally, size of force, etc.?
- What FORGEN challenges exist and what are the contributing factors (size of force, readiness, training, missions, other)?

Tactical- and Unit-Level Stakeholders

- What is the role of your unit with respect to the roles of Army?
- Is your unit adequately resourced (personnel, funding, equipment) to fulfil its roles?
- What are the top challenges facing leaders across the levels of decisionmaking—from own and others' perspectives?
 - Is there a system in place to track challenges at the Army level?
 - What keeps either level up at night?
- What are the biggest impediments to readiness in terms of metrics and/or reporting mechanisms?
- How can these impediments be mitigated in your current operating context—fiscally, size of force, etc.?
- What FORGEN challenges exist and what are the contributing factors (size of force, readiness, training, missions, other)?

The interviews and focus groups lasted from 30 minutes to two hours, depending upon the schedules of the interviewed organisations and/or the amount of information covered in the session. The research team took transcription-style notes that were manually coded for themes that emerged with respect to challenges experienced by the respective organisations.

Analytic Framework

We used typologies as binning structures to capture and codify FORGEN challenges gathered from the literature review and interviews. The first typology determines at what level(s) of decisionmaking a problem resides on the spectrum of tactical to strategic. This vertical framework also allows us to see how the same problem can manifest in

different ways in each tier, which in turn allows RAND to pinpoint where the root of the challenge occurs. The specific binning structure used is the Australian Defence Risk Management Framework, which considers three levels of risk that need to be addressed and managed by the ADF with Government input. The three levels of the Defence Risk Framework are defined in the 2016–2017 Australian Defence Corporate Plan (p. 15) as follows:

- (1) Operational risks—These are risks to Defence achieving efficient and effective operating intent. They are the inward focus of how Defence undertakes the activities in this Plan.
- (2) Enterprise-level risks—These are events which may limit or compromise Defence’s collective ability to meet the obligations and requirements set by Government. These risks may arise from four “enterprise vulnerabilities,” which are: integration across Defence; integration with key external partners; compliance with legislation and Government policy; and efficient and effective use of resources.
- (3) National security risks—These are risks managed as shared risks with Commonwealth, international, and industry partners. Understanding of the national security risk environment informs the risk tolerance for enterprise risks.

The second typology is the Australian Defence Fundamental Inputs to Capability (FIC) model,¹ specifically to be used when assessing operational risk. FIC emphasise that defence capability consists of nine different management areas of consideration to better “understand and manage the whole-of-life workforce and funding implications of a new capability.”² The nine FIC are as follows:³

- Personnel
- Organisation
- Collective Training
- Major Systems
- Supplies
- Facilities and Training Areas
- Support
- Command and Management
- Industry.

¹ Defence defines a capability as “the capacity or ability to achieve an operational effect.” See Australian Government, Department of Defence, *Defence Capability Development Handbook*, 2012, p. 2.

² Australian Government, Department of Defence, *Defence Capability Development Handbook*, 2012, pp. 2–3.

³ The 2016 *Defence Industry Policy Statement* also acknowledges industry as a Fundamental Input to Capability (FIC).

Table 3.2
Typologies in Analytic Framework

	Typologies Used	Purpose
1	Defence Risk Management Framework	For binning and prioritisation of challenges to discuss <i>at what level(s) of decisionmaking</i> the challenges occur: operating risks (can be resolved at operational or tactical level of Army), enterprise-level risks, (can be resolved by Army Headquarters), and national security risks (outside the span of control of the Army)
2	Fundamental Inputs to Capabilities	Show in what management areas the operational challenges exist in the armies

These FIC constitute the conventional means by which Defence assesses capabilities within management areas. We use this typology to signal the management area within which any operational challenge exists—with the understanding that the problem could exist within multiple management areas. As the output of a capability occurs at the operational level, capability related issues manifest inside the operational risk space. Therefore, challenges inside operational risk have this additional categorisation into the FIC. Table 3.2 summarises these two typologies.

Data Analysis

To assess and consolidate challenges, RAND followed qualitative research steps. The research team first identified all the specific challenges uncovered and determined where they overlap. The RAND team used the approach of an affinity diagram to create a set of broader challenge areas. The affinity diagram approach was designed originally as a quality management tool but today is used across many domains as “a tool to generate groupings of data based on their natural relationship through brainstorming or by analysing verbal data gathered through surveys, interviews, or feedback results.”⁴ The process of constructing an affinity diagram involves team members’ individually going through qualitative datasets, grouping interviewee statements into themes, and then coming together to decide upon the groupings.

RAND leveraged this approach to solidify the list of challenges and then to apply the framework to the challenges. Team members assessed notes and documents to identify issues, potential causes and examples of the issue, and which sources identified the issue. The team also develop screening criteria to determine if a topic should be categorised as a challenge for this study. The number of sources reporting the issue served as the primary screening criterion. This report categorises a challenge as any issue referenced by three or more sources (documents and/or interviewees). This triangulation

⁴ Anjali Awasthi and Satyaveer S. Chauhan, “A Hybrid Approach Integrating Affinity Diagram, AHP, and Fuzzy TOPSIS for Sustainable City Logistics Planning,” *Applied Mathematical Modelling*, Vol. 36, Issue 2, February 2012, pp. 573–584.

tested for validity of the data and reliability of the sources and therefore helped eliminate challenges with potential biases and challenges.⁵

The level of responsibility of the source and the potential impact were two other criteria for including issues. We included issues that did not have three sources but were raised by distinguished stakeholders and/or could have considerable impact. For example, the study team gave additional consideration to the issue of integration of women in the ADF. Only one SME interviewee raised this issue; however, the topic is highly critical to addressing several challenges and is one of the Chief of Army's main initiatives. In comparison, concerns regarding the acquisition system did not meet the screening criteria. During our preliminary investigation, one data source suggested there were potential issues with the Army's acquisition system. Infield research did not substantiate this claim and, in fact, respondents contradicted it; for example, one reported that the "Army doesn't have a material problem, it's really about maintaining our material in a sustainable way to meet our requirements."⁶

Table 3.3 provides a list of the challenges RAND identified, along with the risk level and FIC associated with them.

The following section discusses each of these issues in detail (adopting the "issue–discussion–recommendation" structure from the Center for Army Lessons Learned [CALL]).⁷ Recommendations are derived from previous RAND studies, a literature review of Australian documents, and SME knowledge inside RAND. In some cases, the ADF has already taken steps towards resolving challenges. We acknowledge that effort in the cases that we know of, but there may be more initiatives not known to RAND due to the limited time and scope of the study. For example, we highlight in the subsequent challenge area the need to be more exhaustive in "lessons identified" initiatives and discovered during our research a program at Army level that is doing exactly that. In this and other cases, Army indeed has programs in place that would simply benefit from refinement and improvement of existing initiatives.

The following sections in Chapter Three list the challenges and associated recommendations in order of risk level. Chapter Four analyses the recommendations specifically and prioritises which solutions are most urgent, but also takes into consideration how complex and difficult a recommendation would be to implement.

⁵ Sandra Mathison, "Why Triangulate?" *Educational Researcher*, Vol. 17, Issue 2, 1988, pp. 13–17. See also Nahid Golafshani, "Understanding Reliability and Validity in Qualitative Research," *Qualitative Report*, Vol. 8, No. 4, December 1, 2003, pp. 597–606.

⁶ Land Logistics Directive, interview with the authors, Canberra, Australian Capital Territory, Australia, July 26, 2017.

⁷ See examples of this model employed in Center for Army Lessons Learned, *Handbook: Military Decision Making Process (MDMP)—Lessons and Best Practices*, No. 15-06, Fort Leavenworth, Kan.: March 2015, pp. 25–26.

Table 3.3
Challenges Associated with Australian Army FORGEN

Challenge	Risk Level	FIC (when applicable)
Seeing, understanding, and reacting to the new norms for the future or emergent nature of war and character of warfare	National Security	
Prioritising roles and missions among global, regional, and domestic objectives, and allocating resources to appropriately meet those mission sets	National Security	
Communicating capability gaps among Government, ADFHQ, and Army	Enterprise	
Sharing Army capabilities with the Joint Force and other government agencies (OGAs), most often those enablers that are high-demand/low-density capabilities	Enterprise	
Misaligning the vision of being a world-class army with the resources (capabilities, size, sustainment, funding, time) to achieve it	Enterprise	
Connecting lessons to concepts to actual doctrinal and process upgrades	Enterprise	
Current risk framework is not well integrated; Army lacking standard, well-defined, widely understood system for tracking enterprise risks or challenges	Enterprise	
Army naming conventions for capabilities are not aligned with or integrated into naming conventions for Joint Capabilities	Enterprise	
Managing growth of Army in accordance with Defence White Paper and the Defence Planning Guidance	Enterprise	
Capability gaps hindering becoming a world-class Army	Operational	Support; Major Systems
Paradigm for discussing preparedness	Operational	Command and Management
Geographic locations and dispersion of some units with respect to training and support relationships	Operational	Facilities and Training Areas
Tension with centralising support capabilities as opposed to organically assigning	Operational	Command and Management
Multirole combat brigades being perceived as deployable entities as opposed to FORGEN constructs	Operational	Command and Management
Friction between force modernisation and FORGEN	Operational	Collective Training; Major Systems
Misalignment of FORGEN cycles of the three services (Army, Navy, and Air Force)	Operational	Organisation
FORGEN cycle not being strictly adhered to and being frequently broken for Government, ADFHQ, and Army needs	Operational	Command and Management
Adverse effects related to OPTEMPO: costs, retention, recruitment, maintenance, stress on soldier and family, individual training opportunity costs	Operational	Collective Training; Personnel, Major Systems
Training focused on mid- to high-intensity combat to the detriment of training for other missions, including stability operations; Humanitarian and Disaster Relief; and Train, Advise, Assist	Operational	Collective Training; Command and Management
Lack of subordinate unit assessments and certifications during major training exercises	Operational	Collective Training

Table 3.3—Continued

Challenge	Risk Level	FIC (when applicable)
Hallmark of success in command tour is participation in combat-centric operations and training	Operational	Command and Management
Divergence between the Active and Reserve Components in terms of training and materiel readiness and interoperability	Operational	Personnel, Collective Training; Major Systems
Misalignment of manning and organisation of Army elements for optimal output, including alignment of the Reserve Component elements	Operational	Organisation; Personnel
Integration of women in the Army	Operational	Personnel
Lack of people with certain skill sets, particularly enablers	Operational	Personnel

National Security–Level Risks

Issue: Seeing, Understanding, and Reacting to the New Norms for the Future or Emergent Nature of War and Character of Warfare

Discussion

This premise is grounded in an understanding of the terms “nature” and “character.” Some current-era military theorists contend that these terms are interchangeable in a more modern sense; however, historically relevant distinctions existed. Christopher Mewitt, a security commentator describes these distinctions as such:

Technological advances are driving “changes in the nature of warfare,” according to the New America Foundation’s Future of War program. Few would argue that the tools and methods used to wage war change with the times, but students of Clausewitz are skeptical about supposed changes in what we believe to be war’s enduring nature. According to the Prussian, war’s *nature* does not change—only its *character*. The way we use these words today can seem to render such a distinction meaningless, but careful attention to semantics can reveal real problems in how we think about war, society, and the future.⁸

The “nature” of war describes its unchanging essence and uniqueness from other things. For example, the nature of wars of any era is violent, interactive, and political. Correspondingly, the “character” of war describes the changing way war manifests in the real or current world. Mewitt further stresses that

As war is a political act that takes place in and among societies, its specific character will be shaped by those politics and those societies—by what Clausewitz called the “spirit of the age.” War’s conduct is undoubtedly influenced by technology, law,

⁸ Christopher Mewitt, “Understanding War’s Enduring Nature Alongside Its Changing Character,” *War on the Rocks*, Texas National Security Network, University of Texas, January 21, 2014.

ethics, culture, methods of social, political, and military organization, and other factors that change across time and place.⁹

In general, one of the key challenges of a nation is determining and adjusting to the character of warfare, which tends to change over time based on technology as a main driver. War historians have emphasised this as an issue for prior armies as well. Carl von Clausewitz notes that the character of warfare adds to the risk level by being in a state of flux:

[The] most far-reaching act of judgment that the statesman and commander have to make is to establish . . . the kind of war on which they are embarking; neither mistaking it for, nor trying to turn it into, something that is alien to its nature.¹⁰

General McMaster further notes that changes in the character of warfare need to influence military decisionmaking and strategy:

Self-delusion about the character of future conflict weakened US efforts in Afghanistan and Iraq as war plans and decisions based on flawed visions of war confronted reality.¹¹

More recently, the U.S. Army released an updated manual for operations that emphasises the need for forces to be able to “respond to a wide variety of challenges along a conflict continuum that spans from peace to war”¹²—and that they must be organised, trained, and equipped to do so.

Like other past and current armies, the Australian Army is coping with the challenge of adjusting to the changing nature of war—reflected in a new set of objectives. In the 2016 Defence White Paper, Australian Government provides the ADF with three Strategic Defence Objectives, which it deems of equal weight. The first is supporting the United States in its global security mission; the second is securing the near region around Australia in order to maintain open waterways and free trade; and the third is defending and securing Australia itself.¹³ These three objectives are considered equal in priority, and the government directs the ADF “to use all three Strategic Defence Objectives to guide force structure and force posture decision making.”¹⁴ However, the Army spends a disproportionate amount of time and resources training for

⁹ Mewitt, “Understanding War’s Enduring Nature Alongside Its Changing Character.”

¹⁰ Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret, Princeton, NJ: Princeton University Press, 1976, pp. 88–89.

¹¹ H. R. McMaster, “On War: Lessons to be Learned,” *Survival*, Vol. 50, No. 1, March 2008, pp. 19–30.

¹² Headquarters, Department of the Army, *FM 3-0 Operations*, October 6, 2017, p. 1-1.

¹³ Australian Government, Department of Defence, *2016 Defence White Paper*, p. 68.

¹⁴ Australian Government, Department of Defence, *2016 Defence White Paper*, p. 77.

high-intensity conflict with a near peer, which is the least likely scenario. As an aside, while it might be common practice to prioritise missions with low probability based on threat and danger if they occur, the notion of high-intensity conflict not being likely leads to some decisionmakers being willing to take risks in preparing for and resourcing training for those scenarios. The Army has adopted some initiatives in line with the Defence White Paper—e.g., increasing its intelligence, surveillance, and reconnaissance capabilities and strengthening the cyber workforce to defend against cyberattacks, but the current force structure was designed for conflict in the Middle East and has not been adapted to potential future conflicts in other regions, nor to other types of missions that the Army may need to conduct.

Recommendation

RAND's first recommendation is to develop planning systems to promote increased communication among Government, ADFHQ, and Army to strategically plan for future roles and missions. Part of what makes this challenging is that there are both content and process factors. Regarding content, the nature of warfare is evolving rapidly in light of technological advances and changes in diplomatic relationships, for example. A critical task is keeping track of such changes. The Army has recently published a study considering future warfare titled "Defining Victory in Modern War: E. G. Keogh Oration 2016"; however, it has yet to be included in leadership discourse.

As for process, three levels of governmental infrastructure are involved: Parliament itself, ADFHQ, and the Army. The Army is responsible for passing timely, relevant, and accurate information through ADFHQ, which is responsible for consolidating this information across the Joint capabilities. Parliament must understand the products coming from ADFHQ and Army—and should have mechanisms and people in place to provide that understanding. The national strategic planning process also must be informed by the intelligence community. Processes must be in place for regular dialogue and exchanges of information between the intelligence community on one side and Parliament, ADFHQ, and the Army on the other.

Australia currently has structures (e.g., Parliament's Joint Standing Committee on Foreign Affairs, Defence, and Trade); authoritative products (e.g., the Defence White Paper); and processes to plan for and to guide Defence from Government downward. However, some structural changes and process improvements may be needed. We recommend that Australia analyse its current strategic planning processes and structures to identify opportunities to promote increased communication and greater adaptation to new roles and missions. This study did not conduct a thorough assessment of the Australian Army's current planning system or outputs based on scope and classification level of this report; however, issues discussed during interviews indicate it may be worth conducting such an assessment. To that end, we have captured the U.S. system for planning inside this area merely for points of consideration for Australia.

The U.S. System for Strategic Planning for Roles and Missions and Responses

At the core of the U.S. system is the use of a typology to codify the types of roles and missions that can exist across the various regions of the world. This system is the start-point for planning, as it establishes a threat-based lexicon that sets conditions for planning U.S. responses to these threats. This system helps both the communication process and the content of the process. The United States uses a typology referred to as the “National Defense Missions” (NDMs). In January 2012, the Department of Defense released its *Defense Strategic Guidance* in a document called “Sustaining U.S. Global Leadership: Priorities For 21st Century Defense.” This eight-page document outlined ten “Primary Missions of the U.S. Armed Forces” which were intended to align the Department of Defense with the 2010 *National Security Strategy*.¹⁵ Table 3.4 summarises these missions, which are largely still valid today.

Also, in the 2013 (U.S.) “Army Equipment Modernization Strategy”¹⁶ (AEMS), the U.S. Army discusses the challenges it anticipated having to face entering into what was thought to be a new post-OIF/OEF era. One of the most notable changes the Army foresaw was the potential to be called on to perform a much wider range of missions than it had traditionally performed in the past. This would be augmented today by discussions on facing peer adversaries. To achieve this goal, and in line with the aforemen-

Table 3.4
Ten “Primary Missions of the U.S. Armed Forces” as Outlined by the 2012 Defense Strategic Guidance

Mission
Counter Terrorism and Irregular Warfare
Deter and Defeat Aggression
Project Power Despite Anti-Access/Area Denial Challenges
Counter Weapons of Mass Destruction
Operate Effectively in Cyberspace and Space
Maintain a Safe, Secure, and Effective Nuclear Deterrent
Defend the Homeland and Provide Support to Civil Authorities
Provide a Stabilizing Presence
Conduct Stability and Counterinsurgency Operations
Conduct Humanitarian, Disaster Relief, and Other Operations

SOURCE: Office of the Secretary of Defense, “Sustaining U.S. Global Leadership: Priorities for 21st Century Defense,” United States Department of Defense, January 3, 2012, pp. 4–6.

¹⁵ Office of the Secretary of Defense, “Sustaining U.S. Global Leadership: Priorities for 21st Century Defense,” United States Department of Defense, January 3, 2012, p. 4.

¹⁶ Office of the Deputy Chief of Staff, G-8 Future Force Division (FDF), “Army Equipment Modernization Strategy,” 2013.

tioned *Defense Strategic Guidance*, the U.S. Army laid out 11 NDMs that it anticipated would characterise the new operational environment. A good example of how the U.S. Army tries to align its various planning documents with the higher-level strategic guidance documents is the 2014 (U.S.) “Army Equipment Modernization Strategy.” If we compare with the 2012 *Defense Strategic Guidance* cited above, one sees an almost one-for-one alignment (see Table 3.5).

The authors of the AEMS clearly took their cue from the *Defense Strategic Guidance*, and these missions map cleanly into each other. The one notable difference is that Space and Cyber are called out as separate but potentially overlapping mission sets. The benefit for the strategic planning process between the U.S. Government and U.S. Army is that these NDMs serve an important bounding function on the missions likely to be undertaken by the armed forces in the future. The next steps in the planning process would be to produce a list of prioritised responses.

Issue: Prioritising Roles and Missions Among Global, Regional, and Domestic Objectives, and Allocating Resources to Meet Those Mission Sets

Discussion

The 2016 Defence White Paper’s three Strategic Defence Objectives—supporting the United States in its global security mission, securing the near region around Australia in order to maintain open waterways and free trade, and defending and securing Australia itself—are considered equal in priority, and the government directs the ADF

Table 3.5
2014 AEMS Missions Mapped to 2012 Defense Strategic Guidance Missions

2014 AEMS Missions	2012 Defense Strategic Guidance Missions
Counter Terrorism and Irregular Warfare	Counter Terrorism and Irregular Warfare
Deter & Defeat	Deter and Defeat Aggression
Project Power	Project Power Despite Anti-Access/Area Denial Challenges
Counter-WMD	Counter Weapons of Mass Destruction
Space, Cyber	Operate Effectively in Cyberspace and Space
Nuclear Deterrence	Maintain a Safe, Secure and Effective Nuclear Deterrent
Homeland Defense/Defense Support to Civil Authorities (DSCA)	Defend the Homeland and Provide Support to Civil Authorities
Presence	Provide a Stabilizing Presence
Stability/Counterinsurgency (COIN)	Conduct Stability and Counterinsurgency Operations
Humanitarian and Disaster Relief (HADR)	Conduct Humanitarian, Disaster Relief, and Other Operations

SOURCE: Office of the Secretary of Defense, “Sustaining U.S. Global Leadership: Priorities for 21st Century Defense,” United States Department of Defense, January 3, 2012, pp. 4–6; Office of the Deputy Chief of Staff, G-8 Future Force Division (FDF), “Army Equipment Modernization Strategy,” Washington, D.C., 2013, p. 2.

“to use all three Strategic Defence Objectives to guide force structure and force posture decision making.”¹⁷ This directive has created tension inside an ADF that is small in both size and budget, and which must weigh the imperative to protect the nation against the requirements of global security support missions, even though to some extent they overlap in terms of resourcing a response and for how long. Figure 3.1 depicts the operational risk of choosing to act when a contingency arises. The range of options decreases as the threat or operational requirement moves closer to Australia’s borders or the near region.

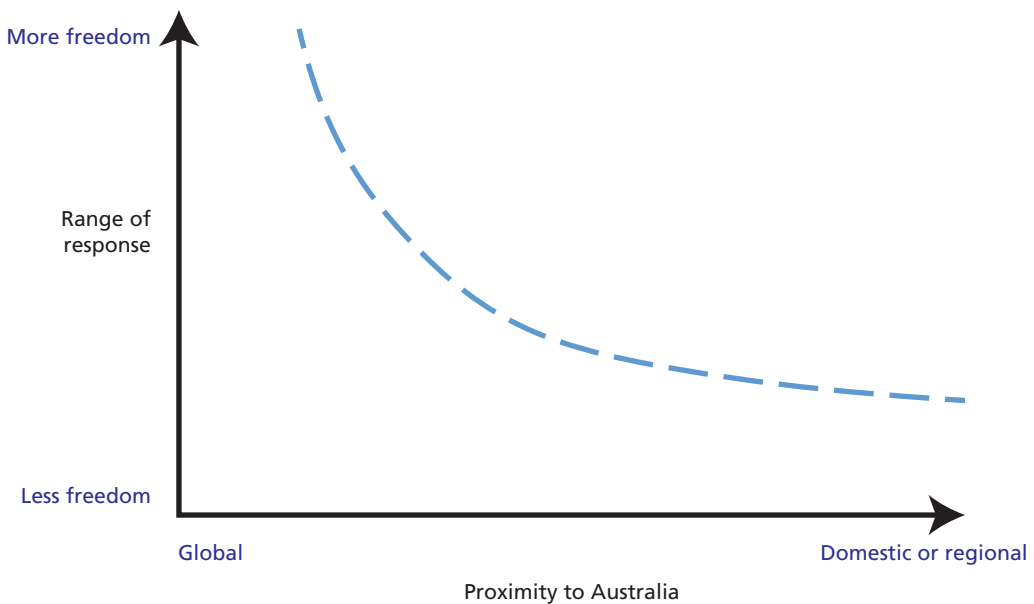
The Army does not have the resources to adequately train and maintain high readiness or preparedness levels for all three mission types equally and instead finds itself stretched thin trying to prepare for and accomplish all mission sets. Without prioritisation or an understanding of the areas of acceptable risk to Parliament, Army, and the ADFHQ, resources cannot be allocated to the “no fail” mission sets.

Recommendation

Develop a process for prioritising roles and missions based on intelligence community threat assessment products and a corresponding menu of responses.

In prior research for the U.S. Army, RAND developed a resource-to-requirements process map for helping determine resource allocation strategies based on uncertain

Figure 3.1
Defence Planning and Resource Allocation Are Linked to Balancing Global Security Support and Homeland Protection



RAND RR2382-3.1

¹⁷ Australian Government, Department of Defence, *2016 Defence White Paper*, p. 77.

global mission requirements. We have tailored that process for the present study as follows:

Step 1. Determine Global Threat

With the NDMs in hand, it became clear that the first question for any Army planner would become “How am I to prioritise my raise, train, and sustain activities across the National Defense Missions?” In the fiscally constrained environment, it is likely that our fiscal resources will be unable to sustain operations and high levels of training readiness to conduct all NDMs at the highest possible level. Thus, conducting some prioritisation amongst the missions is a valuable starting place for determining training and resource allocation priorities.

One way to ascertain or identify policymaker preferences for NDMs was to use the semiannual publication of the Office of the U.S. Director of National Intelligence (ODNI),¹⁸ the National Intelligence Priorities Framework (NIPF). According to a 2011 ODNI publication, *U.S. National Intelligence: An Overview 2011*:

The NIPF is the DNI’s [Director of National Intelligence] sole mechanism for establishing national intelligence priorities. The NIPF consists of

- Intelligence topics reviewed by the National Security Council Principals Committee and approved by the President.
- A process for prioritizing foreign countries and non-state actors that are relevant to the approved intelligence topics.
- A priorities matrix that reflects consumers’ priorities for intelligence support and that ensures that long-term intelligence issues are addressed.¹⁹

Building upon previous RAND work, the team grouped countries into appropriate combatant commands (CCMDs) and intelligence topics (where applicable) into NDMs. As this process map was designed to be modular, if a senior decisionmaker prefers a different intelligence product, such as G-2 analysis or their own threat assessment, this framework in no way differentiates what product or tool is used. Australia should look within the intelligence community, including other government agency (OGA) and Defence capabilities, to determine what to use.

Step 2. Select Most Likely Missions per Geographic Region or Theatre

Once the global threat landscape has been determined, the question becomes, how can this be tailored to each geographic region or theatre? Training focus and resources

¹⁸ There exist any number of methodologies one could employ to uncover these preferences. Examples include expert panels, surveys, focused discussions with individuals, and funding priorities. The RAND team chose to use the ODNI product as this method leverages an existing policymaker prioritization and obviates the need for RAND or the Army to either generate or collect such a prioritisation from the Australian Army.

¹⁹ Office of the Director of National Intelligence, “U.S. National Intelligence: An Overview 2011,” U.S. Government, 2011, pp. 49–50.

should be prioritised to the most likely mission set. This is an area of friction in Australia in that the most likely mission is supporting the global requirements in the Middle East;²⁰ however, the most dangerous missions are those occurring in Australia's borders and/or in the near region. This friction must be resolved at the policymaker level. An army that trains for everything in a fiscally constrained environment potentially reduces its overall level of preparedness for all missions. Building on the output of Step 1, a methodology for determining the policymaker's key focus areas for each geographic region is needed. If a prioritised list from the decisionmakers can be obtained, this is an ideal input, as it gives the Defence and Army planners the policymaker's key focus areas. In the absence of this type of prioritisation, defence strategic guidance, Defence plans, and other SMEs can be used in lieu of an enumerated preference list. It is important to note that each person who looks at the list will have their own implicit belief in the "likelihood" that they will be called upon to execute a given mission. This discussion is the very output the process is trying to elicit. The key outcome of this step should be at the least a first-cut priority list for further discussion, and ideally a vetted and senior leader-approved subset of the NDMs of highest priority for the geographic regions.

Step 3. Determine Response

After a prioritised list of missions for the regions has been developed, the next step is to determine how best to respond to emergent threats or risk being ill-prepared for the full spectrum of missions. Indeed, one of the most difficult parts of this process is determining a cut-off point for the list due to fiscal constraints and a shortage of Army enabler capabilities that in some cases are shared with the OGA to support national requirements. Sometimes one must accept the risk associated with not preparing for a certain mission. Obviously, deciding on a list of priorities or even "most likely" scenarios is easier said than done; however, having that debate and locating it and its conclusions within the larger planning process is critical.

Determining the appropriate response to each mission involves both an SME determination of the anticipated level of difficulty involved in executing the given missions and command discussions with senior leadership regarding the level of commitment likely to be required to support the mission. These discussions are necessary in order to as accurately as possible reflect the reality on the ground in the region. The previous RAND work assessed CCMDs as the regional- and command-level subdivision. While Australia might consider assessing the NDMs across its geographic focal areas, we demonstrate the map using the U.S. CCMD construct. As all CCMDs have a different mix of countries with a variety of levels of development and threat environments, one

²⁰ The term "likely" as it is used in this context is not meant to imply a statistical probability of the Army being called upon to execute a given NDM, but rather the relative importance of the mission to senior decisionmakers. For instance, if HADR is selected as a "likely" mission for SOUTHCOM, the term does not imply a belief that SOUTHCOM has a high probability of the region experiencing a HADR mission, but rather that *if* a HADR mission were to come along, the armed forces would have a higher likelihood than not of being tasked by policymakers to respond.

CCMD might have a need to prepare for high-intensity Humanitarian and Disaster Relief (HADR) missions. Another may have a need to stock for lower-intensity HADR missions, but have a need for a large variety of equipment to be stocked to meet steady-state presence missions and rotational exercises. Table 3.6 details a notional matrix for how each NDM might be sized for each CCMD, with the “intensity” of the mission being described on a scale of high, medium, or low.

Step 4. Determine Notional Task Organisation

Goals set forth for Army should be capability-based, to support of domestic, regional, and global mission execution with agility, speed, and the ability to operate in any environment as a driving force in modernisation efforts. These efforts should be in place to prepare the joint force for multifaceted and undefined contingent operations.

Development of the notional task organisation model involves the determination of which units could or will be employed in the execution of theatre strategies by analysing events in the operational environment to execute specific scenarios. Developing options to set conditions for achieving strategic end states translates these choices into an integrated set of steady state unit engagements, security cooperation, and deterrence activities described in campaign plans, formal products of the planning system, and operational plans (OPLANS).

Regarding the specific menu of response options, we recommend that ADF and the Army develop a codified suite of response packages for planning and resource allocation purposes. Table 3.7 lists the options we identified based on data collected through the literature review and SME interviews—listed in order from most to least demanding.

The most dangerous and demanding mission or role involves the deployment of a combat brigade and serving as battlespace owner conducting high-intensity conflict.²¹ As will be discussed below, this would require breaking the current FORGEN model to accomplish—as will most deployments short of a small deployment of enabled land forces; and gaps exist in the capabilities required to serve in the role of battlespace owner. Even if not in the role of battlespace owner, deploying a combat brigade for high-intensity conflict is still a major and dangerous undertaking in spite of taking away the onus of area of responsibility (Area of Operation [AO]) leadership.

The next most demanding option is the deployment of a major joint task force (JTF) headquarters as the framework nation, defined as the lead nation who is responsible for providing division level direction and coordination during a conflict.

²¹ A battlespace owner:

- is normally the Supported Commander in an Area of Operation
- synchronises lethal and nonlethal actions
- manages land use
- is responsible for situational awareness (Friendly, Neutral, and Enemy)
- is responsible for fire support control measures

Gary Luck, *Insights on Joint Operations: The Art and Science*, Joint Warfighting Center, September 2006, p. 15.

Table 3.6
Notional Response Sizing Matrix by Combatant Command

	CT/IW	Deter & Defeat	Project Power	C-WMD	Space	Cyber	Nuclear Deterrence	HD/DSCA	Presence	Stability/COIN	HADR
CCMD 1	High	Low	Medium	Low	Low	Low	High	Low	Medium	Low	Low
CCMD 2	Medium	High	Medium	High	Low	Low	Low	Low	Low	Low	High
CCMD 3	Medium	Low	Low	High	Low	Low	Low	Low	High	Low	Medium
CCMD 4	Low	High	Low	Low	Low	Medium	Low	Low	High	Medium	Low
CCMD 5	Low	Medium	High	Low	Low	High	Medium	High	Low	Medium	Medium
CCMD 6	Low	High	High	Low	Low	Low	Medium	Low	Low	Medium	Low

NOTES: These response sizings are intended to be purely notional, and not to reflect any particular CCMD. Ideally, each CCMD would have G2/G3 fill in the rows, or could use historical mission profiles as a guide.

Table 3.7
Menu of Australian Army Response Capabilities (from Most to Least Demanding)

Response	Description
Combat brigade conducting high-intensity conflict as battlespace owner	Most demanding capability package currently set as a potential goal of Army's force design concepts; requires capabilities that are current Army gaps
Combat brigade conducting high-intensity conflict not as battlespace owner	Next most demanding capability package currently set as a potential goal of Army's force design concepts
Major joint task force (JTF) headquarters as the framework nation	Two-star-commanded contingency headquarters capable of serving in the lead role in an area of operation—with the ability to support and sustain coalition forces from partner nations
Minor JTF headquarters as the framework nation	One-star- or colonel-commanded contingency headquarters capable of serving in the lead role in an area of operation—with the ability to support and sustain coalition forces from partner nations
Major JTF headquarters not as the framework nation	Two-star-commanded contingency headquarters capable of plugging into an existing command framework of another nation
Minor JTF headquarters not as the framework nation	One-star- or colonel-commanded contingency headquarters capable of plugging into an existing command framework of another nation
Ready Battle Group (RBG)	Organic or task-organised battalion with enablers capable of deploying to plug into existing command framework of another nation and/or on its own for certain missions in the homeland or near region
Enabled land forces—less than RBG in size	Organic or task-organised formations that are functional in nature and not necessarily less than a battalion in size with enablers capable of deploying to plug into existing command framework of another nation and/or into the Joint force or the OGA of Australia in any region

For Australia, this is a major goal for missions in the near region for both major and minor JTFs.²² Based on our earlier discussion of NDMs, not all operations feature intense combat. However, the magnitude of taking the leadership and providing the supporting infrastructure required to serve in this role would tax a small force. This is especially the case in terms of this headquarters representing Australia well on the world stage. This deployment response, too, would break the current FORGEN cycle. As with the combat brigade as a battlespace owner, gaps exist within Army that significantly hinder Australia's ability to support playing a leadership role. We discuss these in subsequent challenges.

While the minor JTF headquarters as framework nation is less of an undertaking than a major JTF requirement, the gaps are still applicable when considering the minor JTF level. If the framework nation is removed, the FORGEN model is still broken in both cases at the minor level based on the relative size of the Australian Army and what

²² Forces Command, interview with the authors, Rockhampton, Queensland, Australia, July 22, 2017.

it takes to deploy any sizeable capability that is expected to execute effectively over a sustained amount of time.

Today, a Ready Battle Group (RBG) “is the Army’s highest readiness conventional contingency force.”²³ Although there is a move towards training with larger elements, currently Army is organised by battle groups and the largest entity is an RBG which is a battalion-sized element along with its enabler elements.²⁴

The size of the Army still makes even the enabled land forces of less than battalion size and not necessarily in a combat role a recognisable burden. Correspondingly, the size and mission of the needed capability matter with respect to the toll on the remainder of the uncommitted force. It is noteworthy as well that if the deployed capability exists within the enabler ranks, it is frequently one-deep and overused. The lack of redundant capability poses a risk in the event a concurrent need arises.

Step 5. Conduct Cost Analysis

After deciding on potential response options, the next step in the process is to determine how much each option would cost—to forecast downstream resource allocation requirements. Specific actions that should be considered and implemented include setting budgets that take, at a minimum, the following into account: historical trends, lifecycle costs, and currency exchange rates for procurements. Currently, inside the ADF, the Vice Chief of Defence Force leads an Investment Committee to determine fund allocations to each capability. Australia would also benefit from including cost-benefit analysis as part of the decisionmaking process for major undertakings.

Another cost-analysis related issue we identified is that Parliament expressed difficulty in seeing how the Army spends its money.²⁵ (The U.S. Congress has had this concern about the U.S. Army as well.²⁶) The Australian Parliament also discussed what might help them better understand the needs of Defence and Army. The Joint Standing Committee on Foreign Affairs, Defence and Trade convened a subcommittee session on February 2, 2017 to discuss the Department of Defence annual report 2015–2016 and how Defence can better communicate its performance to Parliament. The session included two private-sector experts, with experience in Defence, who provided commentary and articulated Parliament’s role in the planning process with Defence. They emphasised the need for better disclosure of cost data. More specifically, Dr Mark John Thomson, a private-sector consultant who has

²³ Australian Army, “Commanding Officer, 1st Royal Australian Regiment: LTCOL Ben McLennan,” *NSC News*.

²⁴ Australian Army, “An Aide-Memoire,” April 2014.

²⁵ The U.S. Congress has made similar complaints about U.S. Army spending. See, for example, Ann Reese and Ryan Crumpler, Discussion with House Appropriations Committee, Defense Subcommittee, and House Armed Services Committee Staffers, interviews with Dan Madden, Dwayne Butler, Kurt Card, and Winfried Boerkel, Santa Monica, Calif.: RAND Corporation, November 4, 2011.

²⁶ Reese and Crumpler, Discussion with Committee Staffers.

spent the last 15 years analysing and writing about the performance of the Department of Defence, expressed the following:

. . . there is the issue of improved reporting on the cost and status of ADF capability. Until 2007–08, Defence reported on the cost and status of 22 individual areas of military capability. Today, Defence reports expenditure on the basis of its organisational structure as opposed to its capability outputs, and the status of military capabilities is aggregated up to the level of the individual services. As a result, for example, rather than reporting preparedness across 22 separate capability areas, as was previously the case, there is now preparedness reported for each of the three services. At the same time, the narrative discussion of the status of ADF capabilities has been reduced substantially. It is my understanding that Defence has made great progress in tracking both the cost and the status of its various military capabilities. It is disappointing, therefore, that the improved internal understanding has been accompanied by a drastic reduction in public disclosure.²⁷

Dr Andrew John Davies, another expert who testified before Parliament, added

Let me make one request, that the table of costs supporting the various capabilities last seen in the 2006–07 annual report be reinstated. It was extremely useful for calculating through-life cost estimates and for monitoring resources being consumed by various force elements. Among many other things, it enabled me to spot and write about the under resourcing of Collins submarines sustainment a couple of years before the nadir in submarine availability that embarrassed Defence and successive governments and which made the Coles review necessary.²⁸

The previous reporting system may indeed provide a useful platform from which Defence and Army can draw lessons identified to better capture costs for Government based on the present-day articulation of lack of fidelity.

Enterprise-Level Risks

Issue: Communicating Capability Gaps Among Government, ADFHQ, and Army

Discussion

There exist several documents inside Australian Defence that connect Defence objectives from the strategic to tactical levels. As discussed above, the 2016 Defence White Paper is Parliament's contract with the ADF; it indicates what resources will be allocated to the ADF and what capability is in turn expected out of ADF. Next is the Chief

²⁷ Commonwealth of Australia, "ParlInfo: Joint Standing Committee on Foreign Affairs, Defence and Trade, 17/02/2017," Department of Defence annual report 2015–16, Canberra: February 17, 2017.

²⁸ Commonwealth of Australia, "ParlInfo."

of Defence's Defence Planning Guidance (DPG), which is supposed to translate the strategic objectives laid out in the 2016 Defence White Paper into operational goals. Several Army leaders complained, however, that the DPG "lacks clarity of the required capability sets Army is tasked to develop and maintain through to Raise, Train, Sustain."

This lack of clarity has left gaps in the understanding of Army's roles and mission sets. During several interviews, we observed that Army officials found it difficult to describe the Army's capabilities and gaps. When we asked what kind of Army element (what size) could be ready now in the event of a contingency operations, the responses varied greatly, from Battalion Ready Group to major JTF. How long people said these elements could be sustained also varied. Army officials were aware of capability gaps impeding fulfilment of strategic objectives, but they could not describe it with precision or quantify its magnitude in terms of cost. There are systems in place for budget estimates and tracking expenditures, but they reportedly do not capture certain costs such as the price of training exercises. What the Army can actually provide in certain scenarios as a part of a coalition or framework nation may not be well understood inside Army and therefore not well articulated to Government.

Recommendation

Analyse the communications processes and content streams between Army and ADFHQ, and ultimately to Parliament to identify problematic areas.

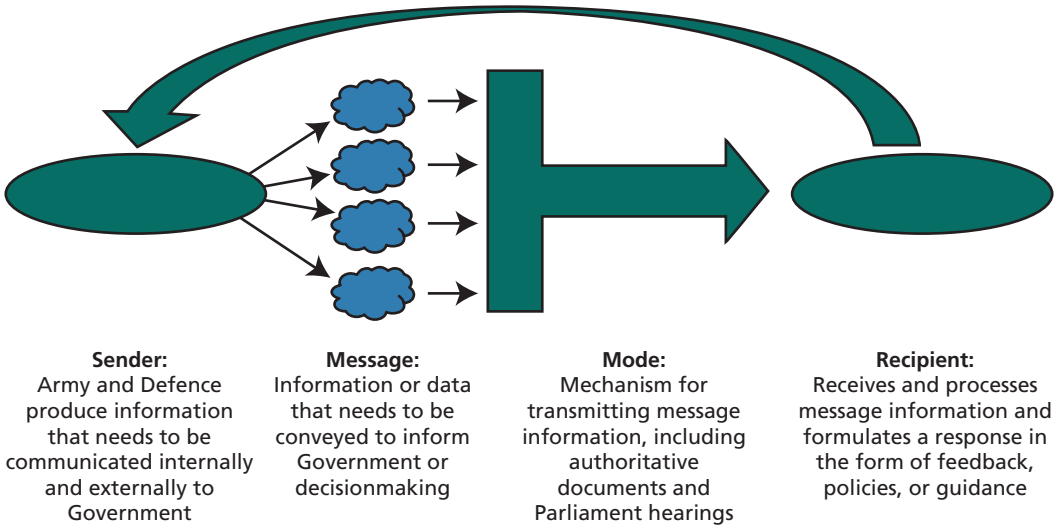
Communications challenges are best analysed through classic communications models. To that end, the team applied an adapted form of Berlo's classic Source-Message-Channel-Receiver (SMCR) model²⁹ to view relationships between critical elements or nodes of the Army to ADFHQ to Government strategic communications process. Figure 3.2 is a graphic depiction of the key elements and the feedback required for effective communication between the sender and receiver of whatever message is being passed.

In the first node, the Sender produces information that needs to be communicated. The senders in this case are Army and Defence. Army is responsible for representing itself as a service and must fulfil the information requirement imposed on it by Defence. Defence has the responsibility of requesting information it needs to provide situational awareness and to inform decisions both within its own ranks and at the government level. Each sender must be transparent and disclose as much as possible and to provide the information in a timely manner to inform decisionmaking.

The information is then communicated as messages in the second node (Message) via the third node (Mode) which can be through the human voice, in writing, or through electronic transmission. Process and/or content issues can impede communication. The

²⁹ David Berlo, *The Communications Process: An Introduction to Theory and Practice*, New York: Holt, Rinehart, and Winston, 1960. Berlo's model was chosen because a feedback loop depicted the relationship among Army, ADFHQ, and Government in a concise and clear manner in order to illustrate broadly the nodes in communication. RAND acknowledges there are other, more contemporary and detailed models that could be used in a comprehensive look at the communications process.

Figure 3.2
Modified Berlo Communications Framework



SOURCE: Adapted from David Berlo, *The Communications Process: An Introduction to Theory and Practice*, New York: Holt, Rinehart, and Winston, 1960.

RAND RR2382-3.2

communications mechanisms or processes might be efficient and effective; however, issues with the content of the message might still exist. For example, there is a lack of clarity in the cost data that ADF is sending to Parliament, and both Army and Defence also recognise the need to improve the content of messages to Parliament about challenges and risks. The venues and written requirements are functioning as they always have; however, the content of the sends have “waxed and waned”³⁰ over the years. A deliberate analysis of the communications effort in problematic areas could reveal where the issues in the communications feedback loop exist.

While the focus of this discussion is on strategic planning and resource allocation, it is noteworthy that any type of message information between Army and Defence and Army and Parliament can be analysed through this approach. We recommend that Army conducts deeper analysis into problematic content areas on its own or in tandem with Defence and/or Army to ensure that its message is being effectively sent and received. (The recipients of information also are responsible for understanding what is sent. However, Parliament, to its credit, is working with private experts and Defence leaders in their respective committees to advise it. Parliament also has members with military experience. Senator Linda Reynolds, for example, reached the rank of Brigadier General in the Army Reserves.³¹)

³⁰ Commonwealth of Australia, “ParlInfo.”

³¹ Parliament of Australia. “Senator Linda Reynolds CSC,” *Parliament of Australia*, March 17, 2016.

Issue: Sharing Army Capabilities with the Joint Force and Other Government Agencies, Most Often Those Enablers that Are High-Demand/Low-Density Capabilities

Discussion

The capabilities inside the Army that have the fewest resources but are needed the most are enabler functions such as electronic warfare, cyber, health, intelligence, and information operations, which reside in the 6th, 17th, and 16th Brigades. There are two factors causing this problem. The enabler brigades compete with combat brigades for resources and often lose, getting a smaller share of the budget in an army that already receives the smallest share of the total defence force budget.³² At the same time, enabler brigades have to keep up with the FORGEN cycles of the manoeuvre brigades, which is a challenge because there are fewer of them. Enabler brigades tend to have only one to two rotational units while there are three MCBs in the training rotation, and the enabler units must be present whenever one of the three combat brigades train. Also, Army enablers support Joint forces (a responsibility not considered in Plan Beersheba); this means that they are tasked with supporting Joint exercises or operations. During Joint exercises or operations, Army enablers such as 6th Brigade are expected to provide theatre-level support. Additionally, cyber defence and intelligence enabler units often must support OGAs that lack resources in those areas.

The 2016 Integrated Investment Program prescribes a ten-year plan for funding various capabilities to meet the strategic goals in the Defence White Paper. While the plan stipulates that only 18 percent of the budget would be for land combat and amphibious warfare, it does set aside 25 percent of the total budget for key enablers, and another 9 percent for ISR, EW, space, and cyber. This indicates Defence is aware of shortages in these capabilities. However, it also mandates that enablers be treated as a Joint capability. Although Army and ADF are aware of the need to function as a joint force, it has not sized the enabler units accordingly; this has had detrimental effects on enabler unit personnel and readiness.

Recommendation

Implement a comprehensive force management review process to determine total demand for Army capabilities.

Sharing security responsibilities across agencies is a common practice. Examples in the United States include service members from the fields of chemical, biological, radiological, and nuclear defence (CBRN defence) and Explosive Ordnance Disposal (EOD) serving as part of the domestic response package. The United States is indeed larger; however, these are still examples of high-demand/low-density capabilities that are shared with government. The crux of the challenge is determining how much capability (specifically, what force structure) is needed to absorb these shared requirements.

³² Future Design, interview with the authors, Canberra, Australian Capital Territory, July 26, 2017: around 15% of the budget.

To try to overcome capability challenges related to force structure, the U.S. Army employs a system called the Total Army Analysis (TAA) program that enables the Army to analyse its mission requirements and use the analysis to advocate for specific resources during the budget planning and execution phases. It is an authoritative process by which the Army determines if it has the right force structure to fulfil its obligations. Or, to cite the official language, TAA is “the recognised Army process that links strategy to force structure and serves as the bridge between Office of the Secretary of Defense/Joint Staff guidance and the Army’s planning and programming processes, balancing the Army’s force structure requirements with available and planned resources.”³³ See Appendix B for a full description of the TAA process.

The U.S. Army does not size the force using TAA, but rather the TAA is a means to examine a projected Army force from both qualitative and quantitative perspectives, conducting a two-phased approach to determine the shape of each Army component. The TAA relies upon negotiation (communication) among stakeholders to identify manpower requirements and resourcing levels, within given constraints. The first phase of TAA (Capability Demand Analysis) results in a set of demands for each Army capability, regardless of component. The Center for Army Analysis (CAA), which has the lead for TAA, models efforts using DoD-approved scenarios to determine the demand for operational forces. The Army staff, led by Headquarters, Department of the Army G-3/5/7 Force Management, uses the CAA’s findings to shape the overall Operating Force (OF).

The second phase of TAA (Resourcing) uses the demand analysis results and best military judgement to determine how much of that force the Army can afford to develop and sustain, and serves to establish the force mix within the Army and each component. During the qualitative analysis, all Army components have direct input in the distribution and allocation of force structure. This portion of the process relies upon negotiation (communication) among stakeholders to work within constrained manpower, equipping, and funding thresholds when determining the Army’s force mix, composition, and allocation of force structure across all components.

A comprehensive force management review process could offer two key benefits to Australia: (1) a systematic way to use mission demand signals to plan for capability requirements; and, closely related, (2) the incorporation of a rules of allocation system like that employed by CAA to provide analytic rigour when determining how much functional capability the Army requires to meet mission demands. The outputs of these initiatives will also help the Army communicate its needs to Defence and others. According to several of our interviewees, the Australian approach is different, for rather than basing resource allocation on a demand signal, the current rules are based on practices such as “fair share manning.”³⁴

³³ U.S. Army, “Total Army Analysis,” National Commission on the Future of the Army, April 10, 2015.

³⁴ 17th Brigade, interview with the authors, Rockhampton, Queensland, Australia, July 23, 2017.

Issue: Misaligning the Vision of Being a World-Class Army with the Resources (Capabilities, Size, Sustainment, Funding, Time) to Achieve It

Discussion

Army sees itself as a “world class, cutting-edge military force, comprised of professional men and women who provide a versatile and modern team, protecting our country, our interests and our people.”³⁵ As Army grows and strives to increase its role in global security (i.e., being a framework nation), it relies heavily on “robust modernisation and planning program[s]” and its “comprehensive and world-class training” to maintain its “commitment to excellence.” This is evident in the major training exercises that Army conducts, which, although they are considered “an essential part of [success],” have proven to be unsustainable in the current FORGEN model. In an Army with a little over 29,000 active members, the last major exercise (Talisman Sabre 2017³⁶) required participation from 14,000 members—breaking the current FORGEN model by using all enabler units and two of the three MCBs. There is at least one major exercise a year—Hamel or Talisman Sabre—that require one-third of the force. Combat rations are cleaned out every year.

Additionally, the Army has been procuring new equipment with higher capabilities (for example, armoured vehicles [Project LAND 400]) and modernising other equipment, such as ARH Tiger and CH-47 Chinook aircraft, in compliance with this elite Army vision.³⁷ However, sustaining this equipment has proven to be challenging with large exercises. Army leadership in sustainment and logistics stressed that although Army culture strives to be the best, they don’t have the resources to be the best or have the best. Resources are being drained in an unsustainable way.³⁸

Recommendation

Prioritise missions and validate the vision for operational effectiveness with Parliament and develop a plan to upgrade capabilities in accordance with the collaboratively communicated plan and vision.

³⁵ “Australian Army,” *DefenceLife*, November 29, 2016.

³⁶ Talisman Saber is a joint U.S. and Australian Army exercise that happens once every two years in the northeast corner of Australia. In years where there is no Talisman Saber, there is an exercise for the Australian Army only called Hamel, which still requires one-third of Army resources.

³⁷ Army Modernisation projects, see <https://www.army.gov.au/our-future/modernisation-projects>:

- Project LAND 400: replacing armoured vehicles with enhanced armoured vehicles with improved “fire-power, protection, mobility and communications”
- Project LAND 200: upgrading digital radios with Battle Management Systems
- Project LAND 121: replacing old vehicles with “current-generation, high-capability field vehicles, modules, and trailers”
- Aviation projects to have four aircraft (Shadow 200, MRH90, CH-47 Chinook, ARH Tiger) undergoing “capability assurance programs”
- Project NINGAU: providing vehicles to help detect, clear, and bypass IEDs.

³⁸ Land Logistics Directive, interview with the authors, Canberra, Australian Capital Territory, Australia, July 26, 2017.

Army cannot afford to buy its way into world-class status without the endorsement and funding from Government. Conversely, Government cannot envision having a world-class army without properly resourcing Army to achieve this status.

To improve the consistency between the vision for the Army and its resourcing, a first step is for the Australia stakeholders in the Defence system to agree on how the Australian Army will be described and defined. The Australian Army describes itself as “world-class.” Army’s conceptual vision for world class focuses on training, capabilities (which includes modernisation), and developing a culture of excellence. Army also acknowledges that a minimum suite of capabilities must exist to truly achieve its definition of world class. Army leadership at the Talisman Sabre 2017 After Action Review (AAR) indicated that two mission-related capability gaps exist that negate the claim. The first is that Army lacks the ability to serve as a framework nation or to lead a coalition force in a fight; the second is the inability to own a battlespace above the battalion level in a coalition fight.

Once the descriptive term is agreed upon, conditions should be set for prioritising what will be procured and to what order of magnitude, as well as how it will be sustained and to what order of magnitude—in terms of formations, people, and materiel. There seems to be a bit of identity confusion that is easily resolvable with the declaration of what the Australian Government intends for Army to be and to what order of magnitude. This might have cultural manifestations as well as tangible secondary effects like reductions in OPTEMPO.

Issue: Connecting Lessons Identified to Concepts to Actual Doctrinal and Process Upgrades

Discussion

Multiple interviewees mentioned the need to better leverage lessons outputs into the generation of doctrinal and process-related updates in the Army. The Australian Army takes pains to capture lessons; one example of this effort is Talisman Sabre AAR observed by our team. The question remains as to how well lessons are translated into concrete suggestions and implemented. Our research team also repeatedly heard in interviews that certain processes need to be updated.

Army has a deliberate process in place to manage lessons in the area of modernisation. In early March 2014, the Chief of Army’s Senior Advisory Committee (CASAC) directed the Head of Modernisation and Strategic Planning–Army (HMSP-A) to undertake a significant study of Army’s institutional lessons of the past 15 years. The study was to be supported by all areas of Army and to include an extensive review of Army’s performance by external organisations. While Army’s webpage for the study notes that the Army’s “ability to identify tactical and operational lessons and make changes in response is robust, largely due to the dedicated work of organisations such as the Adaptive Warfare Branch, Centre for Army Lessons and the Combat Training Centre,” they

also point out challenges associated with “longer terms [sic] lessons at the institutional level that affect all of Army.”³⁹

Army recognises that learning lessons from operational experience—and encoding key elements of those lessons in the force—is a core function of professional military organisations. Accordingly, the Chief of Army directed the Army Institutional Lessons Study to collect observations from those serving in Army, those who have retired, and those outside Army who have worked with the organisation to identify how effective Army has been in raising, training, and sustaining land forces and how Army interacts with non-Army organisations to retain broad utility for future operations. These lessons were intended to inform modernisation initiatives through The Army Plan Review Cycle (TAPRC) and to aid in preparing and adapting in the future, particularly during periods of sustained operations.

The Lessons Study’s focus was an examination of Army’s structure, processes, policies, and decisions since 1999. The Directorate of Force Development–Army sought “contributions to the study from the widest possible audience including serving and retired military personnel, interested members of the public and academics.” There was also a plan to “implement standing arrangements for the continued capture of institutional lessons.”⁴⁰

Recommendation

Use lessons identified processes to update doctrine, policy, and guidance.

Army had the appropriate level of leader support for its macro-level lessons initiative and clearly dedicated structure to implement the program. Given that there were still reported concerns in the implementation of lessons identified, we concluded the issues may lie with execution and implementation—and therefore offer some potential tactical solutions. Butler and colleagues, in a study for the U.S. Department of State,⁴¹ codified three strategic approaches by which organisations can drive lessons programs and/or the transfer of knowledge. The first approach they describe, adopted from the commercial sector, is known as Business Process Management (BPM). The second approach is known as Corporate Learning, and the third approach is a hybrid of the former two. Corporate Learning is a holistic approach to capturing and disseminating best practices through an institutionalised culture of learning. Corporate Learning tends to emphasise knowledge and knowledge sharing, while BPM tends to emphasise process and process improvement.

BPM is a strategy to improve organisational performance by focusing on end-to-end business processes. Michael Hammer, a renowned organisational theory expert,

³⁹ Australian Army, “Army Institutional Lessons Study,” *Army*, September 7, 2016.

⁴⁰ Australian Army, “Army Institutional Lessons Study.”

⁴¹ Dwayne M. Butler, Angelena Bohman, Christina Bartol Burnett, Julia A. Thompson, Amanda Kadlec, Larry Hanauer, *Enhancing Next-Generation Diplomacy Through Best Practices in Lessons Learned*, Santa Monica, Calif.: RAND Corporation, RR-1930, 2017.

describes BPM as “a comprehensive system for managing and transforming organisational operations.”⁴² Business Process Management is the corporate-level strategic approach to managing business processes that employs and synthesises various management trends and tools to achieve its goal of improving organisational processes and procedures. Some tools of BPM include Lean Six Sigma, an approach to management that focuses on eliminating waste or unnecessary steps in any process while assuring quality remains high, and Business Process Reengineering, improving a process by completely redesigning it from beginning to end.⁴³

Corporate Learning is defined as “the capacity of an organisation to acquire, apply and share knowledge for the purpose of exploring new solutions and exploiting them to improve efficiency and competitive advantage.”⁴⁴ According to Shlomo Ben-Hur, a well-published professor of Corporate Learning, there are three main stages of Corporate Learning:⁴⁵

1. Acquiring Knowledge
2. Applying Knowledge
3. Sharing Knowledge.

The U.S. Army has several lessons capabilities as described above—for example, U.S. Army Center for Lessons Learned (CALL) and the U.S. Army Office of Business Transformation (OBT). CALL is the lead proponent for enterprise corporate learning and is part of the U.S. Army Training and Doctrine Command. This allows for ease in the generation of lessons identified to policy and doctrine changes. More than a decade after the Army demonstrated its ability to incorporate cutting-edge business management practices into its operations, it officially created the OBT in 2009. Its mission is to “continuously assist the Army in transforming its business operations across the Army enterprise to more effectively and efficiently use national resources” (U.S. Army Office of Business Transformation, 2016), utilising business process reengineering (BPR), among other tools, to improve business operations (U.S. Army Office of Business Transformation, 2014).

We recommend that the Australian Army first figure out what needs to be learned, both from internal feedback mechanisms and from external demands on the system. Next, they must test this new knowledge and apply it to improve their doctrine and policy. Lastly, this new knowledge must be shared throughout the organisation.

⁴² Michael Hammer, “What is Business Process Management?” in Jan vom Brocke and Michael Rosemann, eds., *Handbook on Business Process Management 1*, 2nd ed., Berlin and Heidelberg: Springer-Verlag, 2015, p. 3.

⁴³ “Business Process Redesign—BPR,” *Investopedia*, 2017; Anya Ulinich, “Lean Six Sigma,” *Investopedia*, 2017.

⁴⁴ Shlomo Ben-Hur, *Corporate Learning*, Lausanne, Switzerland: International Institute for Management Development, 2011.

⁴⁵ Ben-Hur, *Corporate Learning*, 2011.

Corporate Learning is described as a holistic approach to capturing and disseminating best practices through an institutionalised culture of learning. BPM is “a comprehensive system for managing and transforming organisational operations.”⁴⁶ Corporate Learning tends to emphasise knowledge and knowledge sharing, while BPM tends to emphasise process and process improvement.

Issue: Current Risk Framework Not Being Well Integrated; Army Lacking Standard, Well-Defined, Widely Understood System for Tracking Enterprise Risks or Challenges

Discussion

Army and ADF have a current system for identifying Army challenges. These efforts are mainly orchestrated in concert with DSTG and generally include the following steps: (1) research leaders propose issue areas and a methodology for studying them; (2) they provide proposals to a one-star board; (3) they then provide the proposals to a two-star forum; and then submit them to a Defence Investment Committee. This is a bottom-up (versus a top-down) approach that is conducted annually. Studies take years to complete with the potential for concurrent spinoffs. Still, there is evidence of Army nesting into national programs like the Defence Risk Management Framework to improve its own risk framework.⁴⁷

The Department of Defence did release the top Enterprise Risk Areas in the 2015–2016 Defence Corporate Plan—the first Defence Corporate Plan.⁴⁸ However, this list did not describe or define any of the elements on the list and the next iteration of the Defence Corporate Plan (2016–2017) had no list of Enterprise Risk Areas, but instead defined the three levels of risk as discussed in Chapter Three.

Recommendation

Establish an integrated process that tracks gaps from the tactical levels of the services up to the strategic level to be overseen by Government.

DSTG is already playing a major role in this challenge area and is key in helping better connect the various disparate systems in place to track the gaps that currently exist. This will ensure thoroughness in determining the risk areas prior to prioritising gaps for allocation of resources. Leveraging the DSTG in this role would initially reduce the need for an increase in authorisations. Whatever system or program selected is put in place for an interim or long-term solution, the process should be standardised to ensure repeatability from year to year. We recommend that Army work with Defence to be deliberate about establishing an integrated system for capturing, validating, prioritising, tracking, reporting (communicating), and monitoring the progress on resolving gaps.

⁴⁶ Hammer, “What is Business Process Management.”

⁴⁷ DSTG, interview with the authors, Canberra, Australian Capital Territory, Australia, July 27, 2017.

⁴⁸ Australian Government, Department of Defence, *2015–2016 Defence Corporate Plan*, p. 4. The risk areas were: joint force-in-being, workforce, cost management, ability to reform, compliance, work health and safety, protective security, Government security and vetting services, and information management.

Issue: Army Naming Conventions for Capabilities Misaligning or Poorly Integrating with Naming Conventions for Joint Capabilities

Discussion

Although funding is joint and allocated by the Vice Chief of Defence Force, the naming conventions for capability portfolios in the Army are not aligned with those of the rest of the Joint community. Currently, there are nine Army programs but 40 programs at the ADFHQ level, and the nine do not align with the ADF Land Warfare capability. The amphibious capability, however, is an example of a portfolio that does exist at the joint level with both Army and Navy involvement. The joint warfare council is moving towards more of a joint capabilities realisation plan that includes capabilities beyond the amphibious forces, but those initiatives are still in the early stages.

In addition to considering joint capabilities, the Australian Army needs to be interoperable with partner nations, such as the United States. Achieving interoperability entails having systems that can communicate with one another. For example, both the Australian Army and U.S. Army have Advanced Field Artillery Targeting and Direction Systems (AFATADS), which Australia bought to be interoperable with the United States. However, there remain challenges; for example, the system is not backwards-compatible, so in order to communicate all parties must be on the same software patch.⁴⁹

Recommendation

Develop and implement a naming convention for the capability portfolios that better aligns with the joint structure.

A number of interviewees spoke of the Land Force as a system operating within the larger joint community. This suggests the value of taking a system-of-systems approach and aligning subsystem capabilities under the overarching Land Force system. This joint core design concept would better support the “Joint by Design” aspirations of the Army and ADF, and would better streamline the Army systems at the highest level. While there would still exist a need to itemise the individual subsystems or platforms, this is a better alternative than how some interviewees described the Army systems now as being too scattered and distributed, or felt as if the land capabilities were being “plugged in” to overall joint environment as opposed to being a part of the Land Warfare as a core organic element.

Regarding the itemisation of subsystems, weapon systems, or programs, the naming conventions for these individual portfolios or capability buckets can still be aligned to better fit joint naming conventions. Focusing at the system-of-systems level and at the individual subportfolio level will allow the Army to achieve as much joint compatibility as possible. Land Warfare is already conducting a study of how best to align the Army’s naming conventions with those of the joint community and should continue to explore courses of action to that end. The models of other nations might be considered in this

⁴⁹ Future Land Warfare, briefing with the authors, Canberra, Australian Capital Territory, Australia, November 29, 2017.

analysis as well as might selecting naming conventions that resonate with Members of Parliament so that they are better able to understand the Army and what it needs.

Issue: Managing Growth of Army in Accordance with Defence White Paper and the Defence Planning Guidance

Discussion

Defence growth is articulated at the highest levels in terms of spending increases as percentages of GDP, with fidelity sometimes lost below that level. The Government plans to increase the defence budget to 2 percent of the GDP by 2020–2021, “providing an unprecedented investment in Australia’s defence capability.”⁵⁰ Additionally, the Permanent ADF workforce will grow to 62,400 from the current 58,000, which is the largest the ADF has been since 1993.⁵¹ At the Defence and Army levels, growth manifests as forces or manpower increases, more materiel, or increased capability, as a few examples. Growth must be deliberately managed and monitored, regardless of the area, formations, budgets, materiel, and so on.

Precisely how much the Army will grow is yet to be determined, although Plan Beersheba makes clear the Army’s commitment to modernisation and adapting to meet the demands of current and future security environments. It is a particularly substantial enterprise initiative that includes a comprehensive force restructuring program to modernise the Army’s combat and combat support elements. However, growth is often a complex undertaking that must be deliberately managed. Growth begets bureaucracy, for example, which often is necessary, but not always, or not in the most useful ways. Growth, moreover, should be consistent with organisational objectives.

Recommendation

Establish institutional mechanisms to capture growth initiatives, and then to subsequently track and monitor their progress.

In spite of bureaucracy leading to more bureaucracy, dedicated oversight of and authoritative documents for major activities are sometimes necessary undertakings. This is especially the case when the complexity of the organisation or its growth-related initiatives is high. The Australian Army has undertaken several large growth initiatives simultaneously (force design, modernisation, etc.), any one of which would be difficult to monitor alone, let alone all at the same time. What makes it easier is conducting cost benefit analyses and setting budgets to better capture costs and make resource-informed decisions.

It is worth noting that in 2000, when the U.S. Army undertook a vast “transformation,” which was intended to affect nearly every aspect and every function of the Army, it developed a full Transformation Campaign Plan and established institutional

⁵⁰ Australian Government, Department of Defence, *2016 Defence White Paper*, p. 9

⁵¹ Australian Government, Department of Defence, *2016 Defence White Paper*, pp. 23, 146

mechanisms, including “transformation offices,” to implement the plan. In other words, there was a top-down effort to manage the Army’s project and all the subordinate growth initiatives that fell under it. Australia’s own transformation vision, as outlined in Plan Beersheba, is no less ambitious, and the various aspects of it similarly require centralised managing.

Then U.S. Army Chief of Staff, General Eric Shinseki, instituted what he referred to as potentially the most significant restructuring of the Army since the Vietnam War—which is similar to a statement offered by SMEs in Australia regarding its current Army restructuring. As with Australia’s current growth plans, the U.S. Army had force structure and strategic response as the driving components of its changes. In response “to criticism that the Army had moved slowly to adjust to the post-cold war crises most likely to confront the nation,” the United States sought to create two new lighter, more mobile brigades able to deploy anywhere in the world within 96 hours. General Shinseki, outlined what he said would be “a major transformation” of the Army over the next decade, beginning with the new brigades.⁵² This directly parallels Australia’s Plan Beersheba in terms of adjustments to the combat capability of the Army.

Of note to be borrowed from the United States was that it recognised that other enterprise changes across the Army were in order. For example, “General Shinseki said the Army would reduce the large support units that accompany combat brigades when they deploy” and that “the Army would reconsider the weapons systems it buys, paying greater attention to those that are lighter but still lethal.”⁵³ Other sectors of the Army also were instructed to integrate into the enterprise change effort. For example, the acquisition community understood General Shinseki’s call “for the transformation of the Army into a force that is strategically responsive and dominant across the full spectrum of operations” and responded with several transformation initiatives.⁵⁴

The biggest lesson from the U.S. model is that several transformation offices were instituted at various levels of the Army—but most importantly at the central levels as well. Figure 3.3 depicts the U.S. Army’s high-level discussion force structure and capability transformation objectives and demonstrates some of the communities required to achieve those goals.

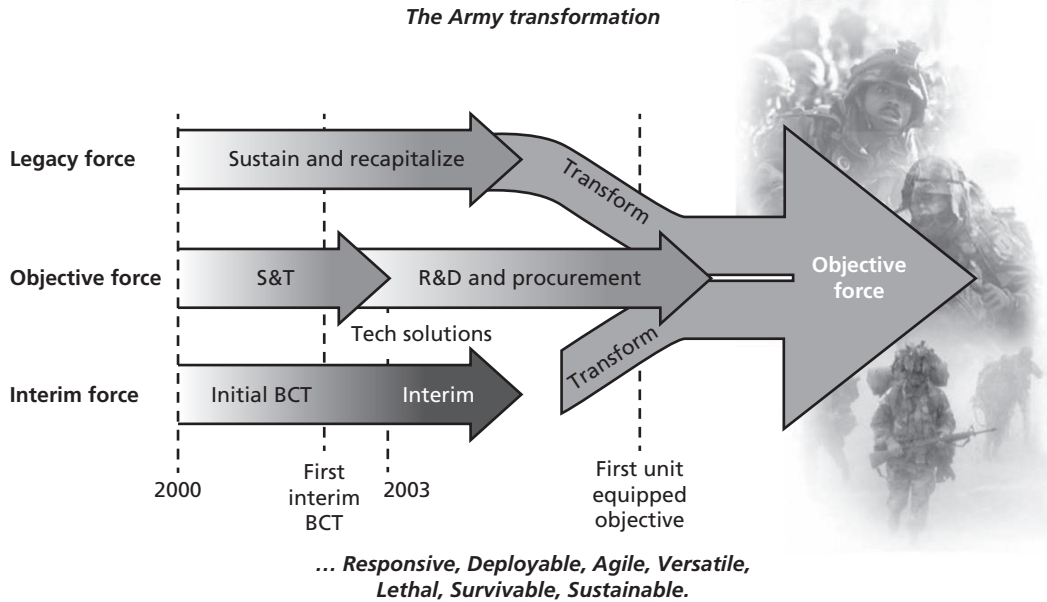
The GAO even investigated the Army’s management of its transformation in a report entitled “Military Transformation: Army Has a Comprehensive Plan for Managing Its Transformation but Faces Major Challenges,” whose conclusion is found in Figure 3.4.

⁵² Steven Lee Myers, “Army Is Restructuring with Brigades for Rapid Response,” *New York Times*, October 13, 1999.

⁵³ Myers, “Army Is Restructuring with Brigades for Rapid Response.”

⁵⁴ Sandra R. Marks, “Annual Army Acquisition Workshop: Revisiting the Army Transformation,” *Army AL&T* November–December 2000, p. 19.

Figure 3.3
Depiction of the U.S. Army's Campaign Plan



SOURCE: Department of the Army.

RAND RR2382-3.3

Figure 3.4
GAO on Military Transformation

	Conclusions
• Army has a comprehensive transformation plan that sets goals and milestones; articulates roles and responsibilities, and provides means to raise issues, coordinate efforts, track progress, and collect and disseminate lessons learned. • Army faces substantial challenges in implementing a transformation spanning 30 years that is highly dependent upon near-term technology advances and long-term funding commitments. • To be successful, the transformation will require the sustained commitment of top civilian and military leaders as well as support by the Congress.	

SOURCE: U.S. General Accountability Office (GAO), Report to Congressional Committees, "Military Transformation: Army Has a Comprehensive Plan for Managing Its Transformation but Faces Major Challenges," November 2001.

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The GAO findings clearly articulate the need for a plan as well as the objectives of the plan. Other risks to the U.S. transformation that are applicable to Australia's current comprehensive challenges in its change efforts are the availability of technology and funding tradeoffs that may arise in the balancing between present-day preparedness and investments made towards facing future threats.⁵⁵

Australia should devote time and energy towards examining military transformations or major change efforts in other countries as exemplified by the present U.S. demonstration. Australia has undergone these types of transformations in the past and coined them "Revolutions in Military Affairs." These massive changes have become more common due to "changes in technology of war and radical changes in how wars are fought."⁵⁶ In light of the other significant changes in Army under Plan Beer-sheba and Defence as a whole under First Principles Review, this period should be treated as another Revolution in Military Affairs and be campaigned as such. Lessons about content would be learned from the change efforts, but also lessons about the organisational shifts required to successfully bring about the change: institutional mechanisms, communications, and the management of expectations using criteria such as the time and resources required to achieve certain objectives.

Operational-Level Risks

Issue: Capability Gaps Hindering Becoming a World-Class Army

Discussion

As the Army continues to grow, it is looking to expand its capability and become a "world-class army." While there is no clear definition of what constitutes a "world-class army," it might be thought of in terms of capabilities. Based on interviews with SMEs in the ADF, it seems that Australia places a priority on a few capabilities in particular. One is the ability to serve as a framework nation in a coalition fight, and the other is the ability to own the battlespace at a battalion level or higher.⁵⁷ This is a vision of the highest possible manifestation of defending Australia and the region, as well as operating as a coalition partner; however, this vision needs to be aligned within Defence and with Government.

⁵⁵ U.S. General Accountability Office (GAO), Report to Congressional Committees, "Military Transformation: Army Has a Comprehensive Plan for Managing Its Transformation but Faces Major Challenges," November 2001.

⁵⁶ Australian Army, "A Revolution in Military Affairs," *Australian Army*, last updated December 4, 2016.

⁵⁷ A battlespace owner:

- is normally the Supported Commander in an Area of Operations
- synchronizes lethal and nonlethal actions
- manages land use
- responsible for situational awareness (Friendly, Neutral, and Enemy)
- responsible for fire support control measures.

Luck, *Insights on Joint Operations*.

By its own admission, the Australian Army falls short.⁵⁸ It lacks, among other things, enough of the enabling capabilities that are necessary for acting as a framework nation or owning a battlespace. These include: the ability to set a theatre air medical evacuation; cyber; mortuary affairs; theatre investigative services like those envisioned to be provided by ADF Investigative Service (ADFIS); counterintelligence; rear area security; patient tracking; ISR; EW; strategic lift capability; and interoperability with partner nations. The majority of the capability gaps identified show that the tooth-to-tail ratio is incongruent with Army's vision for being a framework nation in near-region fights.

The 2016 Defence White Paper acknowledges some of these gaps, particularly enabler capability such as EW, ISR, space, cyber, and strategic lift. Government has intentionally increased funding in the ADF to address these capability gaps as outlined in the 2016 Integrated Investment Program. It mandates that 25 percent of the total ADF budget will be for key enablers,⁵⁹ and another 9 percent specifically for ISR, EW, space, and cyber. This is a significant portion of the budget; in comparison, land and amphibious capabilities will receive 18 percent of total budget. However, the white paper provides only the strategic direction. How this manifests inside ADF and Army has yet to be determined.

One example of an investment made on behalf of Army to improve these capability gaps is the procurement of a new battlefield command system. This system is being developed by two Australian companies: "Harris Communications Australia will deliver a tactical communications network, including encrypted radios, and Elbit Systems of Australia (ELSA) will enhance battle management software."⁶⁰

Recommendation

Continue to develop a plan to upgrade capabilities in accordance with the collaboratively communicated plan and vision.

Conceptual needs and materiel needs can both limit Army from being considered world class. Where conceptual needs do not have materiel requirements, Army can develop the authoritative documents to drive the changes and put them in place. The materiel gaps are more difficult to solve and are linked to the need to prioritise Army's roles and missions. The Army and ADF system that enables the Investment Committee to prioritise requirements for the allocation of resources admittedly needs attention. Requirements that are initiated in the field Army are also a good start-point for at least having the operational needs to input into the system. The Talisman Sabre 2017 AAR illustrates effective capture of key operational needs.

⁵⁸ Forces Command, interview with the authors, Rockhampton, Queensland, Australia, July 22, 2017.

⁵⁹ Australian Government, Department of Defence, *2016 Integrated Investment Program*, Commonwealth of Australia, 2016, pp. 15–16.

⁶⁰ Jon Grevatt, "Australia Formally Approves BMS Programme," *IHS Jane's Defence Industry*, November 28, 2017.

At the highest level of consideration in resolving this issue is the need to determine where Australia's individual gap areas exist in a global sense. The following quote highlights this need through the cyber and electronic warfare domain.

Twenty-five years of neglect are not easy to undo and, as it strives to field electronic warfare (EW) systems with the power, agility and flexibility to overcome the advances made by its potential adversaries, the U.S. is facing the inevitable procurement challenges.

New system approaches, introduced via upgrades or new programs, are needed to enable the U.S. military to take advantage of the commercial technologies that have vaulted its near-peer threats to a position of strength in the electromagnetic spectrum.

The Pentagon took its attention off EW with the end of the Cold War, and in recent years has focused resources on countering improvised explosive devices (IED). Now its ability to access spectrum in a major conflict is challenged by advances made by China and others.⁶¹

The above quote highlights how operational needs can change to meet evolving global threats. The quote further reveals an area in which many in the world are struggling. For this and similar materiel gaps, the Australian Army should realise the global obstacles related to the gap area and determine to what level they wish to overcome them.

Issue: Paradigm for Discussing Preparedness

Discussion

The 2016 Defence White Paper directs the ADF to increase its preparedness in order to “support increased ADF activity in the region, while maintaining the ADF’s ability to make meaningful contributions to global security operations where our interests are engaged.”⁶² Nevertheless, both Army and ADF interviewees reported challenges in communicating their needs. Representatives from both stated that the system by which preparedness is discussed is “start-stop” as opposed to routinised—which inherently reduces the likelihood for the process to be evidence-based. The Army and the ADF are too focused on what is available to them right now as opposed to what could be generated in accordance with well-developed warning times for the time it would take to generate the required capability. This dynamic is due in part to a lack of standardisation in readiness and preparedness reporting processes, as well as in tracking both at an individual and unit level. This has resulted in what interviewees felt were discrepancies in the preparedness timelines set forth and the actual ability to meet these timelines.

⁶¹ Graham Warwick, “Urgency in U.S. Electronic Warfare Faces Funding Challenges,” *Aviation Week Network*, August 18, 2017.

⁶² Australian Government, Department of Defence, *2016 Defence White Paper*, p. 22.

Recommendation

Develop and implement institutional mechanisms to better assess, report, and monitor preparedness.

The challenges can be mitigated through two major institutional paths. The first involves developing a detailed mobilisation plan for the Army that informs and integrates into a joint plan. The research team was told repeatedly that no mobilisation plan exists. A mobilisation plan would require analysis to determine actual timelines to execute subcomponents of the end-to-end process to force project units or force packages of varying sizes—perhaps using the aforementioned suggested menu as a baseline for planning. The mobilisation plan should be nested to the prioritised requirements for mission sets to focus efforts versus being half-prepared for more activities. The mobilisation plan would also enable the Army to tie costs to the actual capabilities available and needed.

The second institutional mechanism Army should consider is a standardised readiness report that provides periodic assessments of Army's readiness posture to execute the requirements of the mobilisation plan. The RAND study team was repeatedly told at every level that readiness reporting is done on a by-exception basis, meaning that nonstandard reporting was done as needed when there was a problem. This approach lends itself to being more focused in the present and on what is available as opposed to what is needed.

Issue: Geographic Locations and Dispersion of Some Units with Respect to Training and Support Relationships

Discussion

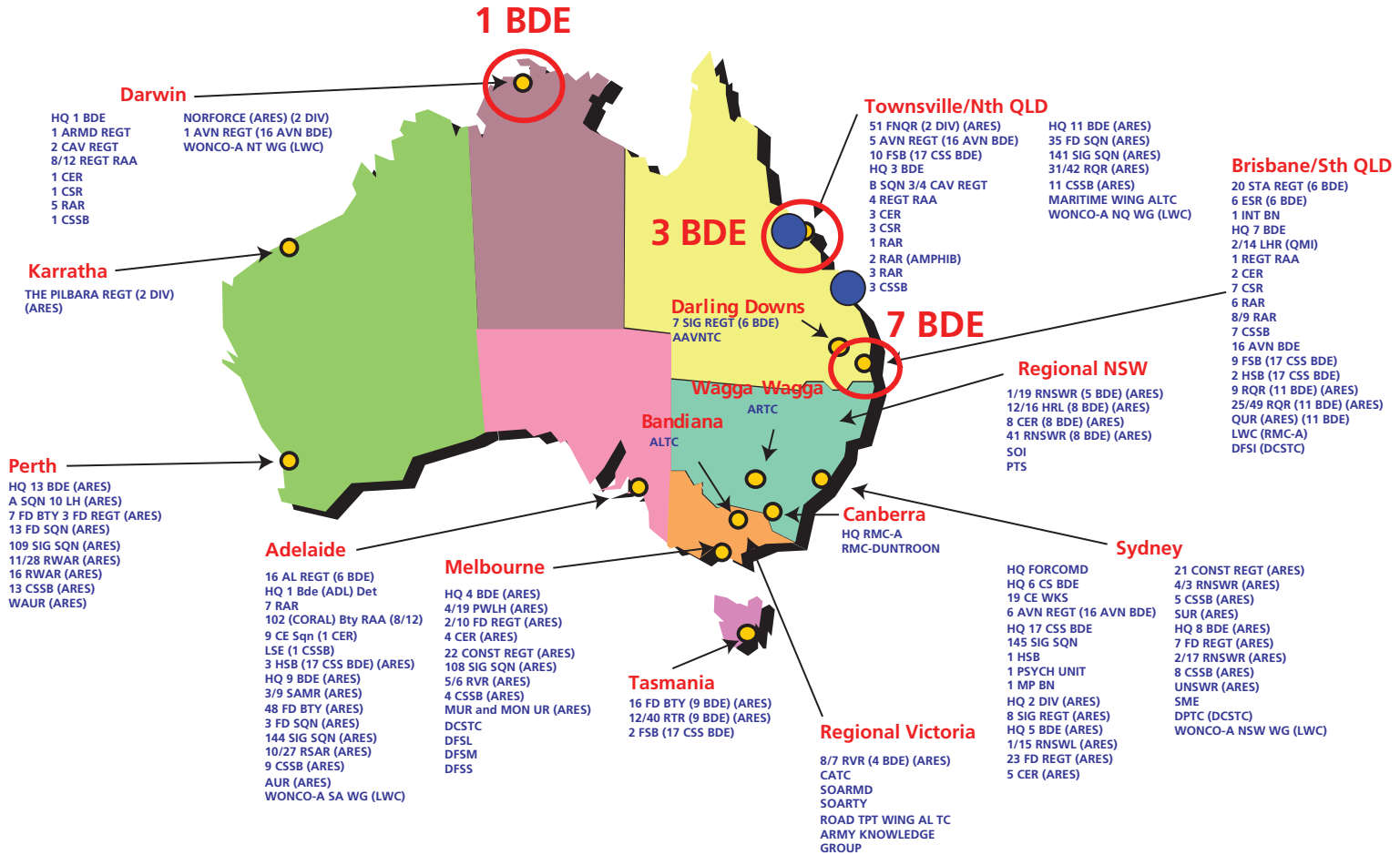
Australia is the sixth largest country on the planet with Army installations across the entire country.⁶³ Figure 3.5 shows all the current units under Army Forces Command (FORCOMD).

Enabler brigades and combat brigades are not always colocated, which makes training together an added challenge. For example, 16th Brigade's 1st Aviation Regiment placed approximately 700,000 kilometres on its major systems in order to reach the northeast corner of Australia for the Talisman Sabre exercise in Shoalwater Bay, participate in the exercise, and return back to its home base in Darwin.⁶⁴ Given that enabler units are scarce and often in high demand, the constant need to travel large distances results in extra burdens in terms of coordination time; time and cost of travel; time away from home for enabler service members; extra demand on equipment; and a decrease in habitual relationships between combat and enablers.

⁶³ Australian Government, "Australia's Size Compared," *Geoscience Australia*, undated.

⁶⁴ 16th Brigade, interview with the authors, Brisbane, Queensland, Australia, July 24, 2017.

Figure 3.5
FORCOMD Units



SOURCE: Slides provided by FORCOMD G3.

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Recommendation

Conduct analysis of current basing plan to garner potential efficiencies.

Recognising that Army has recently done this and that no solution will be perfect for all concerned, we recommend that Army conduct an analysis based on significant criteria to determine the optimal solution. A key consideration in this analysis is the existing facilities and infrastructure under Army's control. Examples of criteria that could be considered include a nesting of the basing plan with the force design plan by first determining how stable the plan will be in the out-years. It is not cost-effective to move every time the force design plan changes. However, if the plan will endure, then it is feasible to conduct studies on the extra burdens on people, equipment, and training to see if meaningful efficiencies might be achieved.

Basing decisions are costly and all-encompassing and should be undertaken in a very deliberate fashion. Basing decisions affect the nation's citizenry and correspondingly the elected officials of Government that represent them, as well as the armed forces. The United States harnesses its major base realignment and closure efforts under a long-standing program called BRAC—which stands for Base Realignment and Closure. The BRAC webpage describes it as “the congressionally authorized process DoD has used to reorganize its base structure to more efficiently and effectively support our forces, increase operational readiness and facilitate new ways of doing business.”⁶⁵ In other words, BRAC has a legal existence (not to mention a website), and plans and processes that likewise are enshrined in law. Particularly notable is that the deliberate plan codified by law has similar goals to those we stress would be at the forefront of Australia's concerns if they undertake a rebasing effort—improving the efficiency and effectiveness of the force. Congress also created a commission to serve as a dedicated overseer:

The Congress established the 2005 BRAC Commission to ensure the integrity of the base closure and realignment process. As directed by law, the Commission will provide an objective, non-partisan, and independent review and analysis of the list of military installation recommendations issued by the Department of Defense (DoD) on May 13, 2005. The recommendations provided by DoD are extremely complex and interrelated and will require in-depth analysis and careful attention to detail. The Commission will follow a fair, open, and equitable process, as set forth by statute. The Commission's mission is to assess whether the DoD recommendations substantially deviated from the Congressional criteria used to evaluate each military base. While giving priority to the criteria of military value, the Commission will also take into account the human impact of the base closures and will consider the possible economic, environmental, and other effects on the surrounding communities.⁶⁶

⁶⁵ Base Realignment and Closure (BRAC), Office of the Undersecretary of Defense for Acquisition, Technology and Logistics, home page, undated.

⁶⁶ BRAC, home page.

The Army could also identify alternate sourcing solutions to alleviate the burden on the stressed enabler formations. For example, the Army might have a pool of people who work only at training areas and who are civil servants, contractors, or members of Joint and interagency organisations. The Army could also consider prepositioning equipment, too. It could leave equipment at home station, allowing units to sign for and use preposition equipment maintained by someone else, perhaps not even in the military. It could also better engage what some respondents referred to as an underutilised RC to ease the burden on the AC.

Issue: Tension with Centralising Support Capabilities as Opposed to Organically Assigning

Discussion

There are mixed opinions about whether it is better to have support capabilities organically assigned to units as opposed to managing those capabilities in as centralised a manner as possible. Those opposed to the new centralised system feel that it damages habitual relationships, and that commanders are less likely to take care of support units that do not directly belong to them. However, centralisation is critical in a small army, and it allows the skilled professionals to manage the trade experts. The centralisation of enablers exists and is not going to be undone, but there is still work to do in terms of promoting its acceptance. This will help create buy-in among commanders.

Recommendation

Develop a strategic communications plan to acculturate the Army to roles and mission of the enabler community.

The 17th Brigade staff reported that they felt some “people don’t even know what 17th does.”⁶⁷ Although it is hard to know if this is reality or just perception, it remains true that people are unlikely to understand the decision to centrally manage support capabilities. The solution for this issue is quite simple: develop a strategic communications plan that addresses the roles of the 17th and the dynamics and workings of the entire enabler community.

The research team assessed that centralising—in this case—is a prudent management decision that appears to be working well. Other than ownership issues brought up in SME interviews, no one complained about a lack of support or how well they received it. The MCB participating in Talisman Sabre even praised the support received during the exercise. As an additional aside, the only way to change this arrangement is through force design changes, and that seems an unlikely and unnecessary course of action, especially in light of other more pressing shortfalls, such as the list of items that prevents the Army from truly achieving its own stated standard as “world class.”

⁶⁷ 17th Brigade, interview with the authors, Rockhampton, Queensland, Australia, July 23, 2017.

Issue: Multirole Combat Brigades Being Perceived as Deployable Entities as Opposed to FORGEN Constructs

Discussion

There is a misconception inside and outside of Army that the three MCBs are organically deployable units. This is not the case, as they exist only for raise, train, and sustain purposes in the generating base. In other words, they exist only as training formations as part of the FORGEN cycle. A fully deployable brigade would require more people, funding, and equipment than an MCB. This creates tension because deploying a full brigade, which is a goal of Army, would require being able to deploy a combat brigade to conduct high-intensity conflict and would result in breaking the FORGEN cycle to do it—taking more than one MCB’s worth of resources. This construct also drives the training OPTEMPO, which has led to the overuse of enabler formations that do not exist in a 1:1 ratio across all capabilities.

Recommendation

Develop a strategic communications plan to fully explain that the MCB construct is for FORGEN to raise, train, and sustain ready forces.

This entire recommendation is predicated on the notion that the current force design structure will remain in place in near and long terms. While compelling reasons exist to reexamine Army’s force design structure, this recommendation targets solely the need to communicate that these formations are not deployable entities, but rather FORGEN tools to feed the operational generation of forces. Even the research team missed this critical force design condition in our research on Australia prior to conducting the SME interviews. Additionally, several SME respondents were either unaware or did not fully grasp the construct. Regardless of awareness or understanding however, most felt changes were needed in force design overall.

Issue: Friction Between Force Modernisation and FORGEN

Discussion

Two resources are to be considered in this discussion—funding and time. A natural tension exists between modernisation and FORGEN in every army. For example, the U.S. Army Deputy Chief of Staff (G-8), Lieutenant General Mike Murray, told *Inside Defense* in an interview on September 18, 2017, that the Army cannot entirely cease spending money to improve its current systems, but would have to sharply reduce that spending to fund successors. He further stated that the service has to determine the sufficient level of capability and be willing to maintain that, pointing to the Abrams tank as an example. Absent “some really hard decisions by senior leadership, the only way you buy the next-generation tank is by stopping, or significantly reducing, the number of [engineering change proposals] you’re doing on the current generation.”⁶⁸

⁶⁸ Courtney McBride, “Murray: Army Leaders Looking for Ways to Field New Capabilities,” *Inside Defense*, September 18, 2017.

The demands on training time must be balanced against modernisation needs as well. Due to the intense OPTEMPO—caused in part by an insufficient number of enablers; not resetting in the reset phase of the FORGEN cycle; and Joint and Government demands—there is little to no opportunity to introduce new equipment to modernise the force. Aviation units are having a particularly difficult time in finding a way to onboard new aircraft with FORGEN demands so high.

Recommendation

Manage modernisation using a top-down approach.

This is another enterprise initiative or management area that must be managed from a top-down perspective. Using the United States as a model, this year's focus was to lessen to a degree the attention on readiness, which encompasses training and sustainability, and focus more on modernisation.

Acting Secretary Ryan McCarthy and Chief of Staff General Mark Milley, he said, are “very focused on this.” While readiness remains Milley's top priority, he is now “ready to spend some more effort and time” on modernisation, Murray said.⁶⁹

The U.S. Army is in the process of forming a command focused primarily on modernisation to provide dedicated focus to the several major activities that need to be integrated to modernise an army.⁷⁰ They have created a task force to plan for the roles and missions and force design of what they are currently calling Futures and Modernization Command. This serves as a testament to the complexity associated with modernisation.

In addition to top-down funding for modernisation, Australia would benefit from more centralisation and top-down oversight and management of subordinate unit training calendars. Modernisation is a necessity and training schedules should be adjusted to fit required fielding activities.

Issue: Misalignment of FORGEN Cycles of the Three Services (Army, Navy, and Air Force)

Discussion

Plan Jericho implemented the Air Force's FORGEN cycle, Plan Polaris implemented the Navy's model, and Plan Beersheba describes the Army's current cycle.⁷¹ The fact that the three services have FORGEN cycles that do not align adds to the OPTEMPO strain. When Joint exercises are conducted or a Joint capability needs to be deployed, at least one of the services has to step out of its FORGEN cycle. For example, in order to maintain its amphibious capability, the ADF struggled to find a training schedule that fit in with

⁶⁹ McBride, “Murray.”

⁷⁰ McBride, “Hix.”

⁷¹ Joint Capability Management and Integration Division (JCMI), interview with the authors, Canberra, Australian Capital Territory, Australia, July 26, 2017.

both the Navy's and Army's FORGEN cycles. Joint by design is still a new concept and the ADF is actively working towards it.

Recommendation

Conduct analysis to determine where FORGEN cycles can be overlapped.

Doing so may not be feasible in all cases and will require a truly Joint training and operations calendar. The benefits of such an approach include: streamlined and shared funding across the Joint community; alleviation of some of the OPTEMPO strain; and more realistic training as most global armies rarely conduct operations on their own.

Issue: FORGEN Cycle Not Being Strictly Adhered to and Being Frequently Broken for Government, ADFHQ, and Army Needs

Discussion

What currently drives the FORGEN cycle is the force structure as opposed to mission sets and size. It was designed and implemented at a time when Army was very involved in the wars in Iraq and Afghanistan, and it may need to be readdressed for future warfare. The FORGEN cycle is broken every time Army 1st Division or Joint Operations Command needs to conduct training exercises such as Talisman Sabre and Hamel, not to mention other large contingency or named operations. Additionally, when the Government wants a presence or show of force, as in the case of the Commonwealth Games or Papua New Guinea elections, it must disrupt the cycle at the enterprise level to marshal enough troops and related enablers such as helicopters.

The goal of Plan Beersheba and this FORGEN cycle was to improve operational preparedness by creating three similar combat brigades.⁷² If the three phases of the cycle are not adhered to, then the FORGEN cycle breaks down. However, since the training units are not large enough to be deployable units, the system breaks down every time a large deployable force is mustered.

Recommendation

Analyse the current FORGEN model in relation to current Army force structure.

The FORGEN model and the current organisation of the Army are somewhat nested. One was created in relation to the other. They can, however, be disaggregated. For example, one might ask if the current FORGEN model might work with a different force structure. Many of the SMEs interviewed for this study stated that the current combination of the two is not effective. An indicator of a point of failure is the reset phase not being respected due to what RAND sees as a lack of regulated training, or what some in the Army reported as a lack of discipline, but which can be addressed through either. Interviewees consistently reported that there was not top-down guidance

⁷² Brian Hartigan, "What Does Plan Beersheba [sic] Mean for Australian Armoured Units?" *Contact*, June 28, 2015.

to regulate how commanders were to train their units. However, FORCOMD and Army-level interviewees expressed that commanders needed to be more disciplined in how they raise, train, and sustain their units. Institutional internal control measures and commanders actually moderating their training pace would reduce the impacts associated with this challenge.

Other SMEs reported that the Army can afford only 2.4 brigades and is potentially being resourced at that level, in which case the Army needs to address the efficacy of the current FORGEN model and/or the force structure. If the Army can be resourced at higher levels and the aforementioned analytic rigour is placed on force design changes, the Army should look to increase the national inventory with an emphasis on shared commodities or increase the budget for the ADF and Army to account for these missions through increased authorisations.

We recommend that Army look at both the FORGEN cycle as well as the force design. In a dedicated investigation into force design, RAND would further analyse the structure of the U.S. Army Ranger Regiment for comparative purposes. The Ranger Regiment has mission battalions and an enabler battalion—with the enabler element still being deployable with both combat and enabler capabilities and a generating role for soldiers seeking selection for service in the regiment. The Rangers additionally leverage the Airborne and Ranger Training Brigade to provide institutional or generating requirements for all the mission elements.

According the battalion webpage, the “Regimental Special Troops Battalion (RSTB) conducts Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance functions in support of the 75th Ranger Regiment and other Special Operation Task Forces in order to enable the execution of Joint Special Operations anywhere in the world.” The battalion additionally “provides qualified, trained and ready Rangers in order to sustain the Ranger Force.”⁷³

Issue: Adverse Effects Related to OPTEMPO

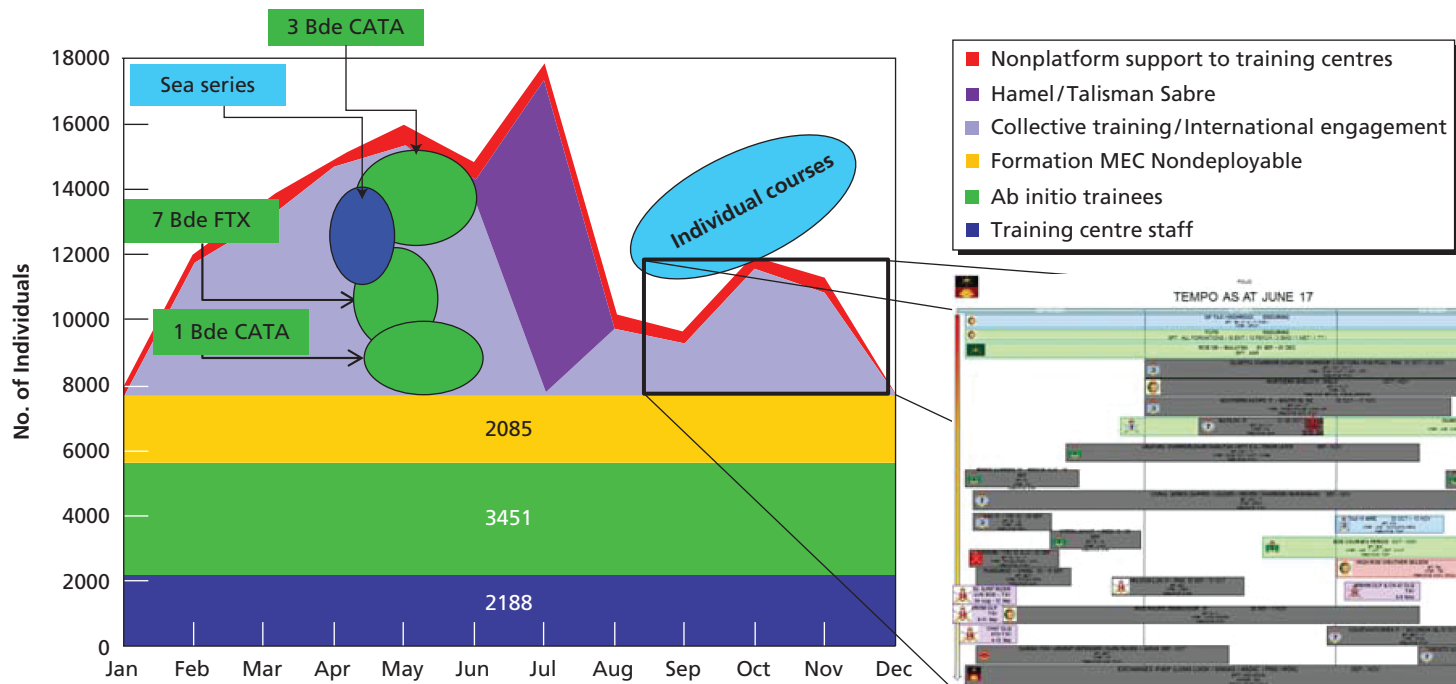
Discussion

The increase in OPTEMPO⁷⁴ related to the current implementation of the FORGEN has had many adverse effects. The risk areas include: increased costs, retention, recruit-

⁷³ U.S. Army, “75th Ranger Regiment: History,” *U.S. Army*, May 26, 2016.

⁷⁴ OPTEMPO—which stands for operations tempo and is a form of jargon associated with militaries (Jim Garamone, “Optempo, Perstempo: What They Mean,” *U.S. Department of Defense, DoD News*, August 18, 1999). At the macro level, OPTEMPO is used to describe the pace of operations—day-to-day, training, or deployments. OPTEMPO in the U.S. Army is a program used to provide the “critical resources required for Modified Table of Organization and Equipment units to conduct and support full-spectrum operations (FSO) training, maintain unit equipment, and sustain routine, day-to-day operations” (U.S. Army G3/5/7, “OPTEMPO and Full-Spectrum Operations Training,” U.S. Army STAND-TO! January 26, 2011). OPTEMPO can also have an effect on people and PERSTEMPO is a specific program developed by the United States “to track and manage individual rates of deployment (time away from home), unit training events, special operations/exercises and mission support temporary duty” (U.S. Army Human Resources Command, PERSTEMPO FAQs, *HRC*, November 9, 2017).

Figure 3.6
FORCOMD Indicative Commitment of Personnel



SOURCE: PMKeys, FORCOMD/Bde Sync matrix and TASMIS.

NOTE: FORCOMD is achieving significant multilateral, trilateral, and quadrilateral engagement outcomes. This coupled with FORGEN of capability for known operations is placing a strain on key personnel and capabilities within the Command. Preservation of the development of skills, knowledge, and attributes is important to future IE and capability. Experiential development can be achieved through better synchronisation. Having said this, overseas IE comes at a larger bill on enabling assets which combat brigades do not have, therefore HQ FORCOMD is the authority for tasking and synchronising IE.

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ment, maintenance, stress on soldier and family, individual training, and opportunity costs. There has been an issue of retention because people feel overworked, especially those people with critical skills. Equipment is also overused and undermaintained, with maintenance schedules not maintained due to the many training exercises. FORCOMD is aware of this problem and notes the spike in use of personnel during large exercises like Hamel and Talisman Sabre as Figure 3.6 illustrates.

Recommendation

Develop a strategy to better manage subordinate unit OPTEMPO.

The strategy could include actionable items such as the following, derived from research team expertise, SME expertise, and the literature:

- Target changing the previously addressed paradigm for successful command. If commanders have a more top-down discipline, they will adhere to restrictions on budget and training.
- More simulation in training. This will save time and money with less need for live training that is costly and time-consuming.
- Address the basing plan. As previously discussed, efficiencies might be gained through this effort. We again caution that this is a very involved undertaking that should be well conceived and managed.
- Opportunity training with the joint, interagency, intergovernmental, and multinational (JIIM) community. A perfect example of this encountered in our SME interviews was the medical community's partner training with civilian medical organisations. Members of Army's medical community see these opportunities as incentives while also making best use of valuable training time.
- Establish a system to regulate subordinate unit-level training plans—that takes named operations and mandatory training into account and that establishes and enforces compliance to a METL. This would help subordinate commanders prioritise their training focus and utilisation of resources.
- Institutionalise top-down caps on training for fiscal, OPTEMPO, and maintenance reasons. The current command-centric model allows subordinate unit commanders with less experience and awareness of fiscal limitations to blindly set training calendars and the associated bills without any limitation beyond their own volition. This means the commanders can obligate the rest of the Army, and the Army must pay these bills. This may look like a lack of discipline at the command level; however, the research team sees it as a lack of institutional mechanisms to maintain order at the expense of the budget, the equipment, and ultimately on the service members and their families.
- Conduct doctrine and policy assessments to garner efficiencies. Institutionalising authoritative document changes based on sound practices from the lessons identified and business process management communities will allow Army to streamline its operations to be more efficient.

- Seek out shared opportunities to assess and certify units. The research team was told that different levels of unit were not able to be assessed and certified at the same training events. In turn, some units must support or participate in the training to certify other elements of the Army and then conduct their own separate assessment or certification training. Finding ways to streamline this system would also reduce overall OPTEMPO and especially that of the enabler forces that are more subject to this dynamic.

Issue: Training Focused on Mid- to High-Intensity Combat to the Detriment of Training for Other Missions, Including Stability Operations; and Humanitarian Disaster Relief; and Train, Advise, Assist

Discussion

The training focus for the Australian Army has been on mid- to high-intensity combat of the sort most likely to take place as part of a larger, global coalition. In contrast, what it has not been doing is focusing on the lower-intensity missions of the sort in which Australia is likely to engage in the country's immediate neighbourhood. The ADF assumes—and many armies make similar assumptions—that units trained for higher-intensity operations can more readily adapt to lower-intensity missions than go in the opposite direction. However, in the 1990s, when Australia conducted stability operations as the lead nation in East Timor, the “tooth-to-tail ratio almost came undone.”⁷⁵ They were unable to provide their combat forces with the sustainment needed for prolonged presence in East Timor. In response, the 2016 Defence White Paper calls both kinds of missions of equal value, although in practice training remains focused on the higher-intensity missions, with an emphasis on expeditionary international engagement instead of near-region threats.

Recommendation

Prioritise roles and missions, and establish and enforce a METL.⁷⁶ In addition, the Army should also address cultural biases towards combat at the expense of other operations.

The Canadian government has highlighted noncombat roles and missions for the CAF in formal policy. Prime Minister Trudeau's Mandate Letter on National Defence emphasised the importance of renewing Canada's commitment to UN peacekeeping missions, for example.⁷⁷ While the Canadian Army Doctrine and Training Centre (CADTC) hosts the Combat Training Centre (CTC)—the centre of excellence for both individual and collective training up to the company/squadron level—it also hosts the Peace Support Training Centre (PSTC), which trains personnel prior to deployment on peacekeeping missions and has also emerged as an Army centre of excellence for information operations.

⁷⁵ Forces Command G-3, interview with the authors, Sydney, New South Wales, Australia, July 25, 2017.

⁷⁶ A highly regulated list of essential tasks a unit is expected to be able to perform.

⁷⁷ Justin Trudeau, “Minister of National Defence Mandate Letter,” November 12, 2015.

The French generally try to split the difference by providing all units with a common base of training, and then providing tailored specialisation to different units depending on their anticipated missions. Events in Afghanistan brought home a different sort of problem than that faced by Australia: French forces had grown too accustomed to the lower-intensity operations of the sort they frequently conducted in Africa and needed to brush up on high-intensity warfighting skills. Likewise, since the conflict in Crimea, there is a growing interest in firming up larger-scale conventional warfare abilities.

Issue: Lack of Subordinate Unit Assessments and Certifications During Major Training Exercises

Discussion

As discussed in the OPTEMPO challenge, some of the large training exercises certify only certain response packages. For example, Hamel and Talisman Sabre are annual large exercises that only certify two-star and brigade-level headquarters, while other assessment and certification training has to be done separately for subordinate units. This adds to the training burden, particularly since the larger exercises have priority over subordinate unit requirements when they occur. These exercises are major resource consumers with most of the Army, based on its size, being involved when one happens. Some units are part of the exercise while others have exercise support or pusher roles.

Recommendation

Better integrate the large exercises into the subordinate unit training requirements.

Having established that more top-down governance is required from the Army to the subordinate units, this challenge further adds to the point. The Army knows the named operations in which it will participate each year barring unforeseen contingencies. The Army also knows what are the major exercises in which it wants to participate. In terms of time management, these two major demand signals should be worked into the subordinate unit training schedules with lower-level commanders having the discretion to control the additional time these activities will not consume in their schedules. Regarding training content, again the prioritised missions from the top down should enable commanders to build their unit training programs to meet the roles and missions they will be expected to fulfil. This will in turn drive nested METL task development between Army and the unit-level leadership. The previously discussed training caps will also place the decision-making of OPTEMPO, equipment utilisation, and so on in the hands of experienced and informed leadership rather than in the hands of ambitious junior commanders who do not have the privilege of seeing the entire spectrum of information.

At a more conceptual level as well exists the notion that the enablers will always augment a supported formation and not necessarily deploy as full brigade unit and they should train that way (i.e., 6th Brigade). At the more tactics-based level, the Army should look to employ mobile training teams to come to where the overused units happen to be, be it during training events or at home station. Also, as previously discussed, the Army should leverage the time for “opportunity training,” such as using opportune

resources to conduct parallel training or assessing and certifying. “Resources” in this case means other training events, JIIM partners, civilian partnerships, and so on.

Issue: Hallmark of Success in Command Tours as Participation in Combat-Centric Operations and Training

Discussion

Most MCB commanders feel that training for high-intensity conflict missions is the hallmark of a successful command. As noted, in most armies, combat is more glorified than other types of operation. The study team found evidence of this dynamic at least in the U.S. Army and the Canadian Army.⁷⁸ This dynamic in Australia leads to an unsustainable OPTEMPO, with a major secondary effect being that the reset phase of the FORGEN cycle is not adhered to by most units. Reset activities are not glamorous and often are overridden by subordinate unit commanders’ desire to conduct more combat-focused training. Combine this with the need for AC capabilities to serve in shared, non-ADF roles as they arise and the FORGEN cycle has even more compliance vulnerabilities.

For many in Army this dynamic manifests as an issue of “commanders having no discipline.” However, the research team determined the root cause to be tied more to the lack of top-down mandates with respect to how subordinate units will train. If left to their own decisions, commanders will choose to conduct the operations that will be perceived as more beneficial to themselves and their units. Several SMEs indicated that Australia uses a commander-centric or bottom-up approach to managing the annual operational training requirements across Army, with no standards in place to enforce any discipline in the FORGEN cycle.

Recommendation

Create institutional mechanisms that mandate or incentivise compliance with requirements beyond the spectrum of combat operations.

The research team was told that the Army had previously changed the command tour lengths to three years so that they would better align with the three-year FORGEN cycle. The three-year command tour supposedly reduced the opportunities for other eligible officers in the window for command to get an opportunity to command. If this is indeed the case—meaning there are data to substantiate this assertion—then changes to the current command tour are needed. For example, we recommend that Army consider the following actions:

- Make other command metrics as important as combat-related functions. One example would be to recognise and reward the successful completion of unit requirements regardless of the phase the unit is in upon the assumption of the command.

⁷⁸ See GAO, “Army Planning,” GAO-16-327. The Canadian Government describes combat specialists as “the backbone of the Canadian Armed Forces (CAF) Army operations,” see Canadian Government, “Combat Specialists,” *Government of Canada*, May 3, 2017.

- Impose a training cap on what a commander can execute in terms of physical activities and/or from a fiscal perspective. Commanders should have to plan and budget, and they should be subsequently rewarded and/or held accountable for adherence to budgets.

Issue: Divergence Between the Active and Reserve Component in Terms of Training and Materiel Readiness and Interoperability

Discussion

Across all armies there exists a capability gap between the AC and RC, as one would expect between a full-time and part-time force. For example, many SMEs interviewed indicated that there exist equipment disparities between the AC and RC. The Reserve consistently has older equipment, which is problematic when it does not have access to train with newer equipment it would be expected to use when deployed. However, even with real divergence in capability, perceptions of the Reserve force as a “separate Army” or “purely a mobilisation base” can impact its utility.⁷⁹

The Army has been actively working towards changing perceptions of the Reserve, by focusing on the idea of a Total Force, where members can easily and change between Permanent and Reserve status. Project Suakin, an ADF-wide initiative,⁸⁰ is an ongoing effort that allows members of the ADF to move between Permanent and Reserve status more easily. The goal is to help meet individual needs while not losing skills and expertise.

Recommendation

Identify current and emergent roles and missions of the RC and conduct FIC-based gap analysis across the component.

This is an area of major future analysis in the Australian Army. In order to improve the use of the RC and to lessen the strain on the overused AC, we recommend that Army works with Defence and Government to prioritise the purpose of the RC and to look for further opportunities to incorporate it more into its challenge areas. This perhaps could be done without a significant outlay of resources. Once the purposes of the RC are established, the Army should identify gaps in the Reserves and then develop an investment strategy before resourcing projects such as upgrading or buying new equipment.

Issue: Misalignment of Manning and Organisation of Army Elements for Optimal Output, Including Alignment of the Reserve Component Elements

Discussion

This challenge is directly related to potential changes in force design. In light of recent changes related to Plan Beersheba, this consideration is not offered lightly. Several respondents articulated issues with the current force design schemes. A major caveat here as

⁷⁹ Australian Army, “Australian Army Reserve Transformation—Chief of Army Speech to RUSI.”

⁸⁰ Australian Government, Department of Defence, *2016 Defence White Paper*.

well is that there is perhaps no perfect force design solution. Additionally, the assessment of mission-related needs or requirements should drive the force design plan, and these requirements are often in a state of flux. Note as well that the Army has demonstrated a propensity to implement changes on the grand scale when needed. The willingness to change is there; however, the deliberateness by which the changes are conceived is where the research team recommends additional focus.

Recommendation

Conduct deliberate force design assessment to determine the optimal way forward.

According to a DSTG representative interviewed for this study, there are studies being initiated that look at past force design failures and lessons identified to inform a better way of designing the current force. However, a number of factors make it difficult to find reports and data on such failures:

- lack of analytic rigour in the conceptualisation process
- failure to record or capture steps and outcomes
- departure of stakeholders by the time the design is implemented
- professional arguments
- unwillingness to admit failure
- negative optics associated with reversing course
- failure to address or capture lessons identified
- not setting feasible, acceptable, or suitable plans in effect in terms of time, resources, etc.

There are multiple root causes of force design challenges. One example is not having the appropriate formations to conduct the required roles and missions. We have seen this already with the lack of enabling elements necessary for the Australian Army to act as a framework nation or a battlespace owner. As discussed above, the answer is to determine the roles and missions that are most critical to the Army and then design a force capable of conducting those missions. This step should be followed by determining the vision or order of magnitude by which the Army would like to accomplish those roles and missions.

Another example is not having the adequate number of people authorised (not assigned, as that is a different issue) within the units even if the types of unit are correct. Almost all of our sources acknowledged this to be an issue for Australia, especially in the enabler forces. Manpower analysis by authorisation is a sure way of determining what the right number of personnel per formation should be. Even if the units are not able to be designed at that level of authorisation, the Army will better know what it can and cannot do based on authorisations. It is notable that most armies struggle with this, including the United States in spite of its size and institutional mechanisms like the TAA process and manpower analysts.

A third example of a root cause is not adequately allocating support units to supported units. As previously discussed, the number of enabler forces does not match

directly the combat forces they are to support. Of note as well is that supported units must support more than just combat forces as they also need to support themselves. This creates great churn in the Australian Army with the overuse conditions exacerbated in the enabler forces. The U.S. CAA has a rule set for determining the number of support formations by type to support different types of formation conducting different types of mission. We recommend Australia use tools like this to determine the number of support units required to support the units in its inventory.

A fourth root cause is not having proper alignment of the forces. As one SME in Land Warfare stated, “we may very well have the right amount of stuff, but it may not be aligned properly.” One must therefore combine the aforementioned scientific analysis of manpower needs at the individual or position level with a missions and roles analysis to determine what types of unit are needed, all augmented by rule-of-allocation analysis. Together, this will set conditions for the effective realignment of units in terms of their relationships to one another and what they need to accomplish.

The final root cause is tied to underutilisation—which can manifest as not having the right types of unit or position, or simply not using an asset that can be more engaged. Simple analysis will mitigate the capabilities sitting idle based on lack of need for their services—which was not indicated as a problem other than in a component context. We found that the RC in the Australian Army is significantly underutilised in terms of mitigating some of the challenges described in this report. There are efficiencies to be garnered through better integration and utilisation of the RC.

Issue: Integration of Women in the Army

Discussion

Several Army and ADF documents discuss the importance of diversity in the workplace, specifically as it relates to women. The Future Land Warfare Report from 2014 states, “The Australian Defence Force has traditionally recruited from a relatively narrow section of Australian society,”⁸¹ and the Ryan Review also indicates, “Army is a relatively homogenous organisation.”⁸² Additionally, Defence Annual Reports specifically address demographics.

Including women increases diversity and skills in the workforce and doubles the number of potential recruits, which is particularly important for a relatively small country. It follows that integrating women into the Army has been a top priority for the former and current Chief of Army.⁸³ The 2016 Defence White Paper notes that women

⁸¹ Modernisation and Strategic Planning Division, Australian Army Headquarters, “Future Land Warfare Report,” Canberra: Directorate of Future Land Warfare, 2014.

⁸² Mick Ryan, “The Ryan Review: A Study of Army’s Education, Training and Doctrine Needs for the Future,” Commonwealth of Australia, April 2016.

⁸³ The Chief of Army in his speech for an International Women’s Day event stated, “The representation of women in our full-time force is still only 12.7% and it’s not enough”; Australian Army, “Chief of Army Address to the Institute of Public Administration Australia 2017 International Women’s Day Event,” *Army*, March 3, 2017.

are “under-represented in Defence,” with only 15 percent of the ADF workforce and 41 percent of the Australian Public Service workforce consisting of women. According to the white paper, “Increased female participation in the Defence workforce, and in senior leadership, will continue to be a focus in order to broaden Defence’s access to the considerable skills and capabilities within the Australian community.”⁸⁴

Recommendation

Conduct targeted recruiting of the desired population set—in this case women.

The Army should continue its aggressive campaign to ensure diversity in its ranks and to target the needed population set in terms of recruiting and retention. The leadership buy-in that this topic area has is also key to successful outcomes. To further set an environment in which women can personally and professionally thrive, we recommend that the Army continues with its awareness activities through media⁸⁵ and cultural awareness training and education.

The Canadian Armed Forces and Canadian Army have made diversity a cornerstone of defence policy. The government links this goal directly to the CAF’s mission, saying, “Most importantly, the Canadian Armed Forces must reflect the diversity of the country we defend. We need a military that looks like Canada.”⁸⁶ The 2017 Canadian Defence Policy calls for the CAF to increase the number of women in the military to 25 percent by 2026; this increase from the current rate of 15 percent will be achieved through an increase in the proportion of women 1 percent annually.⁸⁷ Furthermore, the Defence Policy outlines a commitment not only to recruit more women, but to retain and increase women’s presence in senior leadership positions. The Diversity Strategy and Action Plan “will promote an institution-wide culture that embraces diversity and inclusion,” including reinforcing diversity in CAF identity and doctrine, “modernising career management and all policies to support diversity and inclusion, and conducting targeted research to better understand diversity within the Department of National Defence.”⁸⁸ Additionally, the Department of National Defence has committed to using analytical tools to support diversity and inclusion goals “in the development and execution of defence operations, policies, and programs”; they highlight Gender-Based Analysis Plus (GBA+), a tool that assesses “the potential impacts of policies, programs, services, and other initiatives on diverse groups of people, taking into account gender and a range of other identity factors.”⁸⁹

⁸⁴ Australian Government, Department of Defence, *2016 Defence White Paper*, p. 151.

⁸⁵ “Making a Difference,” *Defence Magazine*, Issue 2, 2017, pp. 8–9.

⁸⁶ Ministry of Defence, Government of Canada, “Strong, Secure, Engaged,” p. 20.

⁸⁷ Ministry of Defence, Government of Canada, “Strong, Secure, Engaged,” p. 12.

⁸⁸ Ministry of Defence, Government of Canada, “Strong, Secure, Engaged,” p. 23.

⁸⁹ Ministry of Defence, Government of Canada, “Strong, Secure, Engaged,” p. 24.

Issue: Lack of People with Certain Skill Sets, Particularly Enablers

Discussion

There is a shortfall of certain skills among the senior enlisted in the technical fields. It takes years to grow these high-demand, low-density skills. These particular skills are also desirable in the private sector, which often offers better pay and work-life balance than the public sector does. Contractors are not being used to offset some of this burden. Under current practice they do not routinely serve in expeditionary roles.

The Defence White Paper acknowledges this problem and outlines plans to rebalance the force to include new positions in needed capabilities such as space, intelligence and cyber (*2016 Defence White Paper*, Chapter 6). One can already see the results in the Army's 6th Brigade, which houses Combat Support, Intelligence, Surveillance, Target Acquisition and Reconnaissance, with 300 new positions in that command.

Recommendation

Establish or invigorate existing institutional mechanisms to ensure the sustainment of people serving in critical technical fields and/or their knowledge.

This challenge can also be mitigated in similar fashion as the targeting of women for retention and recruitment. Army does an exceptional job of monitoring these critical capabilities and is subsequently better postured to recruit and retain accordingly. Keeping and growing service members with these skills sets can be equally challenging, however, and other strategies must be employed.

For example, the simple practice of mandating continuity books to transfer knowledge and lessons is a simple technique that could ensure that not all of the knowledge a person has leaves when or if he or she does. As was mentioned and will be further discussed, RAND also recommends leveraging the RC to address this issue. Other more execution-level tactics and techniques to consider include conducting BPR to assess functions; conducting manpower analysis to ensure the tasks at hand require the man-hours declared; assessing codification of positions as army-only for consideration for temporary or permanent transfer to civil service or private industry support.

A 2016 Canadian Office of the Auditor General report found that the Canadian Army also struggles to recruit and maintain a sufficient number of qualified people for certain occupations, and therefore overfills some and underfills others.⁹⁰ The report made a number of recommendations for how to improve the recruitment and retention of personnel in particular occupations, including:

- The Canadian Armed Forces should establish appropriate representation goals for women for each occupation. It should also develop and implement measures to achieve them.

⁹⁰ Office of the Auditor General of Canada, *Report 5—Canadian Armed Forces Recruitment and Retention*.

- The Canadian Armed Forces should review its recruiting and training capacity and align this with its planning process to ensure that the recruiting plan reflects the personnel required in each occupation.
- The Canadian Armed Forces should develop and implement a three- to five-year target with an action plan for each occupation to meet recruiting needs, track progress, and take corrective action where necessary.⁹¹

⁹¹ Office of the Auditor General of Canada, *Report 5—Canadian Armed Forces Recruitment and Retention*.

Summary of Recommendations and Conclusions

During our review of enterprise initiatives and FORGEN experiences of other armies, we captured a number of challenges and lessons that may apply to Australian Army FORGEN. The U.S. examples are particularly useful with regard to how one goes about planning and managing change, as well as with tying large and evolving strategic priorities to innovations at lower levels (i.e., enterprise and operational). The U.S. Marine Corps, the French Army, and the Canadian Army offer examples of smaller militaries (relative to the U.S. Army) that, because of their limited resources, are obliged to make tradeoffs and iteratively reinvent themselves to comply with shifting requirements and strategic realities. Even the U.S. Army in its relative robustness often finds itself at odds with funding decisionmakers and in need of making tradeoffs. Arguably, however, the impacts are exacerbated as the size of the force and its operating budget get smaller. The tradeoffs most armies have tried involved experimenting with force structure and FORGEN processes as well as modernisation strategies. In effect, all three examples are representative of ambitious institutions that have a great many objectives, cannot accomplish them all, and struggle with constraints on the achievement of their ambitions. The Australian Army certainly falls under that category and would be well advised to continue looking to the others for ideas and best practices.

The key lesson from the U.S. Army's experience is that a cyclical approach to FORGEN could lead to low unit readiness during prolonged deployments and may therefore need to be mixed with some tiered readiness. In the U.S. Marine Corps, which has faced the challenge of balancing competing demands, a key lesson is that it is important to consider global commitments and end strength carefully when setting deploy-to-dwell targets.

The French Army has also identified lessons from its implementation of modularity and a FORGEN cycle (part of an effort to ensure that its shrinking force structure remains as expeditionary as possible). Although they have still largely retained the modular format, the French have also found it necessary to modify the system in response to different stresses—above all the stress of maintaining a greater than anticipated operational tempo. To France's credit, its Army has demonstrated a great degree of flexibility, changing its force structure and approach to FORGEN multiple times over the past two decades.

The Canadian military has adapted to FORGEN and modernisation challenges in the context of major institutional change (moving from unified services back to three individual services, a transition not fully realised until 2011, when the Canadian Army, Royal Canadian Air Force, and Royal Canadian Navy become separate named services for the first time since 1968). The Canadian Army has faced the challenge of maintaining the capacity to support the efforts of partner nations when many of its citizens and politicians would prefer to emphasise alternative roles of the military—for example, peacekeeping.¹

Summary of Recommendations

Our review of Australian Army reports and interviews with Army officials, along with our review of other armies’ challenges and lessons identified, revealed 25 specific problems that would benefit from further examination to improve FORGEN. Our recommendations, which Chapter Three described in detail, can be grouped into the nine “solution themes” shown in Table 4.1.

Many of our recommendations amount to proceeding deliberately and in a top-down, centralised fashion. Advancing Army’s goals generally cannot be done piecemeal or left to component parts to manage on their own. Lessons identified from other armies

Table 4.1
Solution Themes

Solution Theme	Emphasis
Prioritising roles and missions	Addressing resource, training, and other constraints on roles and missions of the Army
Force design	Addressing gaps and misalignment in force design
Communication	Improving communication inside Army; between Army and ADFHQ; and between ADFHQ and Government
Managing OPTEMPO	Decreasing OPTEMPO to reduce issues related to sustainment of equipment and personnel
Internal control	Introducing policies and procedures to meet objectives and mitigate risks
Managing modernisation	Managing the challenges that come with implementing new equipment, organisation, and/or capabilities
Human capital management	Dealing with recruitment and retention issues, having the right skill sets, and diversity in the workforce
Reserve Component utilisation	Addressing underutilisation of the RC
Basing plan	Organising and aligning bases

¹ Margaret Wente, “Justin’s Dilemma: Soft Power, Hard World,” *Globe and Mail*, March 24, 2017.

suggest that planned and deliberate modernisation and transformation cannot be done absent a robust “generating” force or civilian component capable of doing analytical and management work. Regrettably, cost-conscious militaries that aspire to have high tooth-to-tail ratios and lean bureaucracies often skimp on those capabilities.

In Table 4.2, we match the problems outlined in Chapter Three to potential solution themes. Some of the problems correspond to more than one solution theme and as such these solutions themes will be prioritised above those that do not touch as many challenges.

RAND prioritised the recommendations that should be undertaken by considering both complexity—how difficult it would be due to size and magnitude—and urgency—the risk associated with not resolving a certain issue. Figure 4.1 depicts the urgency and complexity of each of the nine solution themes. We scored these solution themes based on the Australian context, lessons from experiences in the Canadian, U.S., French, and Australian militaries, our understanding of organisational complexity, and SME evaluation inside of RAND.

Addressing issues related to Internal Control and better managing OPTEMPO are low on the complexity scale because they largely call for updating policies and procedures to improve monitoring, ensure careful management of resources, and decrease cost risk. On the other hand, Prioritising Roles and Missions and Force Design, the root of many of the FORGEN problems the Australian Army is facing, are highly complex. There tends to be broad debate over where Australia should accept national security risk; additionally, how to force generate based on this accepted risk is a question that calls for rigorous analysis of a process with many elements.

RAND has highlighted the three solution themes in the upper right quadrant of Figure 4.1: Prioritising Roles and Missions, Force Design, and Communication with Stakeholders. Addressing these themes will require more resources and requires urgent attention. Solution themes in the lower right quadrant—Internal Control and Managing OPTEMPO—could be described as options for “quick wins,” whereas complex challenges will require adequate time and resourcing to overcome.

Once the purpose of the Army is agreed upon, how the Army achieves these goals then can begin to take shape. Figure 4.2 depicts this idea and how the solution themes are related.

RAND therefore advises implementing high-urgency solutions soonest. And, as outlined in Figure 4.3, notes that outcomes from Tier 1 themes—Prioritising Roles and Missions, Force Design, and Communication with Stakeholders—will feed into efforts to address Managing OPTEMPO and Internal Control. During the study, the Australian Army had in parallel begun its own strategic assessment initiative, referred to as the Master Question List, which had come to similar conclusions about the need to build a narrative around the land force before deciding how to modernise it.

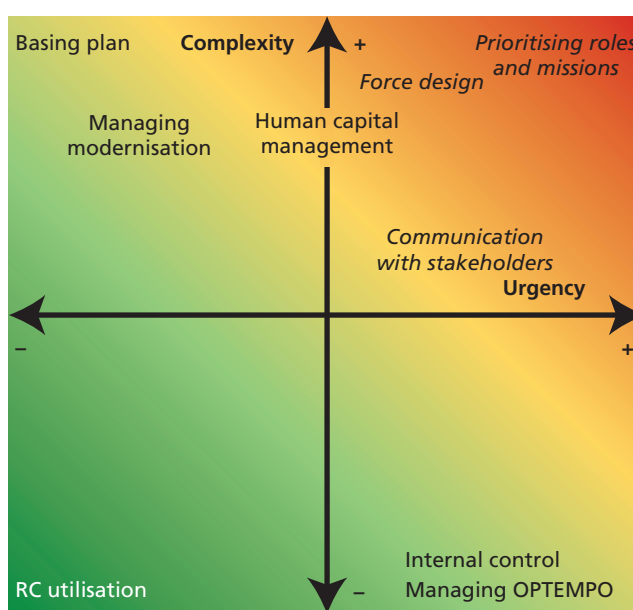
Table 4.2
Problems Matched to Solution Themes

Solution Theme	Associated Problems
Prioritising roles and missions	• Sharing Army capabilities with the Joint Force and other government agencies (OGAs), most often those enablers that are high-demand/low-density capabilities • Misaligning the vision of being a world-class army with the resources (size, sustainment, funding, time) to achieve it • Current risk framework not being well integrated; Army lacking standard, well-defined, widely understood system for tracking enterprise risks or challenges • Managing growth of Army in accordance with Defence White Paper and the Defence Planning Guidance (DPG) • Prioritising roles and missions among global, regional, and domestic objectives, and allocating resources to appropriately meet those mission sets • FORGEN cycle not being strictly adhered to and being frequently broken for government, ADFHQ, and Army needs • Training focused on mid- to high-intensity combat to the detriment of minimal training for other missions including: stability operations; Humanitarian and Disaster Relief; and Train, Advise, Assist
Force design	• Sharing Army capabilities with the Joint Force and OGAs, most often those enablers that are high-demand/low-density capabilities • Misaligning the vision of being a world-class army with the resources (capabilities, size, sustainment, funding, time) to achieve it • Army naming conventions for capabilities are not aligned with or integrated into naming conventions for joint capabilities • Managing growth of Army in accordance with Defence White Paper and the DPG • Capability gaps hindering becoming a world-class army • Misalignment of manning and organisation of Army elements for optimal output, including alignment of the RC elements • FORGEN cycle not being strictly adhered to and being frequently broken for government, ADFHQ, and Army needs • Misalignment of FORGEN cycles of the three services (Army, Navy, and Air Force) • Tension with centralising support capabilities as opposed to organically assigning
Communication	• Sharing of Army capabilities with the Joint Force and OGAs, most often those enablers that are high-demand/low-density capabilities • Misaligning the vision of being a world-class army with the resources (capabilities, size, sustainment, funding, time) to achieve it • Current risk framework is not well integrated • Managing growth of Army in accordance with Defence White Paper and the DPG • Seeing, understanding, and reacting to the new norms for the future or emergent nature of war and character of warfare • Prioritising roles and missions among global, regional, and domestic objectives and allocating resources to appropriately meet those mission sets • Communicating capability gaps among government, ADFHQ, and Army • Multirole combat brigades being perceived as deployable entities as opposed to FORGEN constructs • Hallmark of success in command tour as participation in combat-centric operations and training • Tension with centralising support capabilities as opposed to organically assigning
Managing OPTEMPO	• Friction between force modernisation and FORGEN • Adverse effects related to OPTEMPO: costs, retention, recruitment, maintenance, stress on soldier and family, individual training opportunity costs • Misalignment of FORGEN cycles of the three services (Army, Navy, and Air Force) • Lack of subordinate unit assessments and certifications during major training exercises
Internal control	• Connecting lessons identified to concepts to actual doctrinal and process upgrades • Current risk framework is not well integrated

Table 4.2—Continued

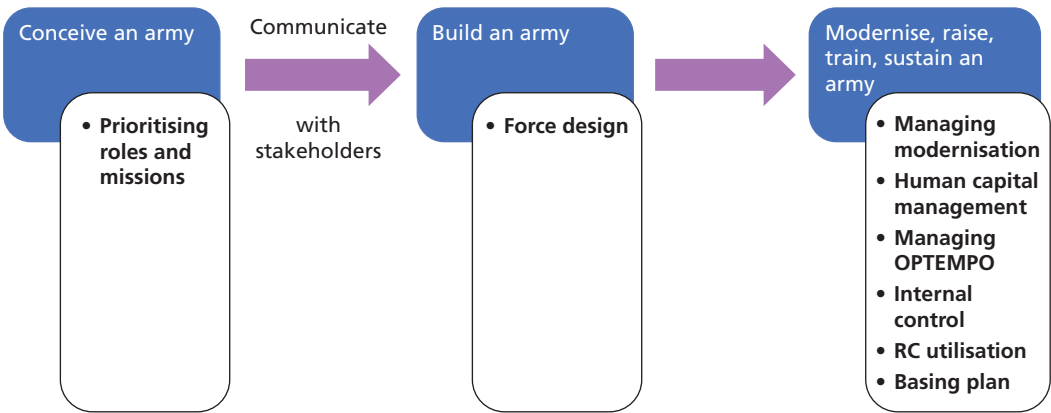
Solution Theme	Associated Problems
	- Hallmark of success in command tour as participation in combat-centric operations and training - Friction between force modernisation and FORGEN - Adverse effects related to OPTEMPO: costs, retention, recruitment, maintenance, stress on soldier and family, individual training opportunity costs - FORGEN cycle not being strictly adhered to and being frequently broken for government, ADFHQ, and Army needs - Training is focused on mid- to high-intensity combat to the detriment of training for other missions including stability operations, Humanitarian and Disaster Relief; and Train, Advise, Assist - Misalignment of FORGEN cycles of the three services (Army, Navy, and Air Force) - Tension with centralising support capabilities as opposed to organically assigning - Lack of subordinate unit assessments and certifications during major training exercises
Managing modernisation	- Capability gaps hindering becoming a world-class army - Friction between force modernisation and FORGEN
Human capital management	- Managing growth of Army in accordance with Defence White Paper and the DPG - Integration of women in the Army - Lack of people in certain skill sets, particularly enablers
RC utilisation	- Misalignment of manning and organisation of Army elements for optimal output, including alignment of the RC elements - Divergence between the Active and Reserve Components in terms of training and materiel readiness and interoperability
Basing plan	Geographic locations and dispersion of some units with respect to training and support relationships

Figure 4.1
Urgency vs. Complexity of Recommendations



RAND RR2382-4.1

Figure 4.2
Recommendation Theme Framework



RAND RR2382-4.2

The rationales for the nine recommendations are discussed below, along with what implementing these solutions might entail.

Prioritising Roles and Missions

Without a clear understanding of the Army’s role, the Army cannot design, plan, train, or resource its forces to the right mission sets. Tension between what the ADF believes its roles and missions should be and what Government and the public believe the role of the military should be is natural. However, such gaps (divergent perspectives) should be monitored and addressed—especially when resources are constrained. Australia currently has gaps between Army and ADFHQ, and both have gaps with Government.

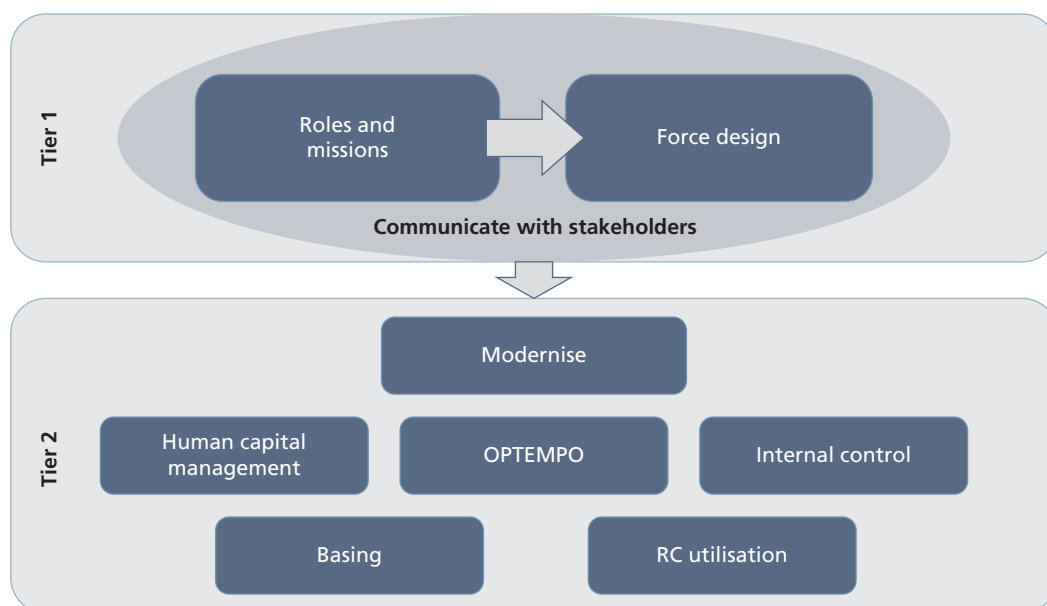
Force Design

There is a misalignment in the current force structure, and it affects the ability of the FORGEN cycle to fulfil intended goals. Army faces the challenge of imposing yet another change to Plan Beersheba (implemented as recently as 2011), as opposed to leaving things in place, considering current challenges. Improving internal control mechanisms and managing the OPTEMPO can help mitigate the immediate stress on resources, but a force design change might still need to be considered in near the future. Once the roles and missions of the Army are more clearly defined and there is a better understanding of lessons identified in force design journeys (currently being explored by the DSTG), the Army will be in a better position to benefit from a deliberate and rigorous look at its force design.

Communication

Looking at the communication model from Chapter Three, each node has problems to be resolved to improve the overall communication. The sender node, Army, has cultural features that can affect the message being sent to Defence and Government. For

Figure 4.3
Conceptualisation: From Vision to Action



RAND RR2382-4.3

example, Army is very focused on training for high-intensity conflict, which does not reflect the strategic objectives outlined in the 2016 Defence White Paper. As such, information being sent to ADFHQ or Government tends to be influenced by this bias towards wanting to develop high-intensity warfighting. Next, the message itself can be faulty because the content is inaccurate or does not provide the appropriate information designed to help the recipients (Government) make informed decisions. As discussed in Chapter Three, readiness reporting is an example of incomplete or inconsistent messaging. (RAND found no issues in the modes of communication—i.e., documents, hearings, and other methods.) Lastly, the recipient, Government and ADFHQ, may not interpret a message correctly, or there could be debate inside Government about what kind of roles the Army should have, regardless of the information being sent. For these reasons, RAND sees the major problem in communication as the content of the messaging and not the actors. Improving communication can be closely linked to prioritising roles and missions—and therefore has some complexity and urgency.

Managing OPTEMPO

One of the more straightforward solutions to implement is better management of the OPTEMPO of forces. Streamlining or reducing the number and magnitude of training exercises and even the types of deployments will reduce the overuse of resources: equipment, money, and people.

Internal Control

Internal control mechanisms to enforce standards, especially related to the use of resources, could help reduce issues related to overuse and overtraining. Approvals and checks are likely to enforce discipline in a FORGEN system and ensure the cycle runs as intended. A few simple measures could go a long way to improving the burden on resources. For example, in 2017, 16th Brigade implemented a flying hours cap on certain aircraft which has improved quality of life of pilots and crews as well as improving the sustainability and maintainability of these systems.²

Managing Modernisation

The Army has been challenged in modernising its force as it would like due to friction with the current FORGEN model. Although modernisation is a complex undertaking, modernisation is being directly affected by FORGEN and force design issues, and once those are addressed, modernisation problems should decrease and be less difficult to overcome.

Human Capital Management

Human capital issues can be challenging and complex because of their dependence on multiple factors such as the available labour pool; organisational practices; and the social, political, and economic climate. Consequently, they tend to require frequent monitoring and deliberate action. ADF has already put in place measures to improve issues related to retention, recruitment, diversity, and skills management. For example, the 2016 Defence White Paper outlined plans to grow the force in currently lacking enabler capabilities such as cyber, ISR, health, and EW. As such, human capital management was not deemed very urgent, because there are steps currently being taken to mitigate human capital challenges. It is important, however, that such efforts, and more like them, continue, given that attracting and training a skilled and diverse workforce is still a problem inside the ADF.

Reserve Component Utilisation

This report did not focus on the RC; however, Australia is paying for an RC capability. Using the RC to address capability gaps will help avoid incurring additional costs for contractors. Better utilisation of the RC is therefore an appropriate objective, but it is not an urgent or complex problem.

Basing Plan

Realigning and closing bases in an extremely costly and difficult task to undertake and should be considered only if there is a stable force design. Better management of

² 16th Brigade, interview with the authors, Brisbane, Queensland, Australia, July 24, 2017.

OPTEMPO is likely to make geographical/distance barriers have less impact. A basing plan is therefore not urgent to consider at this time.

Conclusions

The array of challenges and proposed solutions in this study underscores the complexity of FORGEN; the process encompasses many aspects and functions of the Army beyond those covered by Plan Beersheba. As the Australian Army continues to develop and refine its FORGEN plans, it will be important to consider what kind of Army Australia needs, for what purposes, and how much Australia is willing to pay for it. Information gathered in this study suggests that, currently, the resources Government is willing to invest in the Army are not commensurate with the Army's ambitious goals. If additional resources cannot be allocated, then goals are likely to need adjustment, and it will be important to consider tradeoffs—and how to maximise the yield from investments—when making such adjustments.

Relatedly, the Army may not have the resources to implement all recommendations in this study. Thus, officials will need to consider the priority (based on urgency and complexity) of solutions and the costs of the solutions.³ High-complexity, high-urgency themes—Prioritising Roles and Missions, Force Design, and Communication with Stakeholders—will require more resources, and require urgent attention as they will provide the necessary baseline for follow-on themes. Low-complexity, high-urgency themes—Internal Control and Managing OPTEMPO—should also be prioritised as soon as is feasible as they can provide “quick wins.” However, other solutions should also be implemented to the extent that resources permit. A potential direction for a future study of the Australian Army is to further develop and refine the solutions proposed here—and then to assess their costs. This additional information will help the Army determine which recommendations are affordable.

In addition to further developing and estimating the costs of the solution set offered, an important next step is to articulate the challenges and risks identified here to officials outside of the Army to generate support for proposed changes. Indeed, many of the challenges faced by the Army might be self-evident to those within the service yet opaque to Defence, the Australian Parliament, or the general public. Some examples include the difference between brigades and the actual fighting force that must be assembled to deploy on a mission or participate in a major training event. Another has to do with the ramifications of enabling units not keeping up with the FORGEN tempo of combat units. It is an aim of this study to assist the Army in pinpointing such problems, communicating them to others, and implementing feasible solutions.

³ Both financial costs and opportunity costs (of not adopting a solution) are important to consider. Our assessment of the urgency of solutions considers the operational risks and costs of not adopting the solutions.

Background on the Australian Defence Organisation and Australian Army

The Australian Defence Organisation (ADO) has been taking steps to better align its strategic goals with capability plans and resources. Strategic goals include

- “A secure, resilient Australia, with secure northern approaches and proximate sea lines of communication”
- “A secure nearer region, encompassing maritime South East Asia and the South Pacific”
- “A stable Indo-Pacific region and a rules-based global order” (Australian Government, Department of Defence, *2016 Defence White Paper*, Commonwealth of Australia, 2016, p. 68).

Among the steps that Defence has taken to improve the connections among defence strategy, capability plans, and the budget are the following:

- A Defence Industry Policy statement (Australian Government Department of Defence, *2016 Defence Industry Policy Statement*, Commonwealth of Australia, 2016) that supports increased public–private partnership, acknowledges industry as an FIC, and encourages innovative research and STEM development.
- A ten-year investment program to enhance capability to meet the strategic goals outlined in the Defence White Paper. Major investments include submarines, ISR capabilities, combat vehicles, and air and sealift capabilities.
- The Defence workforce has been increasing in size. Although there are currently 58,000 permanent members of the Defence, that figure is expected to grow to 62,400 (Australian Government Department of Defence, *2016 Defence White Paper*, p. 23).
- The Australian Government is planning to increase the defence budget to 2 percent of the GDP by 2020–2021 (from A\$32.4 in FY 17 to A\$42.4 Billion FY 21). In ten years, spending is expected to jump to A\$58.7, an 81 percent increase in expenditure seen today—an unprecedented investment in Australian defence (Australian Government, Department of Defence, *2016 Defence White Paper*, p. 9).

While the broader Defence has been increasing its connection to industry, its workforce, and its budget, the Australian Army has been undergoing changes in FORGEN and modernisation. The Australian Army currently has three major commands (<https://www.army.gov.au/our-people/units>, 2017):

- *1st Division*: Headquarters 1st Division is the land component to Headquarters Joint Operations Command (HQJOC), provides the ADF's high-readiness Deployable Joint Force Headquarters for contingencies in Australia and overseas, and has responsibility for Amphibious Capability Development on behalf of the ADF.
- *Forces Command (FORCOMD)*: It consists of 85 percent of the Army's personnel, contains Land and Training commands, and generates Army's foundation war-fighting capability in order to ensure individuals and force elements are successful in Adaptive Campaigning.
- *Special Operations Command*: Its mission is to provide ready and relevant forces to conduct special operations across the operational domain in a joint, combined, or interagency environment, in support of Australia's national interests.

In 2011 the Australian Army initiated Plan Beersheba to change FORGEN processes and increase readiness. The plan has the following elements:

- Creation of three MCBs that operate on a 36-month cycle. These MCBs consist of combat, combat support, and combat service support units. MCBs have approximately 4,000 civilian and military personnel.
- Reorganisation of Reserve Units enabled by total ADF Project Suakin initiative. Six total reserve units with two units assigned to each MCB. When an MCB is in its "ready" year, a battalion-sized group from the respective reserve units must be too.
- Developing amphibious capability.

Other ongoing modernisation projects focus on capability and acquiring material such as armoured vehicles, digital radios anti-improvised explosive device (IED) vehicles.

Description of U.S. Army Total Army Analysis Process

Total Army Analysis (TAA)

Purpose

This section provides background information on the Total Army Analysis (TAA) process and its role in determining the Army's force structure position for the Program Objective Memorandum (POM) submission.

Background Information

TAA is the recognised Army process that links strategy to force structure and serves as the bridge between Office of the Secretary of Defense/Joint Staff guidance and the Army's planning and programming processes, balancing the Army's force structure requirements with available and planned resources. TAA is a collaborative process involving all components of the Army to shape the future composition of the Army. This interaction is representative of the incorporation of the Army's Total Force Policy (ATFP) when allocating force structure among the components. TAA results in Secretary of Army-approved force structure changes, which are announced via the Army Structure (ARSTRUC) memorandum, which describes how Army structure and force mix will change during the POM.

The Army does not size the force using TAA. TAA examines the projected Army force from both qualitative and quantitative perspectives, conducting a two-phased approach to determine the shape of each Army component. Since 2005, the Army has included the Generating Force (GF) into TAA. GF TAA relies upon negotiation among stakeholders to identify manpower requirements and level of resourcing, within given constraints.

Phase One of TAA (Capability Demand Analysis) results in a set of demands for each Army capability, regardless of component. The modelling efforts conducted by the Center for Army Analysis (CAA) employ DoD-approved scenarios to determine the demand for operational forces. The Army staff, led by Headquarters, Department of the Army G-3/5/7 Force Management, uses the CAA modeling output to shape the Operating Force (OF). Modelling does not shape the GF force or the transients, trainees, holdees, and students (TTHS) account. Phase Two of TAA (Resourcing) uses the demand analysis results and best military judgement to determine how much of that

force the Army can afford to develop and sustain, and serves to establish the force mix within the Army and each component. During the qualitative analysis, all Army components have direct input in the distribution and allocation of force structure. This portion of the process relies upon negotiation among stakeholders to work within constrained manpower, equipping and funding thresholds when determining the Army's force mix, composition, and allocation of forces structure across all components.

The ARSTRUC memorandum is a tool used to capture, consolidate, and document changes to the force structure since its last publication. The ARSTRUC is a directive document used to inform the Army of approved force structure changes over the course of the Future Years Defense Program and is the key point of reference for the development of the Army's POM.

Subsequent to completion of TAA, the Guard and Reserve position (station) forces in the States and Territories (and overseas for a select number of Reserve forces) to address a wide range of criteria, including recruiting, retention, proximity to available training areas and transportation networks, and availability for Defense Support to Civil Authorities (DSCA) missions. Additionally, the Guard seeks to distribute assigned forces to ensure State Governors have access to the types and quantity of forces for response to State emergencies.

TAA is agile enough to accommodate budget-year changes, including analytic excursions to understand the associated impacts. Two examples of budget-year changes are the Force Design Assessment (FDA) in TAA 12–17, which directed modifications to formations to preserve capabilities, and the Army 2020 redesign of the BCT in TAA 14–18, which added a third manoeuvre battalion and a brigade engineer battalion to our formations.

Army Perspective

TAA is the process used by the Army to determine the Army Force Structure position for the POM build. It is conducted in two phases: Capability Demand Analysis and Resourcing. TAA is open and transparent, incorporates all Army components, addresses both Operating and Generating Force requirements, and balances the Army within authorised end strength.

Abbreviations

AAR	After Action Review
AC	Active Component
ADF	Australian Defence Force
ADFHQ	Australian Defence Force Headquarters
ARFORGEN	Army Force Generation Model
BCT	brigade combat team
BMS	Battlefield Management System
BPR	business process reengineering
CAA	Center for Army Analysis
CAF	Canadian Armed Forces
CBO	Congressional Budget Office
CCMD	combatant command
COIN	counterinsurgency
CS	combat support
CSS	combat service support
DSTG	Australian Defence Science & Technology Group
EW	electronic warfare
FBCT	Future Combat Systems Brigade Combat Team
FCS	Future Combat Systems
FGP	force generation process
FIC	Fundamental Inputs to Capability

FORGEN	force generation
GAO	Government Accountability Office
GTIA	<i>Groupeement tactique interarmes</i> (Tactical Combined Arms Group)
GWOT	Global War on Terror
ISR	intelligence, surveillance, and reconnaissance
MCB	multirole combat brigade
MCP	<i>Mise en condition avant projection</i> (Predeployment Training)
MEU	marine expeditionary unit
NDM	National Defense Missions
OGA	other government agency
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
PEGP	<i>Politique d'emploi et de gestion des parcs</i> (Fleet Use and Management Policy)
QDR	Quadrennial Defense Review
RC	Reserve Component
SAGEE	<i>Système d'analyse pour la gestion et l'emploi des équipements</i> (Analysis System for the Use and Management of Equipment)
SGTIA	<i>Sous-groupeement tactique interarmes</i> (Combined Arms Tactical Subgroups)
SME	subject matter expert
TAA	Total Army Analysis
TO&E	tables of organisation and equipment
VAB	<i>Véhicule de l'avant blindé</i> (forward armoured vehicle)
VBCI	<i>Véhicule blindé de combat d'infanterie</i> (armoured infantry combat vehicle)

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The Australian Army is changing, modernising, and reorganising its force structure in ways that affect the force generation (FORGEN) cycle of its combat and enabler elements. To ensure that this transition is successful, the Australian Army is seeking to identify and address strategic FORGEN challenges. This report takes a broad view of FORGEN, considering both the operational and the institutional factors that can affect an army's imperative to generate ready and capable forces. The report reviews the modernisation efforts and FORGEN practices of the U.S. Army, the U.S. Marine Corps, the French Army, and the Canadian Army to gather lessons that might be applicable to Australia's current efforts. It additionally draws on documents describing the current processes and challenges in the Australian Army and subject matter interviews to identify challenges (vulnerabilities or capability gaps) and assess their potential effects on management areas, combat functions, and enabling functions. The report also offers recommendations to address what may be seen as the most prominent current and emergent challenges facing the Australian Army. RAND identified three areas of principal importance: (1) prioritising the roles and missions of the Army; (2) designing a force to align with these roles and missions; and (3) continued communication across all levels of Defence and with the Australian Government to be able to perform the agreed roles and missions. The report is likely to be of interest to Government officials overseeing defence policy.



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