



Army



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Serving our Nation



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Foreword

The *Australian Army Journal* is the Australian Army's premier professional publication and a consistent presence informing the debate about the Army since the late 1940s. The topics of the journal have been ever-changing as authors reflect upon the issues affecting the Army of the day. The journal has given everyone from junior leaders to Chiefs of Army a venue to share ideas, discuss issues and do the most important thing that a leader can do: offer thoughts to prepare those who will inevitably follow them in the near and more distant future. The recent decision to situate the journal as a professional, and not primarily academic, publication is a sign of the strength of the discussion about the Army. The *Australian Army Journal* remains a critical part of the Army's past, and it will be equally critical for the Army in the future.

The Army needs its best minds to write about its past, present and possible future. In the time since the last edition of the Journal was published, the Army distinguished itself on Operation BUSHFIRE ASSIST and has been committing all it can to supporting the national response to the coronavirus pandemic. The Army's core philosophies, captured in a range of strategic documentation released since 2018, have been validated in this demanding time. That the future is uncertain and surprising is an understatement given these events. It demands us, as a professional military, to seek to understand our new circumstances, consider its challenges and position the Army to be *what the nation demands of it*.

Of course, the Army is only as strong as its partners. Professional writing is an important way to share with them the significant issues of our time. In this sharing of ideas we can build consensus on issues and demonstrate

our willingness to accept the responsibility demanded by the time. The journal contributes to the rich discourse across the ADF and within the Department of Defence as decisions about the future of the ADF are made. But it also invites the community into our discussion, helping them become aware of why the Army should matter to them. More importantly, it can give the Australian community—its people, industry, academia and all other institutions—confidence that it has an able and intellectually prepared service ready to serve the nation.

In introducing this edition of the journal, I impress upon all readers to recognise how fundamentally different the world is from that which existed only months ago. The assumptions that form the basis of our thinking have been tested, trends have accelerated, expectations have changed and pressures are being felt all across Australian society. It is important that we challenge the assumptions in our own thinking so that the Army can be better for it. We all need to contribute, whether that be through writing a blog post or an article, making a professional video or photograph, presenting at a seminar or a ‘Cove talk’, or even simply reading widely and talking about today’s challenges in messes and soldiers’ clubs.

The journal is important not just because it is another forum for a professional military to discuss issues; its long history shows it to be an important record of what is happening now and how all of us have positioned the Army to be the best it can be for the future.

Colonel David Beaumont
Director, Australian Army Research Centre

Editorial

In his foreword, the Director of the Australian Army Research Centre writes of an 'uncertain and surprising future'. That theme echoes across the entire content of this edition of the *Australian Army Journal*. It is, however, a testament to our authors that they have not let that uncertainty overwhelm them; rather, they have made critical observations, analysed problems and suggested new ways of seeing, operating in and thinking about Army. Moreover, they have done this from an individual perspective which reflects their corps, unit and particular field of interest.

Leading this discussion is Colonel Martin White who observes that current Australian strategic commentary fails to acknowledge the nexus between Defence policy and sophisticated technology and that it insufficiently takes into account the threats or opportunities of autonomous systems and artificial intelligence. In his thoughtful critique, Colonel White describes the common response to an Indo-Pacific technology race as overly 'contained' by geography and 'restrained' by military hardware. Major Lee Hayward continues this strategic critique in her call for a clearer understanding of information warfare. The information environment, according to the author, is the least familiar fighting environment but the one with the greatest potential for targeting decision-making. In a world where 'the absolutes of war and peace are outdated and irrelevant', Major Hayward argues for an information warfare campaign plan that takes into account the human endeavour. Advancing the theme of the uncertain environment is a thought-provoking piece by Dr Joyo Sanyal on the security challenges of operating in the zone between peace and war, known as the 'grey zone'.

If questioning absolutes is a common motif, then Lieutenant Colonel Will Viggers does this well in his examination of the levels of war. Lieutenant Colonel Viggers examines the opacity of the level known as 'operational' and argues that, through complex doctrinal definitions, the logic of the levels has been obscured. He instead proposes a simple structure in which the levels are clearly distinguished according to their functions, objectives, and characteristics, and which reminds us that the use of war is inherently political. Captain Nicholas Barber offers a panacea for the uncertainty of the battlespace through developing an effective intelligence, surveillance and reconnaissance capability. His article argues the case for an adaptive ISR capability, based on the characteristics of agility and resilience.

Two articles follow which focus on new technology. First, three officers from the 1st Combat Service Support Battalion combine their extensive experience to propose a new model for the future of Army supply chains and distribution. Second, Major Matthew Wood from the Directorate of Land Force Design puts forward a compelling case for the reintroduction of manufacturing—in particular, 3D printing—to enhance the supply chain and support frontline innovation. Both articles demonstrate creative ways to build resilience in the force while reducing the threat to soldiers.

The next group of articles offers four different perspectives on Army's people. In a fascinating study, Captain Toni Pachernegg discusses the emerging use of the borrowed term 'warfighter', its misalignment with Army's warfighting philosophy, and the implications for creating disharmony within the moral and intellectual components of fighting power. Major Nathan Bradney provides a useful discussion on the influence of culture, ethics and foreign competition on the development of a counterterrorism capability, and observes how counterterrorism skills have gradually transferred from the Special Forces to the conventional force. In a new empirical study the Director of Defence Force Recruiting, Colonel Philip Hoglin, provides a detailed evaluation of the ADF Gap Year—Army program from its first iteration in 2007 to 2012. Finally, Brigadier Douglas Laidlaw and Lieutenant Colonel Scott Denner call for the reintroduction of the rank of Second Lieutenant as a necessary development pathway for part-time officers in the future total force.

We review four excellent books that have been recently published: a collection of essays on 21st century combatants; an ethnographic cultural study of Norwegian special forces; an official history of Australian

peacekeeping missions from 1947 to 2006; and a highly informative commentary on social media, hackers and fake news. Enough reading to keep you occupied until the next edition!

Finally, I would like to congratulate Captain James Lewis for his 2019 article 'The Battle of Marawi: Lessons for Developing Urban Capabilities', for which he has been awarded the Chauvel Prize. The Editorial Board considered Captain Lewis' article 'exceptionally important and topical' and determined that, in an impressive year of written work, it contributed best to the debate on future land warfare. I look forward to that ongoing debate, and I commend this edition of the *Australian Army Journal* to you.

Contained, Enplaned and Restrained: Strategic Brinkmanship in the Australian Context

Colonel Martin White

Abstract

Strategic brinkmanship, the preparedness to take a country to the edge of war without having to ultimately do so, has a powerful historical basis in the United States and China and is on the rise between those nations in the Indo-Pacific. Although their competition is multifaceted, the most significant security risk for Australia appears likely to play out in the race for technologically sophisticated autonomous systems and artificial intelligence (A/AI), where risk-taking could confer a decisive advantage. The implications for Australia of a regional military A/AI race are potentially immense, but the nexus between strategy and technology is frequently absent from contemporary Australian debate. This article will characterise the Australian strategic commentariat's response to Indo-Pacific A/AI competition as *contained*, *enplaned* and *restrained*. In other words it is overly contained by geographic factors; too focused on traditional, crewed platforms as the proposed military hardware solutions; and not sufficiently focused on A/AI as both a serious threat and a necessary capability.

Introduction

The United States (US) and China are no strangers to the strategic brinkmanship that their Indo-Pacific competition will embolden and that has been foreshadowed in policy.¹ Strategic brinkmanship is the preparedness to take a country to the edge of war without having to ultimately do so; or it could be interpreted as a nation engaging in limited forms of warfare with limited aims, with an expectation of being able to extricate itself on its own terms. When a nation is engaging in brinkmanship, policymakers from that nation will believe that their opponent will eventually find the risks to be intolerable and will de-escalate the situation.²

In rather different post-Second World War contexts, the US and China have both become expert at strategic brinkmanship; arguably, they know no other way. US Cold War nuclear doctrine was fully based on concepts of brinkmanship, perception and deterrence.³ A challenging security environment and a self-perception of its great power status have seen China similarly prepared to engage in strategic brinkmanship. From its conflicts in Korea, India, the Soviet Union and Vietnam in the 1960s and 1970s to its provocative occupation of disputed South China Sea islands and its indiscriminate use of new technology such as cyber exploitation, China has been prepared to risk military escalation and unintended consequences where it has perceived its core interests at stake, and is now considered a prominent and permanent 'Grey Zone' actor.⁴

Competition and striving for a strategic advantage in the Indo-Pacific is multifaceted. But the most significant risk for Australia appears likely to play out—both visibly and covertly—in the race for technologically sophisticated artificial intelligence⁵ and associated technology such as autonomous systems (referred to here as 'A/AI'),⁶ where successful risk-taking could confer a considerable or even decisive advantage—perhaps even more so than other developing technologies such as hypersonic weapons.⁷ Although many prominent practitioners have argued for widespread prohibitions on A/AI in warfare applications,⁸ the Indo-Pacific seems likely to become a live testing ground for advanced and potentially underdeveloped military A/AI hardware, including in conjunction with nuclear capabilities.



The implications for Australia of a military A/AI race are potentially immense, even bringing into question the efficacy of Australia's defence policy over time. But A/AI are mostly absent from contemporary debate. This article will characterise the Australian strategic commentariat's response to Indo-Pacific A/AI competition as *contained*, *enplaned* and *restrained*: that is, discussion is overly contained by geographical factors; capability recommendations predominantly relate to traditional military hardware such as crewed combat aircraft; and commentary mostly downplays or even warns against embracing A/AI as either a serious threat or a necessary capability. The *contained*, *enplaned* and *restrained* nature of the debate appears inconsistent with the likely regional outcomes of superpower A/AI competition.

This article will contend first that, based on historical behaviour, US and Chinese competition in the Indo-Pacific will embolden strategic brinkmanship; second that the incentives to rapidly introduce military A/AI are high for both the US and China; and finally that current Australian commentary insufficiently recognises the need to comprehensively address A/AI as an intrinsic aspect of military strategy, arguably leading to somewhat dated prescriptions.

To the Brink of Extinction

Former US Secretary of State John Foster Dulles was popularly associated with geostrategic brinkmanship, and the need to maintain an immense capacity for nuclear and broader military action to ensure peace and stability. His acceptance of extraordinary nuclear risk was based on his belief that unwillingness to go to the brink of nuclear war would perversely increase the risk of nuclear war.⁹

Dulles was a prominent nuclear actor, but he had many companions. A generation of US political leaders and scholars made strategic brinkmanship an art form during the Cold War. Military technological competition with the Soviet Union could have easily seen thermonuclear capabilities used as an instrument for both political and military purposes. Despite a view that nuclear weapons encouraged stability, there was no assurance that the US nuclear force posture would deter or prevent war. A feature of Cold War nuclear policy development was its incremental nature, and US policymakers effectively built their nuclear strategy concurrently with doctrine, force development and military posturing.¹⁰ While many have argued that a 'peace through nuclear strength' approach resulted in lengthy periods of geostrategic stability, such an approach inherently required a preparedness to engage in brinkmanship. This manifested as deliberate escalation of tension at certain times,¹¹ and acceptance of great uncertainty in circumstances of immense gravity,¹² particularly when periodic technological change (or even perceived technological change) altered the balance of power.

This Cold War experience was fundamental to the US conception of competition and deterrence, and US policymakers will almost certainly rely on this experience and doctrine as new strategic competition intensifies. While nuclear weapons are still highly relevant to geostrategic competition, strategic brinkmanship will also be demonstrated through the use of other emerging technology.

Although China's experience was predominantly outside the nuclear realm, and its actions were consistently framed by Chinese leaders as being strategically defensive in nature,¹³ China also has a long history of engaging in strategic brinkmanship. In part, this brinkmanship was a response to the perception of threats to the Communist state from all sides, combined with a

powerful sense of great power status and nationalism.¹⁴ Perceived and real challenges to Chinese territorial integrity were viewed as especially egregious threats, in response to which Chinese leaders were prepared to risk more, even just to maintain the status quo or achieve incremental gains.

Chinese leaders viewed their involvement in post-Second World War conflicts as defending their vital interests. Nonetheless, China's participation in these conflicts demonstrated strategic brinkmanship and a willingness to accept significant risk associated with conflict escalation. Chinese involvement in the Korean War was a strategic gamble, due to China's lack of material prosperity, ongoing domestic conflict and inferior military capability.¹⁵ China initiated the 1962 war with India, described as a 'large scale self-defensive counterattack',¹⁶ and in doing so courted immense risks including the potential to invite US involvement on the Indian side; international isolation; and an inability to prevent an extended and costly conflict. Similarly, the 1969 conflict with the Soviet Union was a 'scary close call' that could easily have resulted in a nuclear exchange.¹⁷ China risked reprisal from major powers and its economic modernisation in initiating war with Vietnam in 1979.¹⁸

More recently, China has been prepared to take strategic risks in the South China Sea region. Chinese activity in this region is often classified as 'grey zone' activity. It has involved militarisation of features such as the Spratly Islands;¹⁹ aggressive military manoeuvres;²⁰ ramming of fishing boats;²¹ consistent military incursions into disputed territory;²² aggressive and cavalier cyber attacks;²³ and breaches of international law. Such actions are indicative of a national leadership that is prepared to take military actions beyond what others would view as within normal bounds of behaviour, thereby demonstrating a preparedness to increase the risk of conflict. These actions challenge the US, its allies and regional nations to escalate their response, and as a consequence increase the risk of unintended conflict.

Throughout its 20th century wars, while the US managed constant nuclear risk over several decades, China most visibly displayed strategic brinkmanship in crisis situations. Chinese crisis situations were frequent, however, and Chinese leaders also had to manage ongoing risk in fighting the Kuomintang. More recent Chinese grey zone operations show that China approaches risk, conflict and competition from a more continuous footing, and that military operations in peacetime form an inherent part of Chinese statecraft.²⁴

In summary, although in different contexts, strategic brinkmanship has been central to the security approaches of the US and China since the Second World War. With geostrategic competition in the Indo-Pacific starting to characterise the US–China relationship,²⁵ and with competition clearly being foreshadowed in high-level policy,²⁶ it is likely that similar strategic brinkmanship will be realised. This article contends that the most important manifestation of strategic brinkmanship will be in military A/AI development.

Accelerating Algorithm and Tempo

A/AI development is regularly viewed optimistically, with a belief that society has the agency to effectively implement and regulate A/AI to achieve a positive net benefit. Areas such as health care stand to benefit significantly, so long as the ‘global good’ and ‘serving humanity’s interests’ are the highest priorities.²⁷ Yet US Defense Secretary Esper’s declaration that ‘We have to get there first’, in relation to his view of US and Chinese development of cutting-edge military A/AI, suggests a more sobering perspective.²⁸ Moreover, Secretary Esper’s definition of ‘there’ appears to represent a certain step into an uncertain realm.

The optimistic A/AI outlook seems difficult to reconcile with the world’s superpowers competing for military A/AI ascendancy and for control of closely related industries such as semi-conductor manufacturing.²⁹ Prominent scholars have predicted that A/AI will cause the most significant transformation of warfare in the next 20 years.³⁰ In 2017, Stephen Hawking argued that creating a successful AI would be the biggest event in human history but that, if the risks were not controlled, successful AI could also be the last event in human history.³¹ Whether this is an extreme view of A/AI is for now a matter of opinion; yet unrestrained and competitive A/AI development in the Indo-Pacific will surely move the region towards a far more dangerous strategic balance. The warning signs are evident, and technologists such as Rana el Kaliouby have identified that organisations and governments who own and control A/AI and data will have a significant advantage.³² Transparency of A/AI development will surely be an early casualty.

Autonomous systems and artificial intelligence are therefore at the leading edge of what some have termed the ‘security dilemma’: the idea that the efforts of some countries to improve their security by increasing military

capability can cause escalatory competition.³³ To be sure, A/AI is not the only aspect of the security dilemma currently capturing the US and China, but it is central to the concept of 'offensive–defensive balance'. Scholars such as Jervis have argued that when a defensive force has an advantage over an offensive force (for reasons such as geography or military technology), the gap between two opposing nations' capabilities would need to be greater for escalatory competition to occur.³⁴ However, when offensive capabilities take the ascendancy, competition is incentivised.

Many commentators suggest that military technology, in general terms, currently offers nations an advantage when defending. For example, so-called 'anti-access area denial' capabilities present a formidable obstacle, during both periods of conflict and periods of competition, for any offensive force.

A/AI may be poised to change the costs of conflict, and potentially the balance between offense and defence, although this is uncertain.³⁵ What is certain is that most nations are reluctant to expend blood and treasure in conflict. However, if nations must only risk treasure, through the widespread use of uncrewed and autonomous systems, the considerations for going to war fundamentally change. This is what previous US Secretary of Defense Mattis suggested when he argued that A/AI have the potential to change both the character and the nature of warfare.³⁶ Further, the risk of conflict escalation is considered greater when nations have less experience with the military tools at their disposal;³⁷ the novel nature of A/AI is likely to increase the risk of conflict escalation if these capabilities are at the forefront of superpower competition.

A/AI could also impact on existing theories of nuclear deterrence. For example, a country may use data analytics to seek to determine with greater certainty whether a pre-emptive nuclear attack could render a strategic competitor incapable of responding with its own retaliatory nuclear attack; or a country may seek to incorporate A/AI into an automatic nuclear response.³⁸ Concerningly, nuclear warfare theory warns that the vulnerability of an enemy's nuclear forces could actually encourage a first strike in a time of crisis.³⁹ This will not be helped by the unpredictability of aspects of A/AI behaviour.⁴⁰

While the majority of A/AI research is currently being undertaken for non-military purposes, the immense geostrategic benefits are almost certain

to see military A/AI development grow ('aggressively' in China already, by some accounts).⁴¹ Indeed, military forces may be the first to use advanced A/AI extensively.⁴² Further, A/AI development has significant 'dual purpose' characteristics: President Xi's personal responsibilities as the head of China's Military-Civil Fusion Development Commission will ensure the flow of relevant A/AI technology from commercial to military hands.⁴³

No Taking A/AI from Our Cold, Dead Hand

Although Australia's focus will remain on the US–China competition, Russia is set to lead a new round of strategic brinkmanship, with military A/AI the battleground. With a fraction of the national resources available to China and the US, Russia is using A/AI development as its latest effort to maintain a level of global influence at a low cost.⁴⁴ Predictably, Russia's A/AI efforts quickly transitioned from the more mundane use of AI (such as to interrogate large datasets) to the active use of military systems with existential implications, such as the Poseidon autonomous nuclear weapon-equipped underwater drone, offering a troubling glimpse of how A/AI challenges existing paradigms of warfare (and general safety),⁴⁵ and how quickly unconstrained actors like Russia can put threatening A/AI into operational service. Previous Soviet attempts at automating nuclear responses, including the 'Dead Hand' system, and other actions to integrate prematurely computer technology with nuclear decision-making⁴⁶ show a longstanding predisposition in Russia both to remove humans from the loop of the employment of destructive weapons, and to a level of comfort in engaging in strategic brinkmanship.

China is unlikely to show a marked difference from Russia in the way it employs military A/AI, both during peacetime and in periods of heightened tension. The tens of billions of dollars invested by China in A/AI is not unreasonable for an economy of its size; nor is the scale of development and investment in technologically sophisticated A/AI-related industries.⁴⁷ It is also reasonable for China to aspire to lead the world in A/AI, even by framing A/AI as a new front line of global and military competition.⁴⁸ And these are not implausible ambitions. Even in a short space of time, Western assessments of Chinese military A/AI capability have moved from a view of Chinese military A/AI effort as 'largely abstract and speculative',⁴⁹ to a view of rapid and definite Chinese military A/AI progression.⁵⁰

However, it is not just the latent military potential derived from nation-wide Chinese A/AI development that has concerned some Western policymakers and scholars. It is the near-certainty of minimal checks and balances being applied by a Chinese Communist Party that perceives many internal and external threats, and faces ongoing territorial disputes. As competition with the US intensifies, and as the US introduces its own A/AI into the region, the People's Liberation Army (PLA) will sense pressure to introduce A/AI capabilities, perhaps before they are fully tested and assured. If the US can effectively achieve widespread military automation to 'reduce the number of warfighters in harm's way' and allow machines to 'perform higher risk missions',⁵¹ there is a clear incentive for the PLA to similarly and rapidly introduce A/AI into the region. Global appeals to deny greater use of lethal autonomous weapons systems before they are effectively regulated or even understood have proven uninfluential to this point.⁵²

Other scholars have made similar arguments. For example, Kania assessed that the PLA may 'prove less averse to the prospect of taking humans "out of the loop" to achieve an advantage' than other nations.⁵³ Others have agreed that autonomous military systems are a predominant focus for Chinese development,⁵⁴ adding weight to the idea that China (like the US) can take advantage of nascent technology with little legislative or policy codification (or international agreement) to gain competitive security advantages.

Therefore, the PLA seems postured to push the employment of A/AI to its limits; and, given the national priority and resources, the PLA is likely to quickly become proficient in A/AI employment. The organisational effort being applied to A/AI; the enormous datasets available (particularly through China's extensive intelligence collection and its centralisation of military intelligence under the Strategic Support Force); the historical willingness to adjust doctrine to account for changing technology and strategic circumstances; and the experience gained in China through domestic automated surveillance efforts all mean that the PLA is well placed to be an early adopter of the technologies.

China has not been completely silent on the threat that may be posed by military A/AI competition. Some Chinese officials have publicly articulated their concern about the threat that an 'AI arms race' could pose to humankind, for example by reducing the threshold for military-related action due to a perceived likelihood of fewer casualties.⁵⁵ Similarly, Chinese military

A/AI development has coincided with a trend in the literature recommending that the US and China forge an agreement to regulate the advancement of A/AI in a military context.

However, any agreement is surely unlikely in the near term. The overwhelming weight of evidence firmly points to the US and China working to quickly develop and introduce military A/AI. China will continue to introduce its most advanced hardware well before any international A/AI agreements may be struck. For example, the Chinese 'Marine Lizard' appears to be an autonomous military amphibious vehicle which may form 'swarms' in advance of human soldiers, working in conjunction with other uncrewed aircraft and maritime platforms. Far from reluctantly or cautiously admitting to the existence of the Marine Lizard, the Chinese media enthusiastically introduced the platform to the public.⁵⁶

Intelligence for Peace

Recent US analysis of the PLA has focused on the combat capabilities that would be used in conflict.⁵⁷ While there is good reason for China's combat capabilities to be prioritised, this focus has relegated the importance of Chinese actions outside any periods of conflict. Arguably, with a military philosophy that values 'informatized warfare',⁵⁸ it is the information gained by China during peacetime that could decisively influence any future conflict. And much is known about China's extensive intelligence collection capabilities, ranging from satellite collection to mobile telephony interception, human intelligence and radar surveillance. The level of China's intelligence collection means that enormous quantities of data are being collected.

This collected data is central to A/AI efficacy. During periods of competition, China will use A/AI to enhance its pervasive intelligence and data collection in the region. AI is well suited to the task of interrogating large datasets and identifying correlations that may not be recognised through human analysis. Further, outside of conflict, A/AI may operationalise China's enormous data repository to allow it to be used more predictively, facilitating reasonable forecasts about what other regional military forces would do in certain situations. For example, AI may establish that if the volume of mobile telephone communications rises from a certain base that is an indication of a maritime deployment. There is evidence that in domestic situations Chinese law enforcement agencies have used data analysis to pre-emptively respond to potential security problems before they actually occurred.⁵⁹

Chinese policymakers have demonstrated little restraint in employing advanced AI technology for internal monitoring. Surveillance efforts in Xinjiang Province have been extensively documented, but this surveillance is the tip of the iceberg. Given the close relationship between domestic and international security policies, it is no great leap to suggest that similar capabilities (such as facial recognition) are now employed to achieve geostrategic effects. Indeed, many commentators have highlighted that external security and foreign policy is greatly influenced by China's domestic security situation, and that the capability transition from domestic to international is rapid.⁶⁰

Put simply, China will use A/AI and more traditional sensors to collect enormous quantities of data on US, Australian and other security forces during periods of competition. AI-supported interrogation of this data will lead to unique conclusions, predictive behaviours and algorithmic development for autonomous systems. This data can then be used to inform the decisive employment of A/AI-enabled combat capabilities should geostrategic tensions grow.

The US also has a vast number of military-related A/AI projects, and is almost certain to move ahead rapidly in many areas. Some have argued that the US could be as prone to the unethical or dangerous use of A/AI as the Chinese, particularly in the rush to reach certain goals. However, the public and congressional debate in the US; the amount of information relating to A/AI being pushed by the military into the public domain;⁶¹ the longstanding US–Australia alliance and information-sharing arrangements; and some of the measures of transparency being undertaken by the US military⁶² provide an imperfect but much higher level of assurance of US A/AI practices in the Indo-Pacific. The same assurance measures are lacking in the Chinese context.

Covering our Ears and Closing our AIs

There are robust discussions about Australian defence policy and potential future threats in an era of Indo-Pacific strategic competition.⁶³ There are also discussions in Australia about emerging military A/AI capabilities and issues such as ethics.⁶⁴ However, these two topics are almost being treated as mutually exclusive. This article contends that A/AI is the fundamental technological advancement of the current period and that its implications

must be translated into Australia's defence policy. Failure to do so is leading to conclusions in Australian strategic commentary that appear outdated.

Strategically and technologically, much has changed in a short time. It is often argued that Australia's 2016 Defence White Paper is dated in terms of its assessments relating to Indo-Pacific strategic circumstances. From an A/AI perspective, the 2016 White Paper also has the barest reference to 'increasing automation' in a period 'beyond the next decade'.⁶⁵ However, the subsequent debate among the strategic commentariat has rarely approached A/AI as a core issue for Australian defence policy, despite the fact that A/AI seems poised to greatly influence (or even supplant) current defence policies, particularly with US–China A/AI competition and enormous global A/AI investment continuing. Strategic commentators are perhaps not thinking in the 'creative and unconstrained' manner⁶⁶ needed to grapple with the influence of technology on strategy.

This article identifies three trends in the Australian commentary that emphasise the inadequacy of the current discussion, as a result of which policy prescriptions tend to fall back on previous strategic debates. These trends can be characterised as *contained*, *enplaned* and *restrained*.

Contained: The Sea–Air Technology Gap

First, consistent with debates from the 1970s and 1980s, geography and the Australian military's posture in relation to this geography continues to dominate much of the commentary. Debate is consistently *contained* around the need to posture military forces in Northern Australia⁶⁷ and about the distance into the Indo-Pacific that Australia can militarily influence. Certainly geography is inescapable and is an essential topic for any discussion about force posture and military strategy, and there are strategic factors which are necessarily leading Australian policymakers to look closer to home.⁶⁸

However, geographical limitations are now related more to political rather than military capability. Even 20-year-old technologies, such as cyber capabilities, have markedly changed the way military operations may be influenced by geography.⁶⁹ Cyber effects can only be conceived in a global context, and their introduction should at least nuance any assessment that Australia cannot hope to achieve a decisive military effect beyond a tightly defined arc because it is 'too remote' and 'too difficult to influence'.⁷⁰ Just because Australia's national security community has not used cyber

capabilities to significantly disrupt another nation does not mean that such capabilities lack potency and range.

Autonomous systems and artificial intelligence have the clear potential to take this potency and ability to influence across a wider geographic extent to another level. A/AI and other technologies such as satellite miniaturisation add considerable further weight to the idea that, if prioritised, geography may become much less of a military limitation. Uncrewed logistic replenishment, adaptive electronic attacks on infrastructure, counter-propaganda systems, and maritime swarming capabilities are examples of existing systems that allow greater force projection.⁷¹ In the context of defending the wide expanses of Australia, the number of sensors, change detection capabilities and data sources available is immense and can grow.

The technology does not obviate the need to prioritise, but technological trends necessarily offer more alternatives to mitigate traditional geographic constraints on military operations than are commonly presented. Geography is not an unchanging military constraint, and rapid A/AI development spurred by superpower competition will make the world smaller again.

Enplaned: Non-human Crew

Second, Australia's changing strategic circumstances have tended to prompt recommendations relating to existing—crewed—military hardware. The strategic debate is *enplaned* on more crewed combat aircraft (among other traditional platform solutions) as the answer to new problems.

White recently recommended doubling Australia's Joint Strike Fighter fleet and quadrupling Australia's manned submarine fleet.⁷² Dibb and Brabin-Smith made similar arguments.⁷³ Others have argued for retrofitting existing military capabilities to meet contemporary challenges.⁷⁴ Such recommendations offer Australia greater military capability, and maximising existing capability is fundamental to Australian defence policy. And there is undeniably an enduring place in the Australian Defence Force (ADF) for sophisticated crewed platforms. But recommending 'more of the same' during a period of A/AI strategic brinkmanship is tantamount to prioritising combat against a previous conventional enemy.

'More of the same' appears poorly suited to mitigate the risks of regional A/AI competition. In operating against uncrewed swarming autonomous systems, there are many challenges for crewed platforms, not least that they

are operating against systems that have no fear for their lives. For example, the relatively small number of missiles carried by crewed aircraft or maritime vessels may impact their efficacy against an A/AI-enabled physical swarming attack. On the other hand, a defence consisting of a swarm of defending autonomous aircraft; ground-based laser weapon systems; and cyber, satellite and electronic interference technology, combined with crewed platforms, may prove more effective. A greater mass of less expensive uncrewed aerial, land and maritime platforms, combined with defensive weapon systems that can target a larger number of attacking systems, may also put fewer military personnel at risk.⁷⁵ It is hard to conceive that the optimum response to the challenges posed by superpower A/AI competition is 'more of the same'.

Other common discussions demonstrate a disjunction between strategy and technology. For example, 'hardening' forward bases on the mainland and on islands such as Cocos (Keeling) is a regular argument.⁷⁶ Uncrewed or autonomous combat systems, supported by remote intelligence sensors and cloud processing, would appear to be a logical line of investigation to meet the assessed need to harden such facilities, rather than the placement of 'a permanent Army garrison' on remote bases.⁷⁷ Yet A/AI or even remote options are not commonly proposed.

While some have argued for increasing investigation of A/AI for the ADF and in support of existing military forays into A/AI,⁷⁸ the commentary in support of A/AI has focused on 'complementing existing major platforms'.⁷⁹ Few arguments have been made that military A/AI systems should be considered in a manner and on a scale similar to major capital procurements. Some have presented restrained views, such as that Australia should look to procure military A/AI because the US military budget is being structured to do so. This is a reasonable argument in an alliance context,⁸⁰ but not a viewpoint from integrated technology and strategy. A major project to procure A/AI systems across the air, sea, land, space and information domains, and its relation to Australia's defence policy, seems worthy of consideration by Australia's best scholars. Such a major project may be well within the capability of Australia's military industrial base.

To be clear, existing crewed military capabilities are making the ADF considerably more capable than it has been in the past. The question is: is 'more of the same' the logical next step, given the A/AI competition in the Indo-Pacific?

Restrained: Betting Against the Machine

Third, Australian defence policy commentary largely relegates A/AI as an issue subordinate to other military considerations, a future problem, or an overstated technology. Scholars have largely and deliberately *restrained* discussion of A/AI in an Australian defence policy context. A/AI undeniably attracts the same hype that internet development and the ‘revolution in military affairs’ suffered from in the 1990s. A/AI development will not be a linear upward progression; nor will every military A/AI development be realised. Clearly it is too early to warn that A/AI will render conventional military capabilities obsolete.⁸¹

However, claims that A/AI represents a ‘false dawn’ seem more misleading than the risk of overstating A/AI’s potential.⁸² Some commentators have manufactured particularly novel arguments to maintain the status quo with conventional military platforms and de-prioritise A/AI.⁸³ White has argued that autonomous systems and A/AI are problems to watch over time, rather than respond to. For example, in assessing the value of pilotless drones, he argued that the many complexities inherent in managing crewed aircraft are similar with uncrewed aircraft, and did not pursue a line of inquiry relating to threat autonomous systems.⁸⁴

Such claims encourage a sluggish Australian uptake of A/AI, and less consideration of A/AI as a threat. Ultimately a wait-and-see approach represents a risky bet against enormous investments being made by the world’s two superpowers and powerful corporate actors, during a period when they are vying for A/AI dominance. Many systems are already being fielded in the Indo-Pacific, including the extensive use of A/AI in intelligence development. Dismissing the offensive and defensive aspects of military A/AI in the contemporary Australian context seems particularly unwise.

The *contained*, *enplaned* and *restrained* nature of the contemporary Australian commentary on A/AI is skewing the answers to Australia’s most important strategic questions. The strategic questions remain similar to those posed in earlier decades, but consideration of information age technology should almost certainly lead to more nuanced answers. For example: How far can Australia project decisive military power using information age technology? How quickly can certain mass-produced autonomous military equipment be mobilised for war? Has the nature of the US extended nuclear deterrence changed due to predictive systems? What is the information that Australia must protect during peacetime to ensure its

greatest effectiveness during war—or is the fundamental operating model (of requiring classified information) now even possible?

A/AI should not be considered separately from, or as a vague supplement to, Australian defence policy. The Indo-Pacific risk factors that many Australian scholars now assess to have grown exponentially would see the extensive employment of A/AI against Australia in the envisaged scenarios. Yet many commentators remain unconvinced of the relevance of the accelerating change to the character of warfare, or that it is now playing out in the region. Australia's defence policy discussion will be on a stronger footing if consideration encompasses how A/AI-related strategic brinkmanship is likely to transpire.

Conclusion

Strategic brinkmanship is spurring competition in military A/AI, and its effects are most pronounced in the Indo-Pacific. China's A/AI development will be particularly opaque but highly active. This is changing the character of warfare, and is bringing into question the efficacy of national defence policies. Military A/AI capabilities are already being deployed, and some of these capabilities are likely to be underdeveloped and exhibit unpredictable behaviour as pressure to 'win' a US–China military A/AI race increases. A/AI capabilities will be brought to bear against Australia during periods of both competition and conflict.

Yet Australian strategic commentary has tended to treat Australian defence policy and military A/AI technology as two discrete issues. Commentary can be characterised as *contained*, *enplaned* and *restrained*: geographically contained ideas of military projection remain despite advancing technology at least caveating this approach; 'more of the same' military hardware is the most common policy prescription to address new challenges; and the importance of A/AI, from both an offensive and a defensive perspective, is consistently understated or avoided.

These aspects of the commentary are not allowing sufficient analysis of longstanding defence policy questions in relation to contemporary technology. The questions may remain the same but, as historically unusual as it may seem to observers of Australian defence policy, technology means that the answers may be changing.



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Information Warfare, Accelerated Warfare and the Human Endeavour

Major Lee Hayward

Abstract

‘Accelerated Warfare’ describes both the operating environment and how the land force must respond. The changing character of war requires a shift in traditional attitudes towards land force operations and an approach that is unhindered by dated frameworks, in particular the belief in the absolutes of ‘war’ and ‘peace’. This is most apparent in the information environment in which the land force is least comfortable yet can most effectively target decision-making and the will of the people. ‘Information warfare’ should be used to describe activities that occur within and through the information environment; however, the Australian Defence Force’s working description of information warfare is inadequate, fails to provide the required foundation for the land force to respond to the challenges of Accelerated Warfare and is not optimised for the enduring nature of war. The land force requires an information warfare campaign plan—a plan that is long term, modernised and adaptable, and that places the appropriate emphasis on the human endeavour.

Introduction

The rules-based global order is under threat from myriad forces, including disruptive technology which changes the character of war, and threat forces with the flexibility and imagination to evolve. 'Accelerated Warfare' (AW) describes the corresponding operating environment and the ways in which the land force must respond. While this context has not changed the role of the land force, it raises questions about the functionality of the land force in this environment and provides additional options for the ways in which the land force should evolve in order to perform its role. These include options that require more flexible and evolved thinking, structures and practices than are currently in existence.

The information environment (IE) and information warfare (IW) highlight the limitations of current thinking. For the purpose of this article, IE is defined as *the aggregate of individuals, organisations, or systems that collect, process, or disseminate information*.¹ IW should be seen as those military activities that occur within and through the IE. The Australian Defence Force's current working description of IW is:

*... the contest for the provision and assurance of information to support friendly decision-making, whilst denying and degrading that of adversaries.*²

While this description provides the foundations and guidance for land force operations in the IE, it does not permit sufficient conceptual flexibility. Rather it is built on an outdated belief in the absolutes of war and peace and an inaccurate understanding of human decision-making processes.

Clausewitz noted that the role of the military is essentially to act as a means of achieving policy objectives through the application of physical force, using superior strength to compel an enemy by reducing or extinguishing their 'will' to fight. In AW, this cannot be achieved: the 'will' of the people remains the ultimate military end-state. However, due to the ubiquity of information and technology, 'will' no longer resides solely in the physical domain and it continues to exist regardless of the state of the land environment. Therefore, 'will' can no longer be extinguished through physical force alone.

What does this mean for a force whose purpose historically has been physical and as a last resort? Can it remain an effective policy tool for

compelling the 'will' of another? The answer is 'yes', but with caveats. While the role of the land force ultimately remains centred on the application of physical force, this must come with an understanding that operations in the physical domain are no longer sufficient to achieve military and policy objectives. This means the role of the military can no longer be to wait for the fighting and then get involved. The war may never be declared; it certainly will not always be recognisable to the more traditional Western military strategist; but that does not mean it is not happening.

While it is beyond the scope of this article, it should be acknowledged that any land force IW campaign plan will need to be nested in the joint force and whole-of-government plan. This does not preclude the land force from developing an IW campaign plan, if only to explore the ways in which land capabilities can contribute to IW across the competition continuum, and develop corresponding adaptable and unconstrained concepts, practices and procedures.

Accelerated Warfare in the Information Environment

In his futures statement *Accelerated Warfare*, the Chief of Army notes a changing operating environment that is seeing the rules-based global order under pressure from evolving geopolitics, technological disruption at historic levels, and actors who are proving adept at adjusting to this new context. In order to respond, the land force must be creative, unconstrained in its thinking, and proactive in developing new strategies and concepts for the changing character of war,³ thereby ensuring it is better positioned to shape the operating environment. This operating environment includes the IE and must include an understanding of the IE and what it means for military strategy.

The IE is omnipresent and has often existed in an area's history and culture for centuries.⁴ It is home to the narrative and long-term context of any physical conflict, be it rooted in political, social or economic exclusion, or in status and power. It is important from the perspectives of history and future plans, and fundamental to influencing the will of the people.⁵ All actions within an area of operations will be perceived through the lens of the respective cultural IEs. Failure to understand this has consequences, including the narrative of the land force becoming disjointed from the

narrative of the population, which ultimately undermines efforts to gain long-term influence, or even victory.

The war in Afghanistan provides a useful example. Despite best efforts at 'cultural understanding', in the Australian narrative the war commenced in 2001 and was a war on terror. This is consistent with the Western narrative, and logical in the Western context, but it is inconsistent with the narrative of the population, for whom the war has been going for over 40 years.⁶ It is difficult to imagine a situation where the land force can win a war by compelling or influencing the will of a population when they are fighting a different war from that being fought by the people they are fighting with and against.

Conflict experts including Theodorakis,⁷ Grynkewich⁸ and Mattis⁹ make compelling arguments as to why successful operations in the IE are fundamental to achieving military objectives. It is where decisions are made, where beliefs are held, and where the will of the people resides and is most effectively targeted. As stated by Mattis, when used to their full potential, information environment operations can prepare the battlefield and set the conditions for victory. Information can soften the enemy's will to fight, deceive them, and pollute their decision-making cycle.¹⁰

Missing from these arguments, however, is an explicit statement that successful operations in the IE cannot be limited by outdated frameworks of warfare, in particular the absolutes of 'war' and 'peace'.¹¹ Acknowledging



this requires a shift in long-held beliefs and an understanding that clinging to these false absolutes creates artificial barriers that not only prevent the land force from exploiting all opportunities inherent in the IE, but also may result in deploying a force into an unwinnable operating environment. As noted by David Kilcullen, by the time the first tank has rolled, we have already won or lost the war.¹²

Information Warfare

The purpose of IW is to target the human brain—in other words, the cognitive domain. This involves not only decision-making but also beliefs, perceptions of reality, and acceptance of the narrative being championed. These are the factors that underlie the will of a population, and IW is most effective when conducted through long-term influence campaigns—for example, those conducted by Russia in Crimea and Ukraine¹³ and during the 2016 United States (US) elections.¹⁴

Western military institutional recognition of the importance of the IE is underscored by the 2017 decision of the Chairman of the Joint Chiefs of Staff to elevate information to its current position as the seventh joint function in US doctrine. This move recognises the power of information to support military operations, particularly in the wake of modern technology and social media.¹⁵ The Australian Defence Force (ADF) similarly recognised the importance of the IE in 2017 with the establishment of the Information Warfare Division.

A useful starting point for understanding IE is the ADF's current working description stated above. However, this description is limited to friendly and adversary decision-making, and is built on the idea that war and peace are absolutes.¹⁶ This does not provide the opportunity for the land force to harness the full power of information and the IE. It discounts the application of IW outside physical conflict and fails to consider the influence of those who do not fall neatly into either an 'adversary' or 'friendly' category. Accelerated Warfare requires the land force to evolve beyond this working description.

In 1997, academic YuLin Whitehead wrote a paper discussing two schools of thought on information and war: 'information in warfare' and 'information warfare'.¹⁷ The former refers to the use of information in support of friendly or adversary decision-making, while the latter refers to the idea of information

as a weapon. These definitions provide a useful mechanism to evolve the land force's understanding of IW.

In contrast, the ADF's working description appears to be most aligned with the concept of information *in* warfare. While this is not unimportant, it is too narrow to meet the demands of an accelerated operating environment. It can also lead to the unfortunate conflation of IW and cyber electronic warfare (CEW), restraining thinking and inhibiting creativity in the development of response options beyond the electromagnetic spectrum (EMS). Information as a weapon is no less important, particularly at the tactical level. This is evident in the way Daesh took advantage of social media platforms and the hashtag #AllEyesOnISIS to set the conditions for the 2014 fall of Mosul. While tactically effective, it was operationally and strategically unsustainable in the long term.

The US describes the IE military challenge as the way to integrate physical and informational power to:

*... change or maintain the perceptions, attitudes, and other elements that drive desired behaviours of relevant actors in an increasingly pervasive and connected IE, to produce enduring strategic outcomes.*¹⁸

Progressing from the idea of 'information in war' and moving through and beyond the idea of information as a weapon, the land force should move to a position where it views IW as those activities that occur within and through the IE. This is a more flexible concept, encouraging creative and uninhibited thinking at an accelerated rate, incorporating the ideas of information *in warfare* and information *as a weapon*, and aligning with the growing understanding that IE must be conducted across the 'competition continuum'.¹⁹ The competition continuum, although an ancient concept, is gaining popularity in the US to describe the world in which we now live, one where the absolutes of war and peace are outdated and irrelevant. This is a world of enduring competition conducted through a mixture of cooperation, competition below armed conflict, and armed conflict.

Accelerated Warfare and Information Warfare

The recently released 'Army in Motion: Army's Contribution to Defence Strategy'²⁰ describes the land force's central idea to meet the demands of AW by contributing to the achievement of a safe, secure and prosperous Australia in an operating environment which is experiencing the challenges of the changing character of warfare. It notes that pressures on the rules-based global order are driving these changes at a rate faster than Army practices, procedures and structures can adapt to. Two themes from a February 2019 presentation on AW by the Director General Future Land Warfare highlight the importance of IW. The first is an evolved framework for how Army personnel might think about the contemporary spectrum of conflict and competition, similar to the US concept of the competition continuum. The second is the idea of winning without fighting.

The challenges of AW are amplified in IW. Due to the ubiquity of information and its availability across the globe in near-real time, the land force is always in a state of cooperation, competition and conflict in the IE. To be clear, the existence of conflict in the IE does not present the same threat as conflict in the physical domain. It is an inevitable by-product of a diverse and complex world and not in itself cause for alarm. What is important is preventing this threat from manifesting physically: winning without fighting.²¹

In IW the means through which a force can win without fighting are available to any actor with a little creativity, sufficient understanding of the opportunities inherent in the IE, and an attitude towards winning that goes beyond the physical defeat of an opposing force. General Sir Nick Houghton, former Chief of the Defence Staff of the British Armed Forces, put this eloquently when he lamented the fact that armed forces had come to be viewed through the optic of war. Instead, he advocated for viewing them:

*... through the optic of the wars we avoid having to fight; the stability we help assure; the prosperity we help achieve; and the liberty and open society we help preserve.*²²

Disruptive Forces: The Human Context

Arguably, human nature is the most disruptive force of all. Yet, because it is seen as the reason for war's enduring nature, it does not always receive the focus it should. IW is effective because humans are social, emotional, predictably irrational and susceptible to influence and manipulation. Emotional contagion,²³ the idea that emotions can be spread between humans, is not a novel concept. While it was initially thought to require physical interaction between people, emerging studies indicate that this is not the case and that it is likely that new media, in particular social media, contributes to the spread of emotions.²⁴ The most contagious emotions, the ones that travel furthest fastest, are those that are triggered by extreme, polarising, politically divisive and societally corrosive narratives.²⁵ The idea of 'population hotspots' is not a new concept for the land force but, given the ubiquity of information and technology, humans could potentially become more volatile, with extreme emotions spreading at a more accelerated rate than previously observed or experienced.

These factors can complicate and change the operating environment faster than technology or geopolitics, both of which ultimately serve as mere platforms or vectors for the human endeavour. Globally, the warning signs of increased human volatility are growing. The International Monetary Fund (IMF) is predicting a slowdown in global economic growth rates,²⁶ geopolitical and geo-economic tensions are rising, extreme weather events are increasingly common, other environmental risks are increasing,²⁷ and the world is in the grips of a pandemic. Understanding the impact these factors have on human behaviour and the human endeavour is as important as understanding how they change the character of warfare. Current trends indicate that global anger is increasing, empathy is decreasing, and loneliness is on the rise in the West.²⁸ In Australia, mental health issues such as depression and anxiety, particularly among teenagers, are trending upwards.²⁹

The implications of this on the human endeavour are twofold. First, humans with mental health issues, or even mental fatigue, suffer from inhibited cognitive resilience. Among other concerns, this affects their ability to make decisions, rational or otherwise,³⁰ and makes them more susceptible to emotional contagion. Statistically, mental health issues are on the rise in the land force, potentially resulting in a force that is more susceptible to

malicious or emotionally charged IW, progressively undermining the will of the fighting force.

Second, emotional humans are malleable and primed for manipulation. Identifying them and understanding their triggers is fundamental to the conduct of a successful IW campaign, as well as protecting a population from an IW campaign being conducted by a malicious actor. The 2016 US elections highlighted the relative ease with which a rival state or other external actor can lever technology to exploit underlying social issues and trigger anger, increase polarisation and even change the reality of a target audience. An example is the 'pizzagate' conspiracy,³¹ which saw Russian provocateurs using social media platforms to provoke a minority of disenfranchised individuals into disproportionate behaviours that, although bewildering to an outsider, were completely rational to those involved.³² Importantly for an organisation that believes releasing facts is a sufficient response to counter a false narrative, the underlying conspiracy continues to exist, in the form of 'QAnon',³³ years after the release of evidence to the contrary.

Information Warfare and Decision-Making

In a 2019 article in *Infinity Journal*,³⁴ retired Israel Defense Forces Colonel Shay Shabtai noted that, despite the growing understanding of how cognitive bias impacts human decision-making, military theorists have been slow to harness the power inherent in this knowledge. He argues that the time has come for militaries to make the connection between humans, influencing the decision-making of humans in war, and perception management.

Shabtai is not alone. In 2011, British Major-General Andrew Mackay and Lieutenant Commander Stephen Tatham released a book entitled *Behavioural Conflict*, emphasising that the key lesson they learned from the wars in Iraq and Afghanistan was the failure of Western forces to understand the people, leading to confusion over their 'irrational' decision-making and behaviours. Broadly they conclude that the application of behavioural insights to influence a population would prevent, or limit, similar failures in the future.³⁵

These behavioural insights build on the work of Nobel Prize winning economist Richard H Thaler, who famously 'incorporated psychologically realistic assumptions into analyses of economic decision-making'.³⁶ Put another way, Thaler understands the ways in which humans are predictably

irrational, how heuristics and cognitive bias influence the way information is perceived and decisions are made, and how to present information to generate desirable predictable outcomes. Behavioural insight advances this understanding beyond economic decision-making and applies it to the gamut of human decisions and behaviours.

There is no doubt the land force understands the importance of influencing human decision-making. However, land force doctrine is more focused on the mechanics and processes of land warfare and its support functions than on human behaviour in warfare. Furthermore, when human behaviour is considered, the land force tends to use a rational (and Western) lens to predict how a target audience is going to react to a particular stimulus. This is in stark contrast to the Royal Netherlands Army, for example, for whom 'the human influence chain' is considered more effective than 'the kill chain' and whose land operation doctrine requires commanders to operationalise mission goals in terms of the behavioural changes desired of actors.³⁷

Operationally and strategically, AW can be unforgiving of failures to understand human perception, decision-making and corresponding behaviours. Tactically, the land force is trained to respond rapidly to unpredictable (and unpredicted) behaviours. This is not the case at the operational and strategic levels. Misunderstood land force actions can be communicated regionally and globally in near-real time, and the associated undesirable narrative remains the 'truth' long after the battle is over.

A successful IW campaign is one that is founded on an understanding of the predictably irrational ways in which humans perceive information and make decisions. It then applies this knowledge to develop a culturally appropriate narrative, including military options for achieving or maintaining desired behaviours along the competition continuum. Additionally, IW can build the resilience of the audience to changes in the character of warfare and reduce their (or our) susceptibility to undesirable alternative narratives.

Conclusion

Current structures, practices and procedures are unable to adapt fast enough to provide the land force with the flexibility to respond creatively to the challenges of AW. This is particularly apparent in IW, where the current working description is not aligned to the reality of the global competition continuum. Threat actors such as China, Russia and Daesh have been using IW in conflict and in operations short of conflict for years, thus evolving their practices and procedures, and limited only by their imaginations. While the ADF has recognised the importance of 'information in warfare', it is yet to develop corresponding military strategies in the form of IW campaign plans for application across the competition continuum, particularly one built on an understanding of human behaviours and decision-making.

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Politics, Strategy and Tactics: Rethinking the Levels of War

Major Will Viggers

The political object is the goal, war is the means of reaching it, and means can never be considered in isolation from their purpose.

Carl von Clausewitz¹

Abstract

The 'levels of war' is a doctrinal construct which describes the way political objectives are translated into military strategies which in turn guide tactical actions. Or at least that is what it should be. The operational level has been expanded and redefined over the last century by writers of Western doctrine. Unfortunately, the distinctions between levels are now blurred and unnecessarily complex, and instead of illuminating a logical thread from political direction to military strategy and tactical action, the current definitions of the levels of war arguably obscure its logic. Furthermore, the terminology is prone to confusion with other 'operational' concepts like operational echelons of command and operational theatres. This has grave consequences for the way military professionals define and therefore think about warfare. This article directly challenges contemporary definitions of the levels of war and proposes instead a simple and coherent construct where levels are clearly distinguished according to their functions, objectives

and characteristics. In this way readers are reminded that war is a political instrument, shaped by strategy and executed by tactics.

Impetus to Change Our Thinking

As Clausewitz famously explained (see above), to be successful, military actions must be aimed at a political objective and must not be considered in isolation from this central purpose. This timeless reminder stresses the necessarily coherent logic of warfare as an agent of change, with military force employed to achieve a political objective. If this tenet is ignored or poorly implemented, nations may find themselves locked in wars with absent or loosely defined political objectives, in which military professionals are asked to solve political problems without a clearly defined political objective driving the strategy. To understand the link between military and political objectives, we rely on foundational doctrinal concepts such as the levels of war. How we define these levels provides the foundation for our understanding of warfare and how we prosecute it.

Warfare, in a holistic sense, comprises both political and military actions, and does not exclusively refer to the execution of tactical actions or battles. It has long been codified as belonging to hierarchical levels using terms like 'politics,' 'strategy', 'tactics' and more recently 'operations'. This article challenges contemporary thinking about these levels, with particular focus on discussing why the levels exist and what purpose they serve. The article will outline weaknesses of the existing definitions and recommend a simple and coherent redefinition of these foundational terms which frame our understanding of war. These definitions are important as they shape the way that war is understood, planned and executed. Evolving our conceptualisation of warfare and how it is waged is worth careful consideration and offers valuable insight into how our military will come to understand modern warfare.

Problems with the Levels of War

While the levels of war are well known, their definition has altered over time. In Clausewitz's day, the purely *martial* levels of war were commonly accepted to be 'strategy' and 'tactics'. Above these, and specifically 'non-military' in nature, the 'political' level of war was the highest level. Since that

time, however, the levels of war have been redefined and are commonly defined as strategic, operational and tactical. The political level is noticeably absent and an intermediary 'operational level' overlaps and bridges a perceived gap between the strategic and tactical levels.

Current Australian doctrine consequently struggles to explain coherently the rationale for these levels.² Definitions of the strategic level reflect the confused and blurred roles and nature of its functions.³ The flow-on effects of this confusion are pervasive. Strategy is no longer considered to be exclusively martial in nature, and has encompassed or displaced the political level, which is not included in Australian land doctrine. Likewise, many of the martial functions and characteristics of the strategic level have been assumed by the 'operational level', which overlaps with and 'joins' the strategic level to the tactical level. The Australian Defence Force (ADF) levels of war can thus be depicted as in Figure 1.

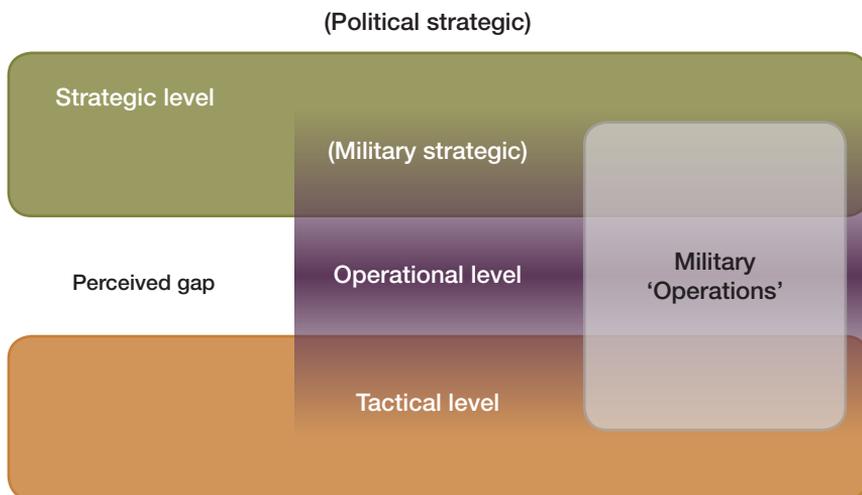


Figure 1. The current 'levels of war'

Figure 1 (created by the author) attempts to depict the overlapping and blurred relationship between the three levels as currently described in Australian Army doctrine. *Land Warfare Doctrine 1: The Fundamentals of Land Power* states that the levels of war are 'blurred',⁴ and of warfare that '... its practice cannot be defined into discrete levels'.⁵ Figure 1 also depicts how the operational level bridges a perceived gap between strategy and tactics, and furthermore shows how it overlaps and blurs with the levels above and below. The operational level has undefined boundaries, and its

definition in doctrine is sufficiently vague as to require significant explanation to justify its existence. Finally, Figure 1 shows the common confusion between the 'operational level of war' and military 'operations', a function which this article suggests is clearer to conceptualise as traversing the levels of war.

How then do the 'levels of war' help us to understand war, if doctrinal definitions cannot distinguish clearly between the levels? There are other important logical questions which emerge and deserve to be answered: What purpose do the levels serve if they cannot be defined as discrete levels? Is it helpful to have overlapping levels of war as our doctrine suggests? Why should hierarchical echelons of a military organisation be defined as belonging to a level of war? Have improvements in command and control technologies rendered intermediary levels of war irrelevant? How might doctrinal levels of war illuminate a logical thread from political objective to tactical execution? This article will help answer these questions by suggesting how Australian doctrine might better define the levels of war.

To do so, this article will examine the logic of distinctions between, and definitions of, the levels of war according to their functions, objectives and characteristics. It will examine the link between strategy and tactics, challenge the rationale for having an operational level, and examine functions which traverse the levels of war. It will conclude by suggesting an alternative concept for these foundational terms in Australian doctrine which the author hopes might progress the professional military discussion and debate on this subject. The article will begin with a brief analysis of the levels as described in current doctrine.

If Strategists Are Engaging in Politics, Who Is Devising Strategy?

When conceptualising war in 'levels', the lack of a political level of war which encompasses the characteristics, functions and objectives of the whole of government is concerning. The logical thread from political objective to tactical action is immediately lost. As a result of the absence of a political level, the strategic level has assumed certain political functions. This led our doctrinal concept of strategy to have a dual mission. This invites the question: If strategists are setting political objectives then who is devising strategies to achieve them? What has happened to the strategic level?

The strategic level is often subdivided into two sub-levels in modern Western doctrine: 'political strategic' and 'military strategic' as depicted earlier in Figure 1. This division attempts to reconcile the duality of the currently defined strategic level of war which evidently has two different functions, each with distinct objectives and characteristics. The [political] strategic level is where policies and political objectives are determined, which in turn will direct the employment of national power (including military action) to achieve national objectives. The [military] strategic level is where military force options are defined and strategic level direction and resourcing are provided to the subordinate 'operational' level. This combined role of defining the political objectives and conceiving a military 'strategy' to achieve these objectives, shows the unnecessarily complicated and awkward duality of functions for commanders or headquarters at the 'strategic level' as currently defined.

This awkwardness is arguably symptomatic of the broadening of the term 'strategy'. In his collected works *On War*, Clausewitz consistently referred to the 'political' and the 'strategic' as two different levels with distinct functions, characteristics and objectives. The political level had a distinctively political and civil character and was responsible for directing the holistic mobilisation of national power, expressing political constraints, and determining clear political objectives. By contrast, the strategic level had a distinctly martial nature and was involved with developing strategies to realise those political objectives in cooperation with the other instruments of national power. It thus seems logical and helpful to uncouple the political and military strategic levels and make them two distinct levels. The first recommendation of this article, therefore, is *to separate the political strategic and military strategic sub-levels of the strategic level of war and redefine them simply as the 'political' and 'strategic' levels of war.*

The strategic level of war would henceforth have a distinctly military character and would be where political objectives and guidance are translated into military strategies. These strategies would be expressed in force preparedness directives, campaigns and strategic directives to subordinate tactical forces, who would then be aligned to political objectives with a clearly defined military end-state. This level will logically be responsible for the allocation of strategic resources (strategic logistics), ensuring force preparedness in accordance with political guidance for potential missions (strategic contingency planning), and providing advice to political leaders on military capacity and force development (strategic advice). Importantly, it also

includes the orchestration of military activities with whole-of-government initiatives: synchronising military efforts with those of the other instruments of national power⁶ towards the political end-state. The military would thus reclaim strategy and be responsible for strategies which re-illuminate the logical thread between political objectives and tactical actions.

Having clarified the distinctions between the political and strategic levels, with distinct functions, objectives and characteristics, it is clear that these same distinctions are currently blurred between the strategic, operational, and tactical levels of war. These distinctions will be addressed in the next section.

Tearing off the ‘Operational Bandaid’

Army doctrine tells us that ‘... the operational level achieves military strategic objectives by orchestrating, sequencing and resourcing tactical actions and efforts’,⁷ and defines ‘campaigning’ and ‘operational art’ as its processes. What, however, is the benefit of defining an additional level of war between the strategic and tactical levels? Is there really still a gap between strategy and tactics that needs to be bridged? Doesn’t this intermediary and overlapping level duplicate functions conducted at the strategic and tactical levels? Does the naming of this level create confusion with other terms like ‘operational theatres’ and ‘operational status of equipment or forces’ or with command relationships such as ‘operational control’ and ‘operational command’? This section will investigate these questions and critically discuss the ongoing relevance of an ‘operational’ level of war.

The operational level of war was initially developed in response to the challenges of controlling mass conscript armies on dispersed battlefields of the Napoleonic era,⁸ and was further evolved as modern mass armies equipped with the arms of an industrial revolution.⁹ The complexity and scale of warfare outpaced technological developments in command and control, and intermediary command structures were developed as a ‘bandaid’ to bridge a perceived gap between the strategic commander and the lower tactical commanders who executed orders. These commanders did not have distinct functions, objectives and characteristics from their superiors, and were really just a command and control echelon.

The operational level concept evolved and experienced further growth in the 20th century, notably by Russian military thinkers¹⁰ who conceived of up to

five levels of war in order to breach the technological command and control gap for large-scale, dispersed warfare.¹¹ American doctrine followed with operational concepts focusing on manoeuvre and technological integration, such as 'Air Land Battle' and more recently 'Multi Domain Battle'.¹² These doctrinal concepts can be understood without an operational level of war overlapping the strategic and tactical levels. They offer 'time-stamped', 'situation specific' answers to the same question: How will military forces participate in achieving political objectives? An intermediary 'operational' level of war seems to be only distinguished from the tactical level by scale, by the size of the echelon, or by the grouping of tactical actions into a campaign. However, this raises an important question: What justifies the distinction of a 'level of war'?

Russian military thinker Alexander Andreyevich Svechin described tactics as the steps that make an operational leap possible, while strategy points the way.¹³ This compilation of tactical 'steps' into an operational 'leap' is depicted in Figure 2.

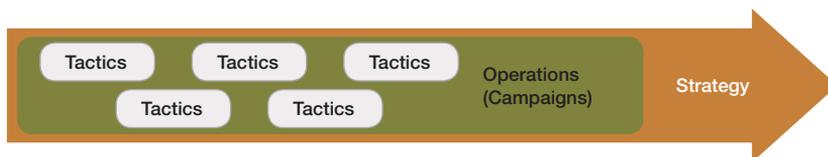


Figure 2. Operations as campaigns

Within this concept, operations, as a collection of tactical actions, are not logically depicted as a level, but rather as a collection or sequence. This correlates with the idea of 'campaigning'; yet, while there is a reference to campaigning in the definition of the operational level of war, the only explanation for how an operational level links tactical actions with strategy is through the idea of operational art which '[sequences] tactical actions to achieve abstract strategic ends'.¹⁴ This demonstrates a confusion of terminology between campaign planning and levels of war. Campaigns could instead be considered as a series of tactical operations which are aimed and enabled by strategies towards a specific political objective, as contrasted with an abstract strategic end. They are logically *tactical* in nature, yet their sequencing, resourcing and support are *strategic* in nature. The concept of campaigning is still valuable, yet best understood as a strategic function. Vague terms like 'operational art' and 'operational planning' could simply be

replaced with the more obvious and unambiguous 'campaign planning' or perhaps just 'strategy'.

The combination of having an operational level between strategic and tactical levels of war, and the tendency to define headquarters according to a level of war has led to the creation of 'operational level headquarters'.¹⁵ Is it too cynical to suggest that these headquarters needed to define roles and functions that justified their existence? This resulted in the gradual replacement of (military) strategic planning by anything prefixed with the word 'operational', which arguably blurred relationships between political objectives, strategies, campaigns and tactical actions. Furthermore, 'confusing tactical success with progress towards strategic objectives'¹⁶ and 'confusing winning campaigns [with] winning wars'¹⁷ have been identified as two reasons for failure to achieve strategic or political victory in Afghanistan.¹⁸ US Lieutenant Colonel Echevarria, writing about the American 'Way of War' or 'Way of Battle', summarises this by stating that the US military 'tends to [avoid] ... the complicated process of turning military triumphs, whether on the scale of major campaigns [strategy] or small-unit actions [tactics], into strategic successes [achieving the political objective]'.¹⁹ It might be fair to say the same of the ADF. This brings us to the lowest level of war, the tactical level.

The tactical level does not need to change much. It remains concerned with force-preparation for missions, the creation of tactical plans to execute 'strategic' campaigns, and the execution and tactical control of these missions. New battle management systems and communications capacities have given strategic commanders significantly improved situational awareness and even the tempting ability to influence tactical decisions directly, sometimes known as the 'strategic screwdriver'. The reverse is also true, as shown by the well-known concept of the 'strategic corporal' whose actions and decisions have strategic and even political consequences. The distinction of whether a unit is strategic or tactical level should not be defined by the rank of a commander or the size of a force but by whether the force is executing plans and manoeuvre, or whether it is planning, synchronising and resourcing them at the higher 'strategic' level. In this context an intermediate level between strategy and tactics adds bureaucracy, slows down decision cycles, and makes headquarters larger and more numerous. It contradicts potential benefits of having

modern networked armies with common operating pictures and real-time communications.

In contrast, defining logical distinctions between the levels of war means it is no longer necessary to accept the so-called ‘inevitable blurring of the levels of war’.²⁰ By reducing the levels of war to the classic three (political, strategic and tactical), bureaucracy and duplication can be reduced and military decision-making can accelerate. This change will furthermore promote the return of ‘strategy’ to a position of importance in military training and planning. It will remove the ambiguity and confusion surrounding the link between the strategic and tactical levels of war. Finally, it will emphasise the responsibility of the political level to establish clear political objectives and policies for whole-of-government efforts, including military efforts.

Levels of War are Not Organisational Echelons

The distinction between the levels of war should not be confused with distinctions between different-sized military echelons and formations (as seen in the 20th century Russian doctrine) or by the rank of their respective commanders. Equally, there is no longer a technological command and control gap which would necessitate the creation of an intermediary level of war, as these are just different tactical echelons. The levels of war could, if redefined as suggested, help to explain the different characteristics, functions and objectives as political objectives and policies are formed into strategies and executed by tactical actions.

Functions are already performed at the strategic or tactical levels, and there is no technological span-of-control imperative that would necessitate an intermediary level. In fact, this level seems unnecessary and even problematic. Furthermore, the additional level engenders command structures which are prone to duplication of functions. The second recommendation for this article, therefore, is *to remove the operational level of war*. The levels of war could then be simply depicted as shown in Figure 3 below.



Figure 3. Recommended structure

The recommended removal of the operational level does not imply that every function which currently falls under the 'operational' nomenclature should be discarded. It merely seeks to place these functions at the appropriate level as defined by their characteristics, functions and objectives. In other words, they would be attributed to either the strategic or the tactical level of war or removed if deemed as duplicate or unnecessary. The strategic level would gain those 'operational' functions that are strategic in character, function and objective, such as the crafting of military campaigns to achieve political objectives, force assignment of task-organised forces for specific missions and operations, allocation of strategic enablers and logistics, and synchronisation of military effects with whole-of-government initiatives. The tactical level would gain those which are focused on the planning and execution of tactical missions.

Functions Traversing the Levels of War

At this point it is necessary to acknowledge certain military functions that seem to traverse the levels of war. General functions like command, logistics, and administration take place throughout the military hierarchy and have no need to be linked to a level. These functions will have different characteristics at each level and potentially require distinct terminology defined in doctrine if deemed necessary for clarity. Examples each way are (strategic) logistics versus (tactical) combat service support, and strategic command versus tactical command.

Similarly, it is important to clarify the concept of 'operational theatres, operational command and theatre command'. For the deployment of forces to a distant area of operations, it is logical to have a command structure

focused on the particularities of that specific theatre of war. It would be assigned the forces and strategic assets required for the mission and be authorised to make certain decisions locally. This command structure should not, however, be misrepresented as belonging to a certain level of war. Accordingly, the term ‘theatre command’ clearly expresses a geographically specific command arrangement that traverses the levels of war, containing a tailored microcosm of each level (Figure 4).



Figure 4. Theatre command traversing the recommended levels of war

The distinction between these levels is clearly defined by three logical criteria: different function, different objectives and different characteristics. Without these essential distinctions, the logic for having different levels of war is, at best, questionable.

Conclusion

It is logical to expect that evolutions of doctrine would be triggered by the redefinition of these doctrinal terms. While this could seem inconsequential, it is important to recognise the foundational nature of these terms and to understand the significant consequences their redefinition would have on other areas of doctrine, force generation and force structures. To start, the practice and study of strategy as a military art in the ADF training continuum could be renovated for a new generation of military professionals. It would certainly simplify the doctrinal concept for linking political direction to tactical action.

Other improvements to doctrine which might follow the recommended redefinition of the levels of war could include analysis of potential flattening of force structures, both in force generation and training and on operations.

Another is the potential for re-centralisation of 'strategic' capabilities in support of force generation. Already in progress is further analysis of the way technology might enable, and not paralyse, military decision-making at the interface between the strategic and tactical levels. Finally, the study of historical wars and campaigns through this evolved doctrinal framework, to analyse how tactical actions have or have not led to strategic success, which in turn met or failed to meet political objectives and end-states, may provide useful insights which shape how politics, strategy and tactics interact in the future.

This article has argued that the levels of war should be redefined to ensure that the distinctions between them are clearly based on three logical criteria. Noting how the historical asymmetry between technological capabilities and the scale of war prompted both the creation of an operational level and the blending of political and strategic levels, this article has questioned the logic of persisting with these arguably flawed definitions. This should progress and inspire further professional military reflection on this subject and eventually lead to a redefinition of the levels of war as the political, the strategic and the tactical levels of war, distinguished by three criteria: different characteristics, different functions and different objectives. The thread of logic flowing from politics through strategy into tactics is at once clearer and more coherent, as famously expressed by Clausewitz:

[W]ar is not merely an act of policy but a true political instrument, a continuation of political intercourse, carried on with other means.²¹

Endnotes

- 1 Carl von Clausewitz, 2007, (1832), *On War*, Michael Howard and Peter Paret, ed and Oxford: Oxford University Press, 'Book One—On the Nature of War', section 24.
- 2 Australian Army, 2017, *Land Warfare Doctrine 1: The Fundamentals of Land Power* (Canberra: Australian Army), 18.
- 3 Ibid. The definition of Levels of War in *Land Warfare Doctrine 1* begins by confusing levels of war and levels of command. This article exclusively refers to levels of war, as command is a function which traverses the levels of war and should not be confined to a single level.
- 4 Also referred to as levels of command.
- 5 Australian Army, 2017, 18.
- 6 Instruments/levers of national power: diplomacy, information, [military] and economy (DIME).
- 7 Australian Army, 2017, 19.
- 8 The inability to command and control large forces in dispersed battlefields necessitated an intermediary command structure. Field marshals (*Les Maréchaux*) were thus appointed to command armies in dispersed battlefields.
- 9 Olivier Zajec, 2017, lecture delivered at the École de Guerre, 20 February 2017. Zajec is author of O Zajec, 2018, *Introduction à l'analyse géopolitique: Histoire, outils, méthodes* (Introduction to Geopolitical Analysis: History, Tools, Methods) (Éditions du Rocher).
- 10 Such as Isserson, Tukhachevsky, Svechin, Varfolomeev and Triandafillov.
- 11 Ash Irwin, 1993, *The Levels of War, Operational Art and Campaign Planning* (Camberley: Strategic and Combat Studies Institute).
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- 13 Svechin quoted in CDM Glantz, 2012, *Soviet Military Operational Art: In Pursuit of Deep Battle* (Routledge).
- 14 Australian Army, 2017, 20, speaking of operational art: 'Primarily cognitive rather than organisational, it features the creation and sequencing of a series of tactical actions to achieve abstract strategic ends.'
- 15 Despite notional Australian operational headquarters existing during the Second World War, the ADF's modern operational headquarters was formed in 1996 as 'Headquarters Australian Theatre' (HQAST) after a study commissioned in 1987 into ADF command arrangements. The current operational headquarters is known today as 'Headquarters Joint Operations Command' (HQJOC).
- 16 Jeannie Johnson, 2018, 'The Marines, Counterinsurgency and Strategic Culture', quoted in Jason Dempsey, 'Coming to Terms with America's Undeniable Failure in Afghanistan', *War on the Rocks* [website], 11 February 2019, at: <https://warontherocks.com/2019/02/coming-to-terms-with-americas-undeniable-failure-in-afghanistan/>
- 17 AJ Echevarria, 2004, *Toward an American Way of War* (DIANE Publishing), 2.
- 18 Dempsey, 2019.

19 Echevarria, 2004, 7.

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Making Sense of Accelerated Warfare: Army's Adaptive ISR Capability

Captain Nicholas Barber

Abstract

Army's futures statement, *Accelerated Warfare*, describes a future operating environment that will be complex and uncertain. Uncertainty in the battlespace can be reduced through effective intelligence, surveillance and reconnaissance (ISR). Yet Army's ISR capability has not been widely debated in the context of the future battlespace. The aim of this article is to prepare Army's ISR capability for the challenges of an accelerating environment. Using an inside-out methodology, this analysis examines why an effective ISR capability is necessary in an environment of uncertainty. This article argues the case for an adaptive ISR capability, based on the characteristics of agility and resilience. It concludes with recommendations to improve Army's ISR capability, including building and enabling ISR professionals, enhancing ISR integration and generating a counter-ISR capability.

Introduction

While Army's futures statement, *Accelerated Warfare*, does not explicitly describe the battlespace, Army's recent strategic outlook recognises that future operations will be underpinned by increasing volatility, uncertainty,

complexity and ambiguity. This concept is guiding Army through a metacognitive shift to respond to the changing character of war.¹ The effect of the geopolitical, demographic and technological change outlined in the statement will be most apparent to those responsible for sensing the threat and the environment. Thus, Army's ISR capability will be acutely affected by these changes. As an 'Army in Motion',² Army has been presented by the Chief of Army with an opportunity to transform the current paradigm to be 'ready now, future ready'. Army's ISR capability is central to that transformation.

In this article, I will argue that Army needs an adaptive ISR capability if it is to succeed in the future. I provide a survey of applicable literature regarding Army's ISR capability and, using an 'inside-out' methodology, evaluate these contributions in the context of Accelerated Warfare to determine their implications for the future force. This article is organised in three parts: Why? How? and What?³ First, I identify why an effective ISR capability is necessary in 'Accelerated Warfare'. Second, I describe how an adaptive ISR capability based on agility and resilience will meet the challenges posed in the future operating environment. Finally, I evaluate the current paradigm and provide recommendations to develop an adaptive ISR capability. These recommendations are framed using the four command themes within the Chief of Army's Army in Motion concept: 'Profession, People, Potential and Preparedness'.



Some important definitions underpin this paper. ISR is a collection activity that synchronises and integrates the acquisition, processing and provision of information to satisfy a collection requirement.⁴ Through ISR, collection requirements are answered, providing information for processing.⁵ Intelligence is the product of processing information to support decision-making. Thus, ISR is not an 'end' but rather a 'way' of supporting an intelligence outcome.

Why is ISR necessary?

Accelerated Warfare is ultimately about change. Army's futures statement outlines that, although the nature of war will be enduring, the character of war is set to evolve in an accelerating environment.⁶ A shifting geopolitical order, increasing threat capabilities, the proliferation of disruptive technologies, and the ability to contest across domains will shape the future battlespace.⁷ Over the next 25 years, the confluence of these trends will result in an environment different from that discussed in Kilcullen's *Complex Warfighting*.⁸ Justifiably, the previous operating concept did not examine Army's response to a multipolar Indo-Pacific, advances in disruptive technologies, and environmental challenges such as climate change.

Over the long term, predicting the manifestation of these trends is difficult, and beyond the scope of this paper. For example, scholars can no more agree on the likelihood of mature general artificial intelligence (AI) systems by 2050⁹ than on how militaries will overcome the technical, intellectual and ethical challenges of employing this technology.¹⁰ Nevertheless, the volatility of the geopolitical, demographic and technological features of future war means that the battlespace will be complex and uncertain. In this environment, Army's warfighting challenge is to contribute to the 'offset strategy' of the Australian Defence Force (ADF).

An offset strategy is a competitive long-term concept that generates and sustains strategic advantage.¹¹ In particular, Langford describes eight competencies that will guide the ADF's offset strategy when confronted by anti-access, area denial threats in the Asia-Pacific.¹² The eight competencies range from 'Electromagnetic Manoeuvre Warfare' to 'Dark Systems'. Many competencies embrace cutting-edge disruptive technologies; yet all are underpinned by intelligence. In describing 'Competency 2: Technologically

Intensive, Human Focused Decision-Making', Langford illustrates that ISR capabilities will remain a critical component of the ADF's offset strategy.

As great thinkers identified in the 19th century,¹³ effective ISR supports the production of accurate and timely intelligence that can reduce uncertainty in the battlespace. In fact, a 1987 RAND Corporation study statistically confirmed that effective ISR contributed to mission success.¹⁴ The purpose and relevance of ISR will not change in Accelerated Warfare; rather, the increasing complexity and uncertainty of the environment will necessitate effective collection and processing of information more than ever before.

Army's ISR capability will be charged with the responsibility for making sense of the future battlespace. More than providing aerial sensing platforms,¹⁵ Army's ISR capability is the combined effect of multiple elements, including collection priorities, people, processes, training, sensors, organisational structures, networks, databases and connectivity.¹⁶ Army's ISR capability rests within the context of a broader joint, national and allied ISR enterprise where information flows from detection to point of need. An enterprise approach recognises Army's unique access to drive asymmetric operational effects in the other domains as part of the offset strategy. An enterprise approach also allows Army to take advantage of a diverse range of joint, national and allied sources to access information to enable its commanders to win the land battle.¹⁷

Army's current ISR capability, however, is not ready for Accelerated Warfare. As stated in the final section of this article, Army's ISR capability devotes insufficient attention to ISR professional mastery, and existing organisational structures do not facilitate an effective capability. Additionally, the current model includes isolated collection platforms that lack integration into a wider network architecture. These shortcomings will only become more apparent when fighting in the future. Army's ISR capability will need to evolve to contribute to the ADF's offset strategy. In times of conflict and competition, Army's commanders will demand clarity from confusion as geopolitical, demographic and technological factors change the face of war in unforeseen ways. It is in this context that Army must consider how its ISR capability will enable commanders to achieve decision superiority.

How Will Agility and Resilience Help?

Given the statement that Army's future warfighting concept is founded on accelerating change rather than any anticipated scenario, Army's approach to ISR must also be prepared for and responsive to change by design. Indeed, it is unwise for Army's ISR capability to be overly reliant upon any particular process or major system acquisition when the future operating environment is unpredictable.¹⁸ Instead, Army's ISR capability will benefit from being characterised by two elements: agility and resilience.

Agility

In the context of ISR, agility refers to the ability to observe and understand a problem quickly—and in Accelerated Warfare, agility will be critical. As all stakeholders seek to adapt and outpace their adversaries, effective collection activities may drive early adaptation and the ability to strike the adversary's centre of gravity through information activities, manoeuvre or long-range precision fire.¹⁹

Langford's redefinition of warfare into states of conflict and competition is central to the argument for agility.²⁰ Rigid planning timelines that allow for distinct ISR preparation phases before first contact are unsuitable because parties are always in a state of competition. Understanding war in terms of competition and conflict reinforces the concept of 'always on' which has been espoused by many of Army's ISR champions over the past few years.²¹ The 'always on' approach is characterised by focusing the personnel, organisational and technical elements of Army's ISR capability on consistent collection and processing of geographic or thematic priorities.

Being 'always on' is not simply about collecting everything. Even with the advent of persistent surveillance technologies, the ISR system will always be constrained by technical, structural and cognitive limits.²² Amidst a range of competing threats, the ISR system must be focused to provide decision-makers with the right information at the right time. Doing much more than cueing an unmanned aerial vehicle from one location to another, the ISR professional must harness all available elements of the enterprise to answer the commander's priority intelligence requirements, even as they shift from one problem to another.²³

Ultimately, the agility of the ISR capability will not only depend on the flexibility of Army's sensors. Rather, competent people will design and direct

a dynamic ISR effort. These individuals will be enabled by an organisational structure and network architecture that permits the passage of information from detection to point of need.

Resilience

By contrast, Army's ISR capability must also be resilient. Resilience refers to the capacity to deal with adversity—and for Army's ISR capability, a key risk will lie in technology. *Accelerated Warfare* describes a future dominated by the rise of AI, machine learning, autonomous systems and robotics. It depicts an environment where future collection saturates the battlespace, allowing for persistent or near-persistent collection and 'outside-in', activity-based cognitive methodologies.²⁴ This will see a departure from the traditional approach of linear, discrete collection activities.²⁵

Embracing this technology will be central to how Army's ISR capability fights in the future. The ability to lever disruptive military and dual-use technology for collection may allow the Army to detect patterns and provide insights that were previously unknown.²⁶ Yet Gilchrist rightly argues that a seamless integrated network is unlikely to persist in a contested information environment.²⁷ In both competition and conflict, data will be a critical requirement of AI-reliant militaries. Threat actors will seek to reduce the technological advantage AI may offer the Army. While supercomputers may be less vulnerable in secure strategic locations, the ability for Army's deployed forces to reliably contribute to and access this information backbone is more uncertain.

Separately, although disruptive technologies may enhance collection, disruptive technologies will also enhance counter-ISR techniques. By definition, counter-ISR seeks to deny adversary collection. AI deception, enhanced camouflage and cyber attacks may form part of the counter-ISR repertoire available for Army's potential opponents.²⁸ Any military that has been entirely reliant on AI-supported collection will be vulnerable if it encounters an effective counter-ISR capability. Technology should not determine the ISR system; instead the opportunities and vulnerabilities of an AI-supported environment should lead Army's ISR design. Both Langford and Gilchrist are correct: Army's ISR capability should embrace technology, but it should also be prepared for operating in a degraded environment. By design, a resilient ISR capability accounts for both of these eventualities.

Ultimately, Army's ISR system must be adaptive if it is to meet the requirements of Accelerated Warfare. This adaptive system should be based on agility and resilience. The ISR capability must be 'always on', with the capacity to be rapidly focused on shifting priority intelligence requirements in times of competition and conflict. The ISR capability must also be resilient by design, embracing disruptive technologies for a warfighting edge but capable of operating in a degraded environment. Based on the characteristics of agility and resilience, Army can develop an adaptive ISR capability.

What Can Army Do Now?

In 2019, the Chief of Army outlined his response to *Accelerated Warfare*. In *Army in Motion*, he articulated four command themes for Army to frame its thinking about the future force: 'Profession, People, Potential and Preparedness'.²⁹ These themes provide a useful construct to consider what Army must do to develop an adaptive ISR capability. But for ISR, Army cannot pursue these themes in isolation from the other services, the National Intelligence Community and allied partners. Indeed, the agility and resilience of Army's ISR capability is contingent on the relationship with the joint, national and allied ISR enterprise.

Profession

To date, few in Army have considered ISR as a unique field of study in the profession of arms. Blaxland identified in 2007 the need for ISR professional mastery as part of a 'Hardened and Networked Army'.³⁰ He rightly stated that the increasing prevalence and significance of collection capabilities required structural changes and the creation of additional training to properly support Army's commanders. Six years later, Gilchrist echoed Blaxland's thoughts based on an evaluation of operational experiences in Afghanistan. He argued that ISR was commonly misunderstood and that doctrine, individual and collective training were inadequate to support the generation of an effective ISR capability.³¹

Like all trades, ISR requires dedication and commitment for mastery, and must be more than a human resources proficiency. Although vehicle and aircraft sensor operators may claim the status of 'ISR professional', there are few ISR professionals in the Australian Army. Army has acknowledged that it takes a career to master armoured manoeuvre, joint fire or logistics, but

has not yet recognised that focusing an agile ISR enterprise of Army, ADF and allied collection and processing systems requires similar commitment. Indeed, currently a patchwork of rudimentary ISR training exists in the Army, facilitated by the Defence Force School of Intelligence, School of Artillery and 6th Brigade.³² These courses only amount to approximately two weeks of ISR training for select personnel and pale in comparison to training in the UK, where the Royal Air Force created a six-month course for ISR specialists.

The UK Qualified Weapons Instructor Intelligence Surveillance and Reconnaissance Course is an example of training that allows selected individuals to understand a range of critical ISR learning outcomes.³³ Similar foundation training would support the Australian Army in developing ISR experts with the technical and tactical mastery required to focus an agile ISR system. Yet formal training alone will be insufficient.³⁴ Drawing on the work of Huntington,³⁵ Ryan recently identified a broad range of competencies required of the military professional.³⁶ Engagement with other services, national intelligence agencies and industry, as well as robust professional military education, would enable the ISR professional to build resilience into the design of the ISR system.

People

Army must empower its ISR experts to lead Army's adaptive capability. Indeed, regardless of technological change, the agility and resilience of the ISR capability in times of competition and conflict will require clear direction from Army's professionals. This recognition may require Army to depart from traditional frameworks to better enable the organisation to plan and manage ISR.

Doctrinally, Army's ISR planning and management represents a complicated relationship. As in most Western militaries, its ISR planning and management is both an intelligence and an operations function.³⁷ Intelligence staff identify intelligence requirements from gaps in analysis. Subsequently, in coordination with operations and plans staff, a collection operations / ISR manager within the intelligence staff designs an ISR plan based on the sources and agencies (SANDA) available. Finally, the operations staff approve the ISR plan and task SANDA against requirements, ensuring that collection activities are synchronised and support the commander's plan.³⁸ In theory, this relationship is integrated and seamless, and ensures that collection always supports operations.

But in reality, this doctrinal practice is not seamless. ISR planning and management becomes an uneasy marriage between a range of stakeholders. Quantitatively, the Army Knowledge Lessons database contains 270 observations related to ISR, in which observers identified on at least 63 occasions that ISR planning and management was insufficient.³⁹ One observer pertinently identified that the 'Unity of Command in ISR failed'. The complexity of ISR does not preclude this activity from the principles of responsibility and accountability, but in a system of distributed responsibilities it is unfair to hold any particular individual accountable for failing to find the enemy.

Not all of Army's units and formations follow the doctrinal approach.⁴⁰ Perhaps sensing the challenges of this framework, some organisations empower the intelligence, operations, fires or plans functions with greater responsibility and accountability for ISR, while others appoint separate ISR managers and cells to bridge traditional staff stovepipes. However these different solutions are often based on the availability, personality, experience and competence of individuals rather than sustainable capability design. These measures are not accompanied by the other fundamental inputs to capability. Moreover, the lack of consistency across the force creates additional uncertainty as to how the ISR capability supports Army's commanders and interacts with the wider ISR enterprise.

In considering the response to this structural dilemma, it is important to remember the interconnected link between intelligence and ISR: that ISR is simply a 'way' of achieving an intelligence outcome.⁴¹ Using this approach, Army may achieve better intelligence outcomes if it places responsibility and accountability for ISR with the intelligence function—given that ultimately the intelligence function will be judged on the intelligence output.

There are three primary benefits of this structural change. First, it would simplify ISR planning and management. This proposal does not suggest that the intelligence function should plan and manage ISR in isolation, but rather that the intelligence function is clearly responsible for identifying and understanding the threat and the environment, which allows the operations function to achieve desired effects.⁴² Second, empowering the intelligence function to plan and manage the ISR capability will ensure that the ISR system can be quickly focused on outstanding intelligence requirements. This would remove any bargaining, uneasy handover lines and abrasive working groups—all of which will be especially counterproductive when

fighting in an accelerating environment. Third, the intelligence function can best recognise the restrictions and constraints of focusing the ISR enterprise.⁴³ With ISR professionals within the intelligence function, staff can ensure that collection is accompanied by commensurate analytical capabilities.⁴⁴ The resilience of the ISR capability will require those charged with responsibility for analysis to also be charged with responsibility for collection.

Potential

As both the future threat and environment remain uncertain, it would be unwise to predicate Army's future ISR capability on any given major system; nevertheless, Army's ISR capability must promote future discoveries and have the potential to assimilate new systems to support the fight. Acknowledging the accelerating technological change described by Langford, continued engagement with academia and industry partners will be critical as Army supports the development of the latest collection technologies. Australia has already sought to promote defence technological innovation through the Defence Innovation System,⁴⁵ and Army has further engaged with academia and industry partners through the annual Army Innovation Day.⁴⁶

Army Innovation Day is an inventive model where successful participants enter into an Innovation Contract with Defence to deliver technology for evaluation within a 12-month period.⁴⁷ From an ISR perspective, the widespread introduction of the Black Hornet Nano unmanned aerial system across Army is considered a particular success. The platform was first demonstrated in 2014 and is now used across the force to provide greater situational awareness at the tactical level.⁴⁸

Such systems cannot be acquired in isolation. Unfortunately, new and exciting platforms are sometimes purchased without due consideration for integration into the wider network architecture.⁴⁹ When Army procures leading-edge sensors that produce information in stovepipes, it mistakenly forgets that the objective of all collection is to enable an intelligence outcome and support decision-making. The basis of the future ISR system will therefore be an integrated ISR backbone.⁵⁰ If AI and machine learning are to enable more effective decision-making, the procurement of all ISR systems must be underpinned by data standards and the ability to integrate into the ISR backbone—not as the afterthought that Joint Project 2096 is seeking to

remedy.⁵¹ Indeed, without integration, the addition of more powerful collection systems will simply add to, rather than reduce, confusion in the battlespace.

A strong, protected ISR backbone will provide the foundation of an agile ISR capability that can be enhanced as new technologies are discovered. But the potential of the ISR backbone cannot be restricted to an uncontested environment. The ISR backbone must be resilient, with tactics, techniques and procedures to allow an information advantage when uninhibited access is no longer achievable. For Army's deployed elements, the resilience of the ISR backbone is particularly pertinent, and is likely to be accompanied by distributed nodes, offline redundancies, and robust standard operating procedures.⁵²

Preparedness

The dual requirement to be 'ready now, future ready' will be especially pertinent to Army's ISR capability. Being 'always on' will mean that Army's ISR capability must be operationally engaged in times of both competition and conflict. However, like all elements of the force, Army's ISR capability must also be challenged against future scenarios to evolve from the current paradigm. Unfortunately, Army has not yet fully adopted an 'always on' mentality. Although it has shown some improvement, specialist ISR assets still exist across the force and are often under-utilised when not deployed.⁵³ This is not a question of capability—unit and sub-unit ISR assets are capable of contributing to Army's collective understanding, and this will be further enhanced through future disruptive technologies. Instead, personal, organisational and cultural biases often limit ISR capabilities to supporting force generation activities rather than the national intelligence effort.⁵⁴

To maximise its information advantage in an age of uncertainty, Army must harness all of its ISR resources to improve the collective situational awareness of the threat and environment. Every activity presents an opportunity, and commanders at all levels should seek to understand how they can best support the contribution of Army's ISR system to broader national security objectives. Indeed, as part of a wider ISR enterprise, Army's unique access from the land presents an opportunity to answer intelligence requirements from other stakeholders. By being 'always on', Army's ISR capability will build resilience into the wider intelligence system, while also providing greater scope for Army to adapt to emerging threats. A standing intelligence support plan, as well as clear and current intelligence priorities, would guide this effort.

To be 'future ready', Army's adaptive ISR capability must also practice remaining agile and resilient. As a learning organisation, Army must challenge its ISR capability to highlight its strengths and weaknesses and to test its capacity to respond to change.⁵⁵ This requires a counter-ISR capability. Unfortunately, Army lacks a mature counter-ISR capability. Traditionally, Army's approach to counter-ISR has been focused on limited defensive activities rather than on a concerted offensive and defensive counter-ISR effort. Although some tactical counter-ISR success is scattered through operations and exercises, such exceptions are by chance rather than by design. Indeed, further personnel, structural and cultural change will be required to generate a competitive capability.⁵⁶

Nevertheless, this does not preclude the reality that Army's adaptive ISR capability will benefit significantly from Army advancing its counter-ISR capability. Working within a joint counter-ISR effort, the Army should concentrate on enhancing counter-ISR capabilities that detect, deceive, exploit and disrupt the integration of the adversary ISR system. While defensive counter-ISR measures will remain part of Army's inventory, Army's counter-ISR system should also focus on deceiving and disrupting sensors and information nodes through offensive counter-ISR techniques.

Through military exercises, a training 'Opposing Force' equipped with an offensive and defensive counter-ISR capability could confront friendly ISR and provide Army with an insight into conducting ISR in a high-risk, competitive environment. Furthermore, these insights could guide engagement with academia and industry to drive further defence technological innovation in response. Such a counter-ISR capability would fully test the agility and resilience of Army's adaptive ISR capability.

Conclusion

In Accelerated Warfare, an adaptive ISR capability is required. As the future battlespace is uncertain, the ISR system needs to be designed to thrive in change, rather than being constrained by outdated major systems acquisition. Agility and resilience will be the central characteristics of an adaptive ISR capability. To become agile and resilient, the ISR capability of the Army in Motion should evolve from the current paradigm. First, ISR must be recognised as a field of study in the profession of arms, and resources allocated for suitable training, education and experience to generate ISR

professional mastery. Second, ISR professionals within the intelligence function should be empowered to direct the ISR enterprise to answer intelligence requirements. Third, Army must acknowledge that the potential of the ISR capability rests on ISR integration rather than isolated collection platforms. Finally, a standing intelligence support plan and a competitive counter-ISR capability will ensure that Army's adaptive ISR capability is prepared for future war.

This article has considered Army's ISR capability based on the trends discussed in *Accelerated Warfare*. Beyond the scope of this paper, Army's ISR capability will now benefit from periodic analyses that capture the changing environment to practically guide achievement of an adaptive ISR capability. Fighting in the future will not be easy. Geopolitical, demographic and technological change will make the operating environment more unpredictable than ever before. Yet, in times of uncertainty, an adaptive ISR capability will provide Army with the best means to make sense of *Accelerated Warfare*.

Endnotes

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The Future of Army Supply Chains and Distribution – A Possible Model

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Abstract

The Australian Defence Force (ADF) operates in an environment characterised by accelerating and converging change, set against an international context of cooperation, competition and conflict. To meet the Army's mission of preparing for war, the organisation must undertake a holistic process of modernisation to anticipate the challenges of the future environment. Using available, emerging technology, Army can exploit opportunities to define the operating concepts, structures and personnel required to build a survivable and sustainable force in the future. Through a deliberate, holistic review of supply chains, major platform support contracts and ADF intellectual property ownership, the Australian Army can set the conditions for strategic and operational resilience in our supply chains. In addition, incorporating additive manufacturing technology in a ubiquitous fashion across the entire force will enable resilience of that strategic supply chain. Finally, tactical distribution of these parts, commodities and supplies can take effect in a manner that maximises the capacity of logistics while minimising the threat to soldiers, through the adoption of autonomous and semi-autonomous weapon and vehicle platform technology.

Introduction

For the Australian Defence Force (ADF) to win in the contested, highly lethal battlefields of the future, the force must be both survivable and sustainable. This maxim is particularly applicable to the force's logistic elements, which are currently structured around operating concepts and doctrine developed during the Vietnam War era, despite the certainty of facing a technologically sophisticated future battlespace of increasing lethality and threat. We offer two proposals for future force concepts and structures. The specific focus of each is on those logistic capabilities that may enable the sustainment of the force in the decades to come, viewed through the lens of the likely future operating environment described in Army's *Accelerated Warfare* Futures Statement.

Proposal one describes several options to redefine the supply chains the ADF will be required to rely upon in future conflict. It proposes strategic supply arrangements, capabilities and processes that may increase the resilience of supply chains in a deployed environment. Of particular relevance to ADF operations in a deployed, expeditionary environment, supply chain resilience reduces the likelihood of disruptions to repair parts, combat supplies and commodity supply that may result in a culmination of the force on the battlefield.

Proposal two progresses from the strategic and operational to the tactical: it describes a ground-based distribution model that leverages extant and developing semi-autonomous systems. The proposal posits a concept for a more resilient sustainment force that achieves distribution of combat service support to warfighters in highly lethal and contested environments. This maximises the responsiveness and capacity of distribution capabilities, while minimising the exposure of logistic soldiers to unnecessary threat or loss of life. The article concludes with a description of the opportunities currently available to the ADF to start exploring these concepts, to adopt the technology in a limited fashion and to test the structures, operating concepts, techniques and procedures to build an effective, sustainable and survivable ADF for 2030.

Background

Through professional military education activities facilitated by the 1st Combat Service Support Battalion in 2019, the logistic officers of the 1st Brigade held an innovation workshop that considered current autonomous systems and emerging technologies, and sought to predict their relevance and applicability to the future force.¹ To demonstrate true military innovation, the workshop set out to define how this technology would impact future force structures, operating concepts and training requirements. The projection for this activity was set at 2030, aligning roughly with existing Army modernisation initiatives such as the 17th Sustainment Brigade vision 'Logistics 2028'² and the 'Army 2030 Challenge'.³ Using existing research into emerging logistics technology⁴ to focus the discussions, groups were challenged to create a vision of what they thought the ADF's future supply chains and ground-based distribution models could look like.

The analysis emerging from this activity, coupled with input from the Defence Science and Technology Group⁵⁶ and information incorporated from previous submissions to the Australian Defence Entrepreneurs Forum,⁷ has led to the development of two complementary proposals. While not representative of views from all logisticians across Defence, the proposals were circulated among the logistic battalions of Army's combat and sustainment brigades for peer review and input. The final proposals therefore reflect input from a far broader audience than is attributed. The scope of the proposals submitted is constrained to discrete aspects of logistics modernisation: secure strategic, operational and tactical supply chains and ground-based distribution capabilities.

The Future Operating Environment c2030

Accelerated Warfare describes the challenge to Army's success in future conflict as characterised by four key aspects: geopolitics, threat, technology and domains. The complexity of urbanised and littoral environments in which the ADF is most likely to operate, threat from low-cost swarming technologies and long-range strike capabilities, and vulnerability to attack and disruption in the non-traditional domains of space and cyber all coalesce to present a unique challenge not previously faced by Army.⁸ This

operating environment has two clear implications and challenges for the future sustainment of the deployed force.

Australia's geography, including its proximity to South-East Asian countries, makes deployed operations in the primary operating environment inherently expeditionary in nature.⁹ By extension, the ADF is susceptible to significant disruption of both sea and air supply chains with the potential to be cut off during conflict within the region. In addition to geographical constraints, political constraints are conceivable and historical precedents show where a lack of supply chain resilience has impacted Australia's warfighting capability. The disruption of 84 mm Carl Gustav ammunition supplies during the Vietnam War, due to Swedish opposition to foreign intervention in the conflict, highlights the risk inherent in single-source supply chains and suppliers that reside and operate in foreign countries.¹⁰

Within the theatre of operations, the joint land force environment is expected to be a contested, congested, constrained, cluttered and connected battlespace with no definable forward line of troops. Increasingly accurate and lethal munitions exponentially increase the risk of destruction of logistic nodes and assets.¹¹ Complicating this prediction, two-thirds of the world's population is estimated to be living in the urban environment by 2050.¹² Given recent trends in globalisation and urban warfare (Aleppo, Sana'a and Mosul in the Middle East;¹³ Russian proxy conflict in the Ukraine¹⁴) militaries and security forces must prepare themselves for the eventuality that the majority of modern warfare will happen in the urban environment, including megacities.¹⁵ Australia's position in the Indo-Pacific further dictates the high likelihood that deployed operations will occur in the littoral environment, across a number of nations with limited or degraded road infrastructure.¹⁶ As such, the distribution platforms our future force operates must be designed to be trafficable across complex terrain: to move with precision through congested streets, utilise smaller turning circles and potentially possess the ability to clear obstacles to their front.

In the context of these two major challenges, two linked proposals follow that represent future force operating concepts that have been developed as standalone yet complementary models of how Army, and the wider ADF, may better prepare the organisation to sustain our forces in the future environment.

Proposal One: Secure Future Supply Chains

Strategic resilience in a deployed environment is, to a large degree, impacted by security of equipment, supplies and parts.¹⁷ For an inherently expeditionary defence force, supply chain resilience is a crucial subset of this. The ADF must have ready and responsive access to the parts, supplies and commodities it requires. When this is not achievable, it requires the flexibility to adapt its supply and maintenance systems to maximise force effectiveness.

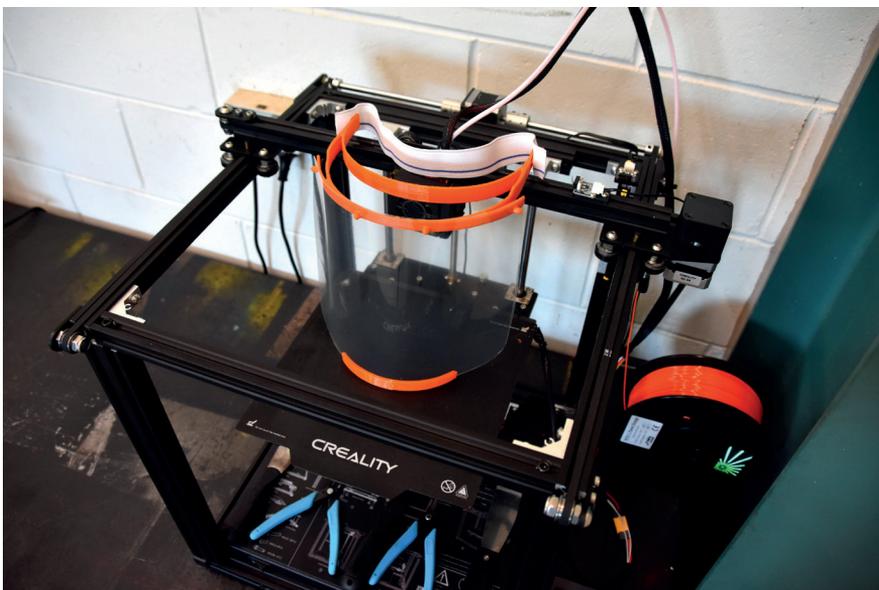
Historically, Army's equipment fleets have been subject to restrictive contracts regarding the use of original equipment manufacturer (OEM) specific repair parts and limits to which repairs can be conducted by non-OEM maintainers (specifically, uniformed and Defence contracted members). This has been evident in the constraints of recent support contracts for the heavy vehicle fleet, Harris radios and night-fighting equipment.¹⁸ After-sales servicing and spare parts form a highly lucrative portion of these contracts for manufacturers, hence Defence can at times be limited in its ability to use uniformed members to conduct the required work. This significantly impacts ADF ability to maintain this equipment or, in terms of intellectual property (IP) constraints, have military personnel conduct anything more detailed than operator maintenance or light-grade repairs.¹⁹ This challenge has the potential to degrade ADF performance in deployed environments, where interrupted access to supply chains and inability to conduct battle damage repair or fabricate substitute parts due to IP restrictions could result in culmination of the force. Security over ADF supply chains thus becomes a substantial concern. Options exist, however, to better manage these concerns.

Foremost among these is a more accurate approach to forecasting inventory requirements. The reduction of inventory and economising of stock holdings at all levels for the first 10 years of the 21st century (to best balance supply chain 'efficiency' with mission 'effectiveness') was simplistically made possible by calculating prior usage rates as the methodology for estimating expected failures. This antiquated system, however, carried significant risks for abnormal or non-statistically calculated failures (such as battle damage), which resulted in grounding of some assets while awaiting supply chains to fulfil requests for parts. By 2030, edge computing and artificial intelligence (AI) is likely to provide the conduit to provide predictive analysis in real time of the host application. In vehicles and other equipment applications,

increases in the number of sensors will facilitate equipment self-awareness and ability to conduct independent built-in tests. Chief of Army Directive 01/19: Land Force Maintenance (CA 01/19) identifies this principle as a key driver of maintenance in our future force.²⁰

As a complement to an improved parts and inventory forecasting system, additive manufacturing (commonly known as 3D printing) as a tool for fabrication and supply is an increasingly attractive option to develop replacement items. Plastics, ceramics, powdered metals and biochemicals/bio-inks all demonstrate utility for future application; the latter in particular represents a fabrication option beyond traditional spare parts, demonstrating its applicability for organic development in the future.²¹

Military application of additive manufacturing is on the rise.²² Capabilities have already been established in the United States military through the US Army's 299th Battalion Support Brigade, testing a rapid fabrication (R-FAB) capability via additive manufacturing in the Amberg Training Area in Germany in 2018. This expeditionary 20-foot container provides the capability to fabricate multiple types of equipment parts in myriad environments.²³ Additionally, the US Navy has successfully constructed a 9.14 m submarine exclusively through additive manufacturing.²⁴ The concept has been explored in academic forums for applicability to military assets with limited resupply ability (such as submarines), utilising 3D printing as a means to



enable reliable access to non-safety-critical parts.²⁵ A similar analogy for the joint force could be Army and Air Force elements that are required to operate over expeditionary distances with limited logistic load capacities. The value proposition is simple: it is better to carry raw material capable of being turned into 1,000 different parts than to source and carry 1,000 parts. To date, however, Army has not embraced these opportunities in a holistic way, beyond isolated and limited additive manufacturing procurements in Special Operations Command.

Establishing the Capability

In the first instance, secure supply chains can best be enabled through sovereign capability. Under this proposal, Australian and allied industry 'ownership' in 2030 would continue to be promoted within Australia, enhancing long-term sustainability and the upskilling of Australian manufacturing industry, as implemented in the 2017 Naval Shipbuilding Plan.²⁶ The Australian Government's 10 Sovereign Industrial Capability Priorities (initially established in 2017) have set the groundwork for the establishment of this industry, and in the decades that follow will be expanded upon and matured to capitalise on Australia's relative wealth of natural resources and rare earth elements (REE: particularly valuable commodities that increasingly figure in sophisticated communications, electronics and alternative energy technologies).²⁷ To align resource security with supply chain resilience, the Australian Government should invest at the national level (or, where financially pragmatic, partner with established commercial entities from partner or coalition nations) in the establishment of high-end processing and manufacturing plants for Defence sub-components that require REE such as lithium batteries, digital communications components, and aircraft assemblies.

Second, the ADF can build strategic resilience through the support contracts developed for major fleet procurements. Future contracts with suppliers and developers should be structured to apply the principles originally established in CA Directive 01/19, to ensure that less-restrictive contracts endorse sovereign production and repair, as well as the required flexibility to meet periods of operational surge. Positive steps have already been taken in this field through recent sovereign production contracts established for the ADF's next combat reconnaissance vehicle under Project Land 400 Phase Two.²⁸ These contracts would incorporate agreements with potential suppliers to gain early access during development to conduct analysis for mid-

development evaluations. Contracts would support functions such as quality control and permit the ADF to identify opportunities for parts commonality between existing and emerging fleets.

Bridging the 'murky' area between strategic and operational sustainment, ADF access to parts and supplies can further be secured through supply 'webs'. To build redundancy, Army should seek to define the 'full reach' of where parts are sourced for all major platforms and equipment (supply chain illumination), then diversify suppliers of critical parts and assemblies across multiple locations and providers.²⁹ Suppliers which are located in or aligned with coalition nations would be prioritised for consideration, to build network redundancy in the event of conflict. This would replace traditional 'single point of failure' supply chains with supply webs which contain links to where supplies are sourced, where possible including the raw materials for these supplies. Supply contracts through coalition nations lever Australia's relative REE extraction and processing advantage, by assuring the ADF 'most favoured nation' access to critical assemblies produced offshore, in exchange for reciprocal priority access to Australian-produced REE components.³⁰

As the most effective measure under this model, Army would tailor support contracts to ensure IP approvals for the manufacture of repair parts under deployed conditions. Although this authority would be likely to incur a financial premium in contracts, it would afford the simplest guarantee of strategic supply chain resilience when deployed supply networks are impacted. IP ownership could be made possible through contracts structured to provide 'royalties' to OEMs each time a part is manufactured in a deployed environment. For high-frequency, low-complexity fabrication in deployed environments, annual licence fees may also be employed for specific fleets as an alternative to the units-based royalties approach.

As highlighted already, IP-enabled additive manufacturing represents a final 'layer' of supply chain redundancy to reduce risk in the ADF's supply chain. In a deployed context, activation of this supply chain can largely be predictive rather than reactive. Using a combination of existing usage rates, augmented with platform-based AI to anticipate conditions-based maintenance and replacement, production of parts would be triggered when the current supply chain is unable to support the required timelines. Where parts that are required for mission-essential equipment are unavailable at a critical point in the battle, automated systems would trigger necessary part production by an R-FAB element in order to provide an intermediate solution.

Staffing and Operating

Future ADF fabrication processes that combine additive manufacturing with traditional trade tools like CNC machines are likely to impact both tactical and operational supply chains.³¹ Tactical execution of unit-level parts fabrication (by infantry, armour and other combat units) would not occur under this model. Agreed one-time repair limits, driven by the need for battlefield mobility (indicatively two hours), restrict unit tradespeople to perform only expedient battlefield repair by replacing existing parts held by the unit echelon or distributed forward from another node. Arguably, exceptions to this approach exist where forces which are required to operate independently over expeditionary distances may have a smaller, unit-level additive manufacturing capability (indicatively, the amphibious ready element or a regional force surveillance unit).

Tactical execution of formation-level parts fabrication would be achieved through a small production section skilled in additive manufacturing. This organisation would operate from a formation logistic node to support expedient battle-worthiness repairs for mission-essential equipment. The capability would be enabled by three deployable field maintenance modules equipped with additive printing machines to produce expedient plastic, composite and metal parts for non-safety-critical parts (windscreen wipers, windscreens et cetera) or for non-structural battle damage repair (such as metalsmithing of damaged non-ballistic vehicle plating). Part fabrication would be limited in size (currently, 20 cm³ per item) and be suitable for most operating conditions. Each detachment could deploy independently, in order to support multiple dependencies from nodes across a dispersed battlefield—for example, an R-FAB detachment may be attached to a combat service support team supporting a battle group.

Operational execution of force-level parts fabrication would then be achieved through general maintenance support agencies (presently represented by the nascent Close Maintenance Platoon capability held within 17th Sustainment Brigade) taking responsibility for larger projects. In this proposed model, this capability would be constituted as a section. This capability would create high-quality parts and major assemblies which can withstand extreme conditions and either have the required specification or receive certification for use. The size of the 3D printing capability would be comparable to contemporary high-end 3D printers, equivalent to a medium-sized ISO container, albeit with suitably matured technology for 2030.³²

To achieve the supply chain redundancy and resilience suggested here, current regulations, policy and doctrine must be permissive enough to allow Army to adapt to rapidly changing technology and situations. Under this model, deployed land force elements must hold the delegation-of-design responsibility to enable greater flexibility under operational conditions and allow for substitution more readily. Unnecessarily centralised authority levels would both increase bureaucracy and undermine the intent of the implementation of a rapid and flexible supply chain. Senior tradespeople or engineers would hold the authority, under a series of standing Engineering Change Proposal approvals, to employ certain vehicle parts as ‘fit for use’.

Through the technical regulatory framework and integrated logistic support instructions for individual platforms and equipment fleets, conditions for the use of additively manufactured parts would be set, defining the duration or operational circumstances in which a specific part can be fitted until an OEM-sourced quality part is acquired. Non-mechanical and non-safety-critical parts and assemblies would be authorised for fitting indefinitely under operational conditions (seats, storage bins and mirrors are likely examples), with formation-level endorsement. Safety critical parts and mechanical assemblies, by contrast, would be fitted for the achievement of a specific mission with a defined period, under the caveats of a ‘battleworthy’ assessment and acceptance of risk by formation commanders. However, to enable responsiveness on the deployed battlefield, this authority could be delegated to unit commanders, with technical endorsement by force-level design acceptance authority representatives.

As a final qualifier on authorities for the employment of this capability, and contingent on the ADF progressively developing this capability over the next 15 years, R-FAB detachments by 2030 would be able to draw from a standardised, Capability Acquisition and Sustainment Group (CASG) endorsed list of many thousands of pre-authorised items which already meet the requisite specifications and requirements for deployed additive manufacturing. Any requirement to print or create an item that does not already exist on this list would simply require approval by the relevant authority through formation and force technical authorities.

Protecting

The operating concepts and structures proposed here are not without risks or challenges. Digitised and networked technology is susceptible to cyber disruption and degradation. The concept of supply chain illumination has illustrated that the industrial controls used to manufacture items or parts, and the supply chain employed to sustain them, are vulnerable to compromise.³³ Army can attempt to mitigate this risk for additive manufacturing by operating closed-loop logistics information systems (LOGIS) and employing strategically positioned forward-based stocks of raw materials or, alternatively, holding reserve stocks nationally. Second, the development of compartmentalised and cyber-resistant LOGIS ensures resilience beyond disruption of networks. Finally, the establishment of a global supply chain, leveraging coalition-preferred industries, enables a more resilient supply web for fleets and items for which the ADF cannot obtain IP ownership or deployed fabrication permissions.

Proposal Two: Ground-Based Distribution via Semi-Autonomous Distribution Elements

Whereas this article's first proposal spans the strategic, operational and tactical levels, the second proposal is intentionally narrow in scope, focusing only on the final link in the supply chain: tactical distribution to the warfighter. For this article, we constrain this further to ground-based distribution within the deployed theatre. The challenges presented to ADF forces by the lethal and contested environment of 2030 demonstrate the case for a force that levers technology to reduce the threat to soldiers. The benefits of autonomous and semi-autonomous distribution systems within the ADF are evident, not for technology's sake but due to the operational efficiency they afford and the force protection they provide.³⁴

Autonomous systems and vehicle platforms are no longer the stuff of science fiction; as a capability they exist and are subjected to increasing use today. Originally born through military invention³⁵ and developed by civilian companies such as Rio Tinto, Fortescue, Amazon and Google, 'truck platoons' are already delivering greater safety and efficiencies across the logistic world.^{36,37,38,39,40} The concept of a single truck leading up to 10 others, with only one driver and one commander in the lead vehicle, is one that has been developed over the last decade; US and UK forces are already

in the later stages of trials for military application.^{41,42} With the possibility of mid-life-cycle upgrades and vehicle fleet replacements occurring in the next 15 to 20 years, Army's next generation of distribution capabilities should not only be considerate of but also be specifically designed around the principles of semi-autonomous distribution and 'truck platooning'.

Operating

The current rear echelon footprint of the deployed Joint Task Force has been superseded by the non-linear battlespace. As posited across a number of public forums and internal Army documents, warfighting in complex littoral and urban environments in 2030 will require support from a greater number of logistic nodes, situated not in a rear-to-front model but rather in 'inkblot' footprints that are dispersed across the battlespace.⁴³ Command and control of these nodes will occur in a centralised and network-enabled fashion, to direct and reallocate priorities and main efforts.⁴⁴ Execution of tasks, however, occurs in a decentralised fashion. Semi-autonomous distribution elements will operate as part of logistic nodes from theatre entry points through to formation and unit areas of operation, delivering to and between combat service support nodes, as well as to unit-level distribution points. No longer will there be a single logistical entry point into a brigade's area of operations, such as a brigade maintenance area. By contrast, the decentralised approach enables combat service support to be distributed to and from logistic nodes based on a node's proximity to potential dependency and access to the required classes of supply.

Distribution elements will continually traverse the links between the nodes, with driver/commander crews distributed throughout each location to ensure that as a distribution element arrives at a logistic node it can be rapidly reassigned for subsequent tasking, following short and semi-automated load reconfiguration. Distribution 'sections' and 'troops' remain the basic functional unit as an administrative structure; however, the internal structure of these organisations has changed (Figure 1). Each distribution troop will retain four sections: two general cargo sections, one heavy cargo section and one specialist section. In a deployed capacity, sections may be task organised, with assets from any or all sections to meet task requirements.

As Army phases out the current LAND 121 (L121) fleet for future deployable fleets (incorporating autonomous driver system functionality as part of initial design), heavy vehicles will move as a manned-unmanned team, in section-sized groups of six vehicles (Figure 1). Midlife upgrades to L121 fleets

(40M, 45M and HX77) also make retrofitting of this technology possible for domestic training audiences, enabling force generation through collective training without significant additional financial and engineering impact.

'Command' vehicles would be dual-manned by a driver and commander, with the remaining five driverless vehicles 'slaved' to the actions of the first. Autonomous programming enables distribution elements to vary speeds, distances and formations for unmanned vehicles in the group, to reduce predictability and pattern-setting. Using a suite of sensors that have been attached during upgrade, command vehicles would record the route, conduct analysis and instantly inform and control the following five vehicles. To ensure redundancy, all vehicles in the platoon would be able to act interchangeably as the command vehicle if required, as well as through a standard human-operated platform. Vehicle manning could be adjusted in environments of differing threat, to provide crew to a second vehicle and provide further redundancy against incapacitation. Manning augmentation would also allow elements to further divide into two capability 'bricks' of three vehicles if required to further disperse convoy footprints (Figure 1).

Without established and trafficable road systems, 'platooned' distribution elements will only be capable of effecting distribution so far in the urban environment or littoral regions of the ADF's primary operating environment. Where persistent enemy threat or terrain limitations constrain movement beyond a certain point, unmanned ground vehicles (UGVs) and unmanned aerial systems (UASs) could ensure that the last 'tactical mile' of delivery is swift and precise, without exposing soldiers to unnecessary threat. Each vehicle would deploy with two UGVs or UASs as part of the standard complete equipment schedule, or as otherwise task organised. These could be remotely piloted or GPS guided to the appropriate destination. The use of UGVs or UASs for delivery would generally be employed when the conditions are unsuitable for direct distribution. This could span a range of situations, from complex terrain to friendly troops in contact, to a persistent chemical, biological, radiological or nuclear threat that precludes prolonged human presence.

Fighting

While moving through congested, high-threat environments, distribution elements cannot presume to have flanking protection from friendly forces. The commander of the platooned vehicles in this proposed concept would be enabled by an automated front and rear phalanx weapon system on

each of the six vehicles in their group, and an intelligence, surveillance and reconnaissance (ISR) feed from teamed UASs that would lead and anticipate their route.

When presented with a threat, the AI-enabled autonomous weapons would present the commander with target options for selection and approval, supported by the on-board battle system that calculates priorities and risk. To address the ethical aspect of autonomous weapon system employment, the task commander remains the 'human in the loop' to prosecute pre-selected targets. Once the commander makes a decision, the press of a button would authorise weapon systems throughout the convoy to engage and all networked supporting platforms to respond accordingly.

Supporting and Sustaining

This proposed model would maximise the employment of modularised, 'smartpacked' modules that are fitted in varying sizes and weights.⁴⁵ Load plans for these modules would be calculated by AI-driven LOGIS informed by a networked recognised logistic picture, with the distribution soldier supervising as the 'human in the loop'. The modules themselves would carry all standard classes of supply, from rations to repair parts. Modularising commodities would enhance the options for how supplies are prepared and configured in a tactically effective manner. Additionally, further modularised capabilities for distribution would include specialised modules for repair, medical support and mortuary affairs; UASs/UGVs linked to semi-autonomous vehicles as CES items, used not only for forward-positioned ISR capability but also to deliver smaller and crucial items through the final most dangerous part of the delivery route; and repair 'bots'—computerised technician robots that would diagnose and repair vehicle systems.

For a force that has transitioned from legacy diesel-operated heavy vehicles to a highly sophisticated fleet of semi-autonomous systems, current maintenance engineering practices and trades are not structured to support the evolution of technology. In this new paradigm, the majority of maintenance support would be delivered by technicians who are required to support hybrid-powered (or alternative energy) logistic vehicles, ISR sensors, electronic countermeasures and data management systems.

What Can We Put into Practice Now? Opportunities to Prepare the Current Force

These proposals consider a future logistic force that is enabled by technology to adopt different approaches in securing supply chains and distributing to the deployed force. These models cannot be tested or validated without the requisite investment by the ADF now to take practical steps to introduce and build these concepts. What follows are several options available to the ADF to progress these concepts.

Future Supply Chain Opportunities

First, the ADF, specifically through CASG as the delivery group, Army as the capability manager and Joint Logistics Command as the strategic logistic provider, should commence exploration of the feasibility of both strategic and operational supply webs, using multiple means and sources to acquire parts and commodities. This would permit Defence to develop a supply chain 'PACE' plan (primary, alternative, contingency, emergency), by commodity, to enable a more dynamic, responsive and resilient logistic network which is maintainable beyond individual option failure. Once developed, strategic and operational PACE plans should be promulgated by Joint Operations Command and joint task forces, within the relevant mission-specific operational orders for scheduled and contingency deployments.

Second, concurrent efforts to develop less restrictive support contracts for major capital acquisitions, espoused under CA Directive 01/19 and underway for a number of impending Defence acquisitions, can be targeted to incorporate clauses endorsing sovereign production and repair, and to enable access by the ADF to IP needed to manufacture parts organically. By developing these contracts over the next 15 years, Army has the opportunity to grow and develop the technical skills of qualified engineers and tradespeople already in Army, within an emerging niche specialisation.

Third, at the formation level and using commercially available technology, Army can introduce additive manufacturing into its support and service organisations now, to trial the concept and employment of the capability. The officers of the 1st Combat Service Support Battalion have begun this journey and are presently working with Army stakeholders to implement such a trial.⁴⁶ Using a combination of medium and large commercial-sized 3D printers, and targeting repair parts, supplies and commodities for which the ADF



holds the intellectual property, this trial will enable the development of tactics, techniques, procedures and governance measures for additive manufacturing as a conventional capability that can be implemented across the wider Army, and the joint force. The potential for expansion to Air Force expeditionary logistic elements and Navy minor and major fleet units is self-evident.

The extension of this trial, once complete, will be the creation of a catalogue of 3D-printable designs for use within Army. This may take a variety of forms but could potentially include an identifiable marker attached to the NATO Stock Number in the ADF's next enterprise resource program.⁴⁷ Furthermore, Defence can choose to develop its own 3D-printable designs for subsequent manufacturing, ensuring IP ownership of any designs created as part of the development of this capability. Certain designs may even hold commercial value or be useful for coalition forces. This represents an opportunity to foster genuine military innovation. Future Defence 'Good Ideas Expositions' and Army 'Innovation Days' could extend the challenge to create 3D printable designs that enhance workplace and job efficiency, prior to codification as part of Defence inventory through the Capability Acquisition and Sustainment Group.

Proposals such as these are not without risk. The quality and quantity of raw materials to conduct additive manufacture must be subject to a control and governance framework ensuring safety and reliability of items manufactured.⁴⁸ The opportunity to test this concept in order to identify, address and treat the associated weaknesses and risks is too valuable to ignore.

Ground-Based Distribution Opportunities

We acknowledge that the greatest hurdle to overcome in introducing a fleet of semi-autonomous vehicles to the ADF is that the technology is unlikely to be available across vehicle fleets until there is an L121 mid-life-cycle upgrade. Until then, the ADF will focus on what it can achieve in the interim to prepare the force for adoption of this technology.

Disaggregated logistic nodes, centrally controlled and supporting multiple dependencies in a decentralised manner, based on proximity and suitability of supply holdings, represent the first step. This frees support organisations from the traditional echelon structure, thus standardising logistic nodes for ease of planning and allowing for distribution elements to operate as platooned force elements across all nodes. This practice was exercised by task-organised combat service support teams, partnered with combat unit logistic sub-units from the 1st Brigade, through their assignment as Army's 'Readying' brigade during the Joint Warfare Series in 2019. This approach was considered to be widely successful and will be repeated in future iterations.⁴⁹ The success of this approach is of course predicated on the ability of each node to remain 'networked', accessing a recognised logistic picture, generating and receiving demands from across the battlespace and maintaining visibility of force holdings of supply and commodities across the entire theatre of operations. Initiatives within Army's 17th Sustainment Brigade are currently trialling the development of a recognised logistic picture to make this a reality.⁵⁰

Greater application of mission command for distribution of force elements in training is another opportunity. This can be achieved by exercising different approaches to the placement of distribution capabilities through an area of operations. Vehicle ownership as a concept could evolve such that vehicles may be transferred between multiple dispersed nodes with different drivers, albeit still 'owned' by a single parent organisation. Exploration of command and control structures and platform/equipment handover processes (potentially enabled by onboard vehicle informatic systems that quantify equipment serviceability and CES completeness at the point of handover)

would be an essential requirement for, but not necessarily a limitation on, ensuring that this concept is achievable within Army's governance framework.

Finally, using commercially available products that already exist, the ADF can retrofit semi-autonomous technology to a limited pool of medium and heavy capability vehicles to be capability demonstrators for use in practising the autonomous and semi-autonomous process of distribution through limited trials and ADF major collective training events.

Conclusion

The ADF's operating environment of 2030 is one that promises challenges and threats in no short supply. It is also one that presents a number of opportunities for the ADF to modernise and adapt its approach to the way the deployed force is sustained in a conflict. Success in this environment is predicated not only on adopting new and emerging technology but also on defining and implementing the operating concepts, force structures and manning requirements that lever and exploit this technology to create a survivable and sustainable competitive edge. The models proposed in this article demonstrate one possible future for how supply chains and distribution are improved in the modern battlespace. Through further debate and analysis on this topic, these models can be considered, challenged and enhanced to shape the ADF of the future.

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Reintroducing Manufacturing into Army's Supply Chain

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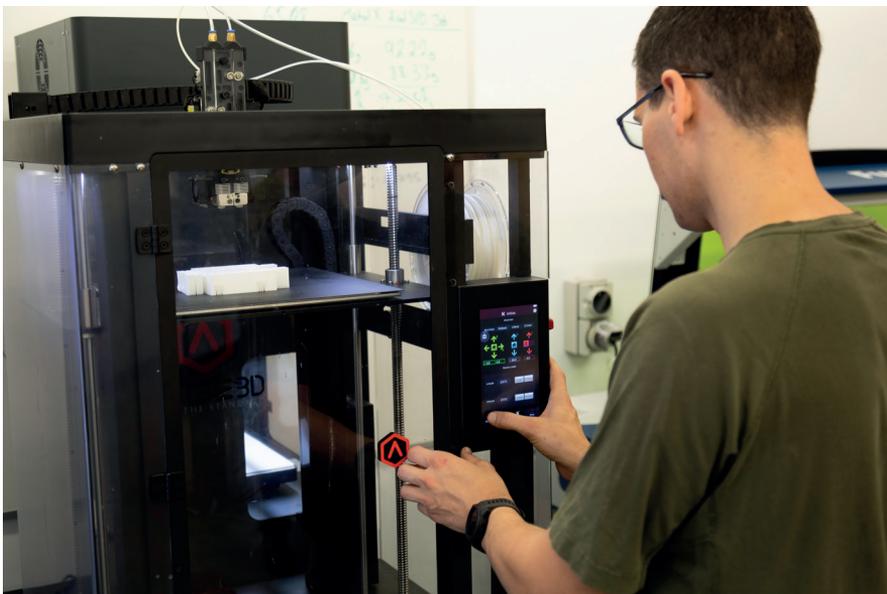
Abstract

Army's 'Accelerated Warfare' framework promotes the notion of constant change, technological disruption, and the contest of ideas which ultimately should encourage us to innovate. Advanced manufacturing is one of many areas where we may be able to do this. At present, there is an inherent lack of organisational agility to design, prototype and test innovative proposals within Army. There are also some very real constraints in the supply chain, specifically getting quick access to repair parts, that could be mitigated by a manufacturing capability. However, this technology is not to be taken lightly and is unlikely to be the solution for forward units needing to create equipment. Military equipment is growing in complexity and indeed demands extraordinary levels of expertise, engineering capability and resources to produce. Nevertheless, this article argues that there is a place where advanced manufacturing could add value to Army by enhancing its supply chain and supporting innovation within the organisation.

Introduction

The topic of additive manufacturing (AM), colloquially referred to as 3D printing, has circulated for some time in force design and capability development circles. The essential premise supporting AM is the expectation that it gives an organisation a degree of autonomy over supply or, in other words, that it gives consumers some control over their own needs. The other common argument for AM is based on a perceived need for *rapid prototyping* to enable local innovation; however, the need to do this is not well defined. AM technology has developed significantly since its inception in the 1980s. As the balance of cost to benefit continues to shift in its favour, its use has increasingly permeated the manufacturing industry. It continually offers novel solutions to manufacturing that have previously not been conceivable. It opens possibilities with new materials and construction methods, and takes advantage of idealistic engineering structures that are only made possible by an additive process.

In essence, it is an excellent and very advantageous technology. However, it is naive to view it as a panacea that is independently capable of filling gaps in the supply chain or improving capability readiness in its current form. By itself, it does little to close the gap between innovative consumer and manufacturer, instead adding further complexity to what manufacturing is



and can do. Nevertheless, looking through the lens of a 'Fourth Industrial Revolution', we see the emergence of an industrial ecosystem where cyber-physical systems and hyper-connectivity spawn new paradigms for the consumer–manufacturer relationship. Advanced manufacturing is playing an underpinning role in this new ecosystem, but only as a collective system is it revolutionary. Ultimately the question is less about AM in isolation and more about whether Defence wants to introduce a manufacturing system which challenges traditional organisational boundaries.

Framing the Problem

Land forces routinely find themselves operating in geographically and commercially isolated environments which are not easy or convenient to support logistically. Furthermore, the insatiable requirement for mechanised, high-technology capabilities, which are expected to operate and evolve in all environments, will drive a dependence on a vast and new type of supply chain. The notion of being able to print a mechanical part spontaneously, whether for a weapon or for a machine, is very appealing. In reality, the ability to manufacture a part for such equipment locally is more complex than commonly thought, for a number of reasons.

First, organisational needs and requirements have not led any land force design process to conclude that a general manufacturing capability is required in Army; therefore, the organisation has no technical policy, intellectual property (IP) licences, facilities or tools to enable manufacturing. Indeed, like many contemporary military organisations, Army has increasingly moved away from government-sourced manufacturing in favour of the defence industry to deliver capabilities and technical services.¹

Second, maintenance is very different from manufacturing; therefore, while some Royal Australian Electrical and Mechanical Engineers (RAEME) trade qualifications may appear to be commensurate with manufacturing qualifications, in their current form they are not. There is a clear distinction in qualification, subject expertise and professional experience between practitioners of Army's light and medium grade repair and civil-industrial prototyping, fabrication and production.

Third, AM machine types are numerous yet only represent a small portion of a manufacturing capability. Different materials, tolerances

and specifications require different types of processes, production and machinery. This is particularly pertinent with parts that comprise multiple materials, require specified properties of hardness or tensile strength, or have precision tolerances.

Fourth, for some complex parts, using AM as the manufacturing solution could actually take longer than acquiring the part through the Defence supply chain or commercial sources.

Fifth, the performance edge inherent in some capabilities is derived from advanced material science that is bound by proprietary laws. Even if IP could be purchased, the laboratories, engineers, machines and instruments necessary for production are not necessarily commercially available and are often bespoke, one-off capabilities veiled by commercial confidentiality.

Finally, while viewing the problem of parts supply through a military operational lens, it is natural to value supply velocity and reliability over all else. However, efficiency and economic limitations will inevitably constrain operations as no budget is limitless.

None of the reasons above rule out manufacturing as a viable component of a land or joint force's future supply chain. Indeed, there are many compelling benefits to introducing a manufacturing capability; however, it has to be by design and around organisational needs and requirements rather than empty notions.

The essential premise for the AM argument is to give Army a degree of supply autonomy. While the national support base (NSB) model is essential as a strategic source of materiel, it is inevitably bound by commercial industrial capacity, and has limitations in reaching into operational theatres with the required fidelity and velocity. A degree of supply autonomy could reduce the requirement to stockpile, lessen supply uncertainty, reduce the impact of supply disruption on operational tempo, and build organisational trust in the supply system.

As a natural attribute of military procurement, when a new capability is acquired it is done so as a complete system incorporating each fundamental input to capability (FIC)—including sustainment. In some cases delivery of support may be bound by commercial obligations set by the original equipment manufacturer (OEM). In other cases, contracts with third-party organisations may be established to deliver materiel support. The

introduction of a component manufacturing capability into the supply chain could essentially circumvent these contracts or OEM-set obligations. This is acceptable, provided the contracted parties are willing to accommodate it. This may require IP to be included as an integral component of acquisition, which will fundamentally change the through-life-support cost model and change Defence's relationships with OEMs. Access to such IP could come through a royalty-based system, where on each occasion a component is locally manufactured the OEM is remunerated in accordance with agreed contractual terms.

AM is a viable method of manufacturing some materiel; indeed many of the OEM and third-party sourced components that support Defence materiel are already manufactured using AM techniques. However, as mentioned earlier, the important question is less about AM in isolation and more about whether Army wants manufacturing introduced into the supply chain. This leads to three more questions: What organisational needs and requirements underpin a manufacturing capability? What does a manufacturing capability actually look like? Where in the supply chain would a manufacturing capability be most suitable or beneficial?

Needs and Requirements

Business needs and requirements must be defined before potential solutions can be considered. This is particularly pertinent when emerging technologies offer solutions without defined problems. To some extent, that is true of AM; however, there are compelling organisational needs that could be addressed with some form of internally controlled manufacturing capability. Army's Accelerated Warfare framework promotes the notion of constant change, technological disruption, and the contest of ideas that should ultimately encourage us to innovate broadly as an organisation.² The opportunities presented by advanced manufacturing are one of many areas where we can innovate. At present, there is an inherent lack of organisational agility to design, prototype and test innovative proposals within Army's formations, in training or on operations. There are also some very real constraints that currently exist in the supply chain, specifically to do with timely access to repair parts that could be mitigated by a manufacturing capability. On this premise, the organisational needs include access to a wide variety of repair part components in the shortest feasible time at the point of need; greater

resilience to supply disruption; reduced supply chain footprint to lessen vulnerability to exploitation and increase agility; and the ability to support local innovation through controlled modification or manufacturing of materiel.

The system requirements for a capability that is able to support the supply chain differ slightly from a capability designed to support local innovation. The system requirements of the former are deduced from the organisational needs into qualities and attributes the system must have, and include several elements. First, the system must be capable of manufacturing components made from ferrous and non-ferrous metals, titanium, plastics, and composites including carbon fibre, nylons and Kevlar-like materials. The system must manufacture all predetermined Class 9 components deemed feasible and necessary for mandated operational viability periods (OVPs). This includes electronic circuit boards, and vehicle, weapon and specialist equipment components. Second, as an emergent capability, the system as a whole must complete the entire manufacturing process, from raw material to finished component.³ This is to include heat treatment, finishing, testing and any specialist assembly that is by nature part of the manufacturing process.

In addition, IP must be integrally accessible for use by computer-aided design (CAD) and computer-aided manufacture (CAM) systems, and the system must operate from infrastructure that is transportable by in-service systems. This will require integral climate and environmental control, noxious waste extraction systems and electrical power management systems that are interoperable with in-service power generation and uninterrupted power systems (UPS). The system must be self-sufficient less consumables, raw materials and servicing requirements. Consumables and raw materials must be readily available and must not be dangerous, noxious or difficult to handle (except reasonable personal protective equipment). It must be interoperable with existing maintenance, logistics and IT systems, and it must conform to Australian Standards and relevant international engineering standards.

Validation of the requirements will be difficult but could feasibly start with analysing which Class 9 components are commonly demanded and what impact they have on operational viability, and then determining whether the components can be locally manufactured within organisational constraints. By establishing a baseline of Class 9 components, which if readily made

available would be beneficial to operational viability, then a manufacturing system could be designed around these requirements. This implies a study of the Defence inventory to assess which components are suitable for local manufacture, or even which components can be improved by advanced manufacturing techniques.⁴

By default, a system that is capable of manufacturing Class 9 components will be more than adequate to support innovation demands, provided a suitable 'innovation conduit' is established to support a consumer–manufacturer relationship. The type of consumer–manufacturer relationship required to enable this may necessitate a new manufacturing paradigm that enables concept development, design, engineering, test and evaluation, and technical feedback at a local or non-physical level, perhaps through a virtual network of specialists.⁵

Composition of a Manufacturing Capability

The elementary manufacturing capabilities required to satisfy the system requirements detailed above will include supporting capabilities. *Knowledge* is the understanding and articulation of what can and should be manufactured to streamline the supply chain. This also incorporates the necessary technical frameworks, technical publications and IP to deliver materiel at the appropriate standard. *Facilities* include deployable workshop systems that are capable of operating at designated points in the supply chain. These may be scalable, ranging from containerised systems to deployable infrastructure for strategic nodes. At all levels, less for the most rudimentary machines, these facilities are required to provide climate and environmental control and to facilitate essential inputs such as electrical power. For instance, a basic polymer printing machine, which may be used for low-risk prototyping, will have significantly fewer constraints than some of the more complex machines such as atomic diffusion metal printers, and therefore will come at a lower cost and place fewer demands on organisational infrastructure.

AM machines will operate in conjunction with other manufacturing machines such as heat treatment, finishing and fabrication machinery. Only as an emergent 'system of systems' do they deliver a manufacturing capability, so they are less beneficial if employed independently. They also intrinsically rely on machines that manage raw materials, generate high-powered

lasers, extract noxious waste, wash parts for subsequent processing, and fuse metals using sintering furnaces. Within the AM segment, machines of particular utility to the supply chain include electrical circuit board printers, fibre composite printers, polymer printers (laser sintering and extrusion) and metal printers (atomic diffusion and metal powder laser fusing printers).⁶ Each type of machine offers unique manufacturing capabilities and can achieve varying material composition, tolerance, technique and form requirements. Basic desktop polymer printers are currently not capable of producing precision components as would be suitable for automotive or weapon component applications. Conversely, precision metal printers are not capable of operating independently of appropriate support systems and facilities. In this respect, there is a large range of capability between systems, with commensurate variation in cost and complexity of employment.

All manufacturing capabilities, including AM, rely on specialist *tooling* to measure, handle, classify, finish and package components. Specific manufacturing tooling has almost nothing in common with maintenance tooling and cannot be assumed to be already in service. *Information technology* (IT) includes all necessary hardware and software, such as CAD and CAM software, to enable design through to manufacture. It also includes appropriate IT to communicate with the supply system and manage IP and technical publications. For applications where local innovation is required, a virtual network that can support concept development, design, engineering, test and evaluation, and technical feedback may also be required.

Finally, the reintroduction of manufacturing necessitates *employment categories* via appropriate technical qualifications for tradespeople to ensure compliance with various engineering standards. The framework for compliance already exists under the Defence Technical Regulatory Framework; however, if this capability were to be introduced into Army (as opposed to a third/fourth-line organisation), a new employment category within RAEME might be required. The current RAEME metalsmith has some basic fabrication qualifications; however, these qualifications are repair and maintenance-centric and are inadequate for manufacturing, machining and fabrication at this level. Furthermore, the level of professional expertise required for prototyping, fabrication and production may not be conducive to a 'soldier first, tradesman second' model.



The sort of AM capability described above could feasibly operate from deployable infrastructure. In order to meaningfully support the operational supply chain with the variety of parts and components likely to be demanded, most if not all machines and tooling referred to above would be required. An industry scan of AM systems currently available suggests that the component size that can be manufactured using this technology is less than 400 mm x 400 mm x 300 mm, with the exception of some bespoke heavy production systems.⁷ Should a limited capability be preferred—that is, one dedicated to a limited spectrum of parts—this may be achieved with a smaller maintenance footprint, possibly operating from International Organization for Standardization (ISO) container-sized maintenance shelters.⁸ However, its ability to genuinely address supply chain disruption or support isolated theatres is diminished substantially and its cost-benefit nexus becomes more tenuous.

Where to Establish a Manufacturing Capability

Postulating the existence of a manufacturing capability at different levels may shed light on where and how an end user would be best supported, and help to expose the risks, inefficiencies or burdens such a capability may impose on an end user organisation. The organisational needs

and requirements are also naturally derived from different levels of the organisation, and therefore will inform where such a capability could potentially sit. While the existing logistics echelon hierarchy has been used, it is only used as a point of reference and should not constrain future supply and distribution models. This is particularly pertinent for any future manufacturing system that may cross several organisational boundaries.

First line of logistic support. At the formation A Echelon level, there are unique organisational, mission, operational and materiel characteristics that must be considered. These will either be or not be conducive to establishing and operating such a capability. By design the organisational structure of an A Echelon, be it within a combat brigade or an enabling brigade, has very limited maintenance support capability other than recovery, fault diagnosis, and light repair. This is all bound within a notice-to-move (NTM) that is usually short and not permissive of stationary capabilities such as field workshops. The A Echelon also has very limited heavy transport or deployable infrastructure and seeks to remain highly mobile and responsive to F Echelon demands. The A Echelon seeks to extend the OVP of an F Echelon to up to seven days. Given the echelon's mission, OVP and NTM parameters, it is almost certain that the value of physically owning a manufacturing capability at this level would be outweighed by cost, complexity of ownership and inherent logistical burden. This is all irrespective of the threat that this echelon may be exposed to. Within the broader manufacturing ecosystem concept, this level of the organisation will benefit from access to a virtual network of specialists to facilitate any supply or prototyping demands.

Second line of logistic support. Within a formation's second-line logistics organisations, the structure, mission and materiel capabilities are different from the A Echelon. The mission remains to support the parent formation; however, this is done by providing close rather than integral support. The second-line logistics organisation seeks to extend the OVP of the supported formation up to 21 days.⁹ Correlating with this level of support are heavier capabilities and greater technical capacity, including the ability to conduct medium-grade repairs. This implies reduced agility and a longer NTM. However, the organisation retains its intrinsic function within the formation and must remain agile and responsive to all manner of constraints associated with combat operations. Therefore, if a manufacturing capability could remain on wheels, with preset IP and electronic manufacturing

templates, it may provide some capability increase; however, the cost and complexity of ownership remains problematic. In this context, the scope of manufacturing would be limited to consumable and simple high-use components, or perhaps low-risk prototyping in support of formation innovation efforts. However, the true value of a manufacturing capability at this level is difficult to understand without knowledge of inventory and demand trends, and will depend on an IT system that can enable concept development, design, engineering, test and evaluation, and technical feedback. This system would have to operate in such a fashion as to not impinge on unit tactical requirements or need specialist technical personnel to be physically present in the unit.

Third line of logistic support. The third-line logistics organisation is logically best placed to facilitate a manufacturing capability for a joint force. This is largely because of its role as the primary logistics node at a theatre gateway, and because of its organisational disposition, specifically capabilities, infrastructure and organisational stability. A theatre gateway is, by design, located in such a place as to best support forward force elements while still having access to strategic logistic sources. Therefore, it is also an appropriate location to produce and expedite distribution of critical Class 9 supplies and be reactive to innovation demands. Hypothetically, this manufacturing effect could be delivered by a deployable joint logistics element where appropriate capabilities, facilities and technical staff would exist.

The logistics and maintenance capabilities of the Royal Australian Navy and Royal Australian Air Force tend to be more platform-centric than those of Army and contain some fabrication, if not manufacturing, capabilities. Army currently does not have a general maintenance or manufacturing capability, and although Army maintenance organisations do have scope for limited local fabrication, it is far from a manufacturing capability that can augment the supply chain.

Impact on Supply Chain

The modern military supply chain is a complex ecosystem enabled by numerous organisations. It draws resources from global markets, foreign military sales, commercial-military primes, opportune regional sources and its own NSB. With this comes both strength and weakness: strength through mutual support and multi-source contracting,¹⁰ but vulnerability

through prevailing global market trends, commercial interests, foreign military sales restrictions and other strategic pressures such as strategic lift capacity.¹¹ While many of these vulnerabilities may not be mitigated through manufacturing, some shortfalls born from foreign military sales restrictions, strategic supply interdiction, high demand or loss of commercial sources can be mitigated. This would be particularly pertinent for weapons, munitions and Class 9 components. Another, possibly serendipitous, consequence of operating a sovereign manufacturing capability would be the widened opportunities or flow-on benefits for Australian defence industry, particularly if a royalty-based system were established.

At the operational level, the introduction of a manufacturing capability is unlikely to impact supply chain volumetrics significantly, at least in the initial phases of a deployment. Savings made in reduced stockpiling of parts is likely to be offset by the volume of raw material, machinery, infrastructure, and technical support systems that intrinsically make up the manufacturing capability. Hypothetically, if a manufacturing capability were to be set up at a theatre gateway, there would be a volume reduction in strategic movement of Class 9 components and a reduced dependence on foreign military or third-party supply arrangements; therefore, greater resilience to supply disruption would be achieved. It is feasible that supply chain responsiveness to some operational demands would be improved substantially; however, the most effective and balanced solution may be a hybrid warehousing and manufacturing capability.

Conclusion

There remain a number of questions that must be understood before Army can consider a manufacturing capability that is able to augment the supply chain. First, Army must understand which items in the inventory, known to underpin operational viability, can feasibly be manufactured locally. It also needs to understand whether manufacturing will benefit capability readiness sufficiently to outweigh the cost, financially and logistically; and, in the context of Accelerated Warfare, how critical it is for the organisation to locally evolve its physical systems to operate in a competitive environment.

AM may well be the technology that a manufacturing capability needs to make it feasible and beneficial to a land or joint force. However, it is naive to view it as the solution to all supply chain or capability readiness gaps. By

itself, it can achieve very little. Only as part of a connected manufacturing system, built around organisational needs, that is able to generate material on demand while being accessible to the consumer will it be placed to deliver what is expected of it—and possibly more.

Industrial manufacturing paradigms are evolving swiftly, resulting in the popularisation of concepts such as 'Fourth Industrial Revolution'. This hyper-connected, cyber-physical domain offers Defence genuine opportunities for supply chain innovation; however, hard questions must be asked and answered first, before the organisation embarks on any such commitment. Ultimately this is not about AM but about whether Army, or Defence, wants to introduce manufacturing somewhere in or across its organisations.

This article makes the following recommendations. The first is that a study be undertaken, by or in consultation with Joint Logistics Command and/or Capability Acquisition and Sustainment Group, to ascertain which items in the Defence inventory can or should be manufactured by a deployable manufacturing capability. The second is that a feasibility study be undertaken to further explore industry best practice capabilities that could enable a deployable manufacturing capability, be it third party or Defence owned and operated.¹² The final recommendation is that Defence consider alternative sustainment models during materiel acquisition that work around IP constraints.

Endnotes

- 1 Defence Sub-Committee, Joint Standing Committee on Foreign Affairs and Trade, 2015, *Principles and Practice: Australian Defence Industry and Exports* (Canberra: Commonwealth of Australia), 5; Department of Defence, 2016, *Defence Industry Policy Statement 2016* (Canberra: Commonwealth of Australia).
- 2 Chief of Army, 2018, *Futures Statement: Accelerated Warfare* (Canberra: Commonwealth of Australia).
- 3 Referring to refined and semi-prepared material stock—not referring to mineral ore or equivalent.
- 4 Advanced manufacturing techniques presented by emerging technologies will create opportunities to use different materials and fundamentally change the design of some components for performance gains.
- 5 Emergent trends from the 'Fourth Industrial Revolution' are consistent with this new consumer–manufacturer paradigm. See Peter Layton, 2019, *Prototype Warfare, Innovation and the Fourth Industrial Age* (Canberra: Air Power Development Centre).
- 6 The numbers and types of additive manufacturing machines are vast, yet many variations from one another are due to proprietary reasons as much as technical differences. Due to the rapid development of this manufacturing technology, machine types will continue to evolve, which may render this list obsolete quickly.
- 7 Based on specifications provided by Renishaw®, Markforged, SLM Solutions®, 3D Systems Corporation®, and Emona Instruments Pty Ltd.
- 8 Like conventional manufacturing machines, AM machines require specialist set-up and calibration after movement. Therefore, a mounted ISO container based manufacturing system may have limitations with respect to manufacturing precision parts or achieving appropriate quality control.
- 9 Days of supply (DOS) held by second-line logistics organisations may vary from 7 to 21 days. Combat supplies (Class 3 and 5) are likely to be limited to 7 days; however, classes such as Class 9 RPS may be arbitrarily set at 21 days.
- 10 This is an area where an advanced manufacturing capability could add substantial value. A good example of this approach is in the Apple supply chain, which uses multiple sources for the same component. See 'A Case Study of Apple's Supply Chain', Australian Institute of Company Directors website, 11 September 2015.
- 11 Stephan Frühling, 2017, *Sovereign Defence Industry Capabilities, Independent Operations and the Future of Australian Defence Strategy* (Australian National University Strategic & Defence Studies Centre); Air Vice Marshal (Retd) John Blackburn, 'Energy Security: Is There a Problem?', *Australian Defence Magazine*, September 2018.
- 12 Consultancy organisations exist that specialise in analysing customer business models and asset inventories in order to advise on the feasibility, advantages, disadvantages and total costs of introducing advanced manufacturing technologies into a given organisation. These consultants aim to provide objective advice and are generally not affiliated with a machine or manufacturing brand.

Army's Warfighting Philosophy and 'Warfighter' Culture

Captain Toni Pachernegg

Culture is the deeper level of basic assumptions and beliefs that are shared by members of an organisation; that operate unconsciously and define in a basic 'taken for granted' fashion an organisation's view of its self and its environment.

Edgar Schein

Abstract

The way the Australian Army uses the term 'warfighter' as part of its contemporary culture undermines its joint warfighting philosophy by generating disharmony between the elements of fighting power and the external environment. This ultimately constrains land power. This article explains how Army's drift in cultural understanding represented by the adoption of the new term 'warfighter' influences the moral and intellectual components of fighting power, which affects the organisation's ability to think strategically and as a system to ensure an asymmetrical environment. It concludes by explaining how realigning Army and the wider Australian Defence Force's understanding of the term could strengthen its joint warfighting philosophy to ensure the total force develops a balanced capability for the future environment, ultimately enhancing land power in the context of 'Accelerated Warfare'.

Introduction

The context in which military forces operate is increasingly complex and dynamic. Boundaries are blurring as the distinction between war and peace, front and rear, and friendly and enemy become unclear.¹ The nonlinearity of our operating environment and the movement from closed to open systems are generating more uncertainty, as cause and effects are progressively unpredictable and disproportionate in nature.² The fundamentals of the manoeuvrist approach to warfare remain unchanged; however, the increasingly complex, interrelated and dynamic environment is stretching the boundaries of military action.³

The Chief of Army (CA) acknowledges this increased complexity and rapid change in our operating environment and the growing need to examine how we, as an army, respond. In August 2018, CA released a futures statement entitled *Accelerated Warfare*, designed to stimulate creative thinking about the Australian Army in a rapidly changing context and ensure our warfighting philosophy is appropriate to inform development of future capabilities. The overarching aim of the futures statement is to strengthen Army's joint warfighting philosophy to enhance our land power and meet the challenges of the future, while remaining led by strategy and concepts.⁴

This article will argue that the way we use the term 'warfighter' in our military culture today is undermining our joint warfighting philosophy by generating disharmony between our warfighting components (physical, moral and intellectual) and the external environment. This binds the application of our warfighting capabilities, which ultimately **constrains** land power. The article will first outline Army's current warfighting philosophy, analysing the components of fighting power and the importance of 'systems thinking' to achieve a strategic, concept-led approach in *Accelerated Warfare*. It will then briefly examine the semantic change in the term 'warfighter' over the past two decades to how we use the term in our culture today, highlighting the emergence of a misalignment with our joint warfighting philosophy. It will then look at the impact it is having on the organisation's ability to think strategically and as a system to ensure the force can make the most of strategic effects in an 'open systems' environment. It will conclude by outlining how realigning Army's cultural use of the term 'warfighter' could strengthen Army's joint warfighting philosophy to ensure the total force is capitalising on its capability and developing a balanced capability for the future, ultimately enhancing land power in the context of *Accelerated Warfare*.

Army's Joint Warfighting Philosophy

The Australian Army is the foundation of the nation's military land power. As part of the joint force, it promotes and protects Australia's interests. It deters threats to Australia's sovereignty and, if necessary, defeats them.⁵ These requirements inform Army's concept of land power and provide the basis of its warfighting philosophy in its capstone document *Land Warfare Doctrine 1: The Fundamentals of Land Power*. Army's philosophy reinforces key concepts for the organisation to achieve strategic effects. It recognises that 'warfighting' demands optimal force integration or 'joint interdependence' to combine the capabilities of all arms and services to optimise effectiveness while minimising vulnerabilities of the total force.⁶ Instilling key concepts of land power as a philosophy within Army's culture provides the context for the organisation to generate the land effects required to support the Australian Defence Force's (ADF's) purpose: securing Australia and its national interests.

For Army to have the capacity to generate credible and sustainable land effects as a medium-weight force,⁷ it must lever its structural flexibility not only through organisational changes and structures (Army's 'teams')⁸ but also through its fighting power—its capacity. Fighting power is the way in which Army generates its capacity for its teams through the integration of the physical, moral and intellectual components at individual, team and organisational levels. It requires a balance of current force requirements with future force development to produce strategically relevant and combat-ready forces.⁹ *Land Warfare Doctrine 1* states:

*The intellectual components provide the knowledge of war, warfare and cognitive capability—the 'what to think'. The moral component reinforces culture, values and legitimacy—the will to fight. The physical components provide Army's capabilities and functional effects—the means to fight. When all three components interact, Army's capacity to operate in the future environment will be strengthened.*¹⁰

The Army describes its physical component (its warfighting capabilities) through four elements: Combat; Combat Support; Combat Service Support; and Command Support. Army doctrine states that these physical elements are all necessary and interdependent and a combination of combat and logistic elements must be present in any land power contribution through a

combined arms approach, which is fundamental to generating warfighting capability.¹¹ The intellectual and moral components—what we think and how we think—profoundly influence the way we see, use and lever the physical component of fighting power. Maximum impact is achieved when the components of fighting power are harmonised to accomplish objectives.¹² If the complex system and relationship between these elements are not in harmony with the current operating environment, Army's fighting power is reduced and the organisation's capacity to operate in the future environment is weakened.



The Importance of Systems Thinking in Accelerated Warfare

The Australian Army's philosophy has its foundations in manoeuvre theory. Development of Australia's manoeuvre warfare concepts mirrored developments in the United States (US) Army and Marine Corps during the 1980s and 1990s. Contemporary US Marine Corps philosophy based on manoeuvre theory was first introduced in its 1989 *Fleet Forces Manual (FFM) 1: Warfighting*. In 1997, the publication was revised to *Marine Corps Doctrinal Publication (MCDP) 1: Warfighting*, which aimed to elevate the document from 'guidance for action to a way of thinking'.¹³

In reading *MCDP 1: Warfighting* it is difficult to ignore the role that systems play in the modern warfighting paradigm and the parallels with

characteristics of the context of Accelerated Warfare. In describing the enduring features of war, it emphasises the property of nonlinearity in contributing to uncertainty, describing the nature of war as a system in which causes and effects are disproportionate.¹⁴ As it focuses on the nature of the enemy, it emphasises the complex, interrelated system that makes each belligerent—each element acting as part of a larger whole in cooperation with other elements for the accomplishment of the common goal.¹⁵ As a result, in describing the nature of war, it posits that war is not governed by the actions or decisions of a single individual in any one place but emerges from the collective behaviour of all the individual parts in the system interacting locally in response to local conditions on behalf of the whole. What truly connects the system together is not technology but the human and social capital, linking the parts, either physically or with the aid of technology, to make the system whole. The complex system, consisting of physical, moral and intellectual components and their relationships, combine to determine a force's unique character and power within the nonlinear operating environment.¹⁶

Success in this paradigm depends not so much on the efficient performance of procedures and techniques but on understanding the specific characteristics of all actors and the environment's system(s). Systems thinking is concerned with understanding the dynamics of the whole and has its basis in holistic thinking.¹⁷ Systems thinking is a switch from seeing the organisation as a fractured grouping of disassociated parts (and people) competing for resources to seeing it as a holistic, social system that integrates each part in a relationship to the whole.^{18,19}

Strategic thinking, as the activity of developing strategy, requires systems thinking and is vital for the Australian Army to remain competitive in an increasingly turbulent and global environment. Young identifies significant characteristics of strategic thinkers in order to better develop a strategic thinking capability within an organisation. Characteristics included visionary thinking and creative thinking along with systems thinking.²⁰ He defines strategic thinking as 'a means-ends way of thinking that is future-oriented and seeks to create value or an advantage for the system'.²¹ Strategic thinking is central to an organisation's ability to develop strategy, and effective strategy is fundamental to achieving a competitive advantage in the context of Accelerated Warfare.²²

Systems thinking, and therefore strategic thinking, does not occur in a single mind but is affected by the social context in which an individual operates.²³ It is a result not only of the characteristics of an individual but also of the dynamics and processes that take place within the organisation, which influences all individuals and generates a shared understanding. In other words, it is a result of the organisation's culture. Building on this background, the next section will look at how the semantic change in the term 'warfighter' over the past few decades is creating a social context in Army's culture which differs from the intent in its joint warfighting philosophy. This emergence of a misalignment of philosophy and culture appears to affect both the individual's and the organisation's ability to think strategically, as it influences the organisation's social context and distorts the individual's view of the organisation's system(s), constraining Army's capacity to think as a system and fight as a whole.

Semantic Change in the Term 'Warfighter'

In the 1990s and early 2000s the term 'warfighter' became popular in official US publications and articles to describe all active duty and reserve personnel. Although the exact origins appear unclear, the reason commonly given for its popularity is that it replaces the need for government organisations, reporters and journalists to spell out all types of duty, such as soldier, sailor, airman and airwoman, and provides a simple, gender-neutral term.^{24, 25} Coincidence with the publication of the US Marine Corps' *Warfighting* and the Australian Army's 1998 publication *The Fundamentals of Warfare* also cannot be ignored. These publications contributed to the translation of the term 'warfighting' into the label 'warfighter' and provided a simple, modern mental association between the role of the individual and the goals of the organisation.

In the 2000s, use of the term 'warfighter' started to evolve in Army's culture and take on a new, unofficial meaning. Changes in US language early in the decade appear to have influenced language changes in Australia toward the end of the decade.²⁶ Towards the end of the decade, Australian use of the term 'warfighter' made the primary goal of ADF logistic elements to operate not *in the act of* warfighting but *in support of* the 'warfighter'. Commonly, ADF discourse began to emphasise personnel in combat roles as 'warfighters', distinguishing them from logistic, enabling and support

roles. For example, in 2009, a senior non-commissioned officer from the Royal Australian Armoured Corps stated that:

*all corps subject courses are not providing the level of instruction and practical exposure to the Military Appreciation Process (MAP) process to suit both warfighter and logistics corps. The warfighters are not being developed due to the all corps environment and the logistics corps do not have the necessary tactical experience and capability knowledge to achieve the required standards within the course length.*²⁷

Another example in 2011 came from an officer posted to the Combined Team Uruzgan-1 (CTU-1), Afghanistan, as the mentoring Brigade Major to the Afghan National Army, who stated:

*the Mission Rehearsal Exercise did not test logistic skills possibly due to their focus on the warfighter and lack of appropriately qualified staff to develop relevant logistic test scenarios.*²⁸

Army's Warfighter Culture

A decade later, cultural use of the term 'warfighter' in Australia continued to drift towards a delineation between depicting combat elements as 'warfighters' and other elements—in particular, Combat Service Support (logistics)—as *supporting* 'warfighters' in aspects of Army training, planning and operations. While the distinction appears to remain out of Army's official publications and doctrinal guidance, it is evident in the organisation's social norms, informal conversations through online blogs and articles, and observations recorded in Army Knowledge Online.²⁹ One only has to attend an Army Logistics Officer or Combat Officer course to hear how 'warfighter' is commonly used to distinguish combat from logistic roles within the training environment. Cultural use in Army planning and operations can be observed in a number of blogs and articles. For example, in a recent blog on autonomous resupply, the author states that 'the modern Army has a tooth-to-tail ratio of approximately two logisticians supporting every warfighter'.³⁰

Another example is a news article in which an Army Captain discusses mentoring Afghan logisticians:

they [the Afghan National Army] are very good at a warfighter level ... [however] they won't be able to sustain if they can't get their logistics working properly and effectively.³¹

In an organisational example, ADF's Joint Logistics Command has adopted a vision which may be interpreted as incorporating this cultural use of 'warfighter' to guide their day-to-day work:

Joint Logistics Command is trusted, adaptive and performance leading in the provision of military logistics fundamental to the success of our Nation's warfighters.³²

All of these examples can be interpreted as reinforcing a distinction between 'warfighters' and logisticians and implies that the logistician's primary role is not *in the act of* warfighting but *in support of* the 'warfighter', which differs from the intent of Army's warfighting philosophy.



Misalignment in Philosophy and Culture

It should be made clear that there is no problem with having a distinction between the two physical elements of Combat and Combat Service Support (logistics). The problem is with the method in which the distinction is made, as it distorts the association with Army's *warfighting* philosophy and generates a misalignment in philosophy and culture. Army understands

Combat, Combat Support, Combat Service Support and Command Support elements as interdependent, requiring an unbiased, integrated, teams-based approach to remain competitive in the current environment. This creates the basis and physical means for Army's approach to warfighting.

However, the notional separation of 'warfighter' and logistician creates an implicit assumption that logisticians are not 'warfighters'. This assumption creates an imbalance in the components of fighting power through Army's culture by simultaneously strengthening the link for combat elements and weakening the link for logistic elements with Army's warfighting philosophy. If you are not a *warfighter* then how are you part of Army's *warfighting philosophy*? *'In support of'* does not imply *'part of'*. *'In support of'* implies a relationship in Army's planning and operations, in which all military personnel are trained to be familiar with the application of mission command. It indicates support to a main effort. The problem with defining the role of logisticians in this way is that modern logistics does not 'just support' a warfighting system in our philosophy—it is part of the system; it defines the capacity of the system;³³ and it links the systems together.³⁴ According to our warfighting philosophy, a logistician's role *is* in the act of warfighting in a non-linear, open systems environment, as it makes up part of the physical component of fighting power³⁵ and can generate its own strategic effects in an asymmetrical warfighting environment.

The Effects of a Misalignment in Philosophy and Culture

Unfortunately, the emergence of a misalignment in our way of thinking is reducing the organisation's capacity to harness the physical component of our fighting power by generating disharmony between the moral and intellectual components of fighting power and the external environment. The way we use the term 'warfighter' in our culture (moral component) is presenting an unintended barrier to engaging systems thinking (intellectual component) as a key element of strategic thinking when planning for, and using, our warfighting capabilities (physical component) in the external environment.

We saw earlier that the intellectual and moral components—what we think and how we think—profoundly influence the way we see, use and lever the physical component of fighting power.³⁶ These two components can be examined through the study of mental models. A mental model is an individual's internal understanding and representation of external reality,

based on a small set of fundamental assumptions founded on internal beliefs.³⁷ An individual's mental model is flexible and heavily influenced by experience through an organisation's culture. The notion of a shared mental model in an organisation is well known in literature regarding teamwork.^{38,39} Creating the right shared mental models for the current environment is highly relevant for developing high-performance teams.⁴⁰ An organisation's culture can facilitate development of a shared mental model to improve communication and cooperation for high-performance teams.

Army's cultural use of the term 'warfighter', as distinct from logistic, enabling and support roles, affects an individual's ability to translate the external environment into internal vision⁴¹ by generating a mental model that implies a symmetry about the conduct of warfare in a world that is now asymmetrical. It creates a simplistic, linear mental model for understanding the organisation's projection to, and conduct on, the battlefield in a world that is now nonlinear. The distinctive construct between the 'warfighter' and logistician is becoming embedded in our culture and therefore our moral component of fighting power. This is a mental model that is closer to historical standards of linear fronts than a modern, complex, dynamic system and ultimately penetrates the intellectual component of our fighting power. It is a step backwards from Army's stated philosophy of an integrated, combined arms approach to manoeuvre warfare. Such a notional separation undermines the creation of balance and unity across combat and logistics capabilities⁴² that link the system together—vertically and horizontally—and make up our physical component of fighting power.

Fostering the right social context and the ability to deal with competing demands are two critical sources of sustained competitive advantage in a complex and uncertain environment. A distinctive, linear social context inhibits the full integration of Army's workforce as teams, which could offer a critical source for sustained competitive advantage.⁴³ The ability to deal with competing demands is another critical source of sustained competitive advantage and vital for a medium-weight army aiming to rebalance its capabilities to create the right mix of combat and logistic effects.⁴⁴ Having a cultural understanding of a logistician's role as a supporting effort to the main effort at the philosophical level not only reinforces a linear mindset but also facilitates a simple, implicit, prioritised value structure, which is shared through language and carried in culture. An implicit value structure can operate unconsciously and influences the way individuals think and how they

make local capability decisions⁴⁵ on behalf of the whole without recognising the increasing need to take a systems thinking approach. Unfortunately, a linear mindset and implicit value structure of the organisation's physical elements undermines Army's organisational capability to find the right balance across its warfighting capabilities—its physical components—by diverting the organisation's moral and intellectual components away from a position of harmony across the three elements of fighting power in the context of Accelerated Warfare.

Conclusion

By understanding the elements of Army's culture and how they interact, we can understand how the culture influences our warfighting philosophy and our ability to think strategically and how it may enable a sustained competitive advantage for Australian land forces.⁴⁶ If we are to have a warfighting philosophy that guides the whole organisation then we need a 'warfighter' culture that encompasses all elements of the organisations and matches the intent of our warfighting philosophy. A small change in the mental habits of Army's people—that we are all 'warfighters'—would facilitate a shared understanding that breaks down organisational barriers and enables a holistic, systems thinking approach to developing a balanced future force. Awareness of the implicit assumptions and value structures that we as individuals hold is the first step towards a change in shared understanding for higher performance teams in the future operating environment. Changing our interpretation of the term 'warfighter' to an understanding that we are all 'warfighters' in the modern, nonlinear, open systems environment would facilitate a *balance* between combat and logistics capabilities, which matches the external environment. Such a change would facilitate strategic thinking through systems thinking and ensure that the total force develops a balanced capability for the future, ultimately enhancing our land power.

Endnotes

- 1 United States (US) Marine Corps, 1997, *Marine Corps Doctrinal Publication (MCDP) 1: Warfighting* (Washington: United States Marine Corps), 11.
- 2 Ibid., 8.
- 3 United Kingdom (UK) Ministry of Defence, 2017, *Army Doctrine Publication (ADP): Land Operations* (London: UK Ministry of Defence).
- 4 Chief of Army, 2018, *Accelerated Warfare: Futures Statement for an Army in Motion* (Canberra: Australian Army), at: <https://www.army.gov.au/our-work/army-motion/g-warfare>.
- 5 Australian Army, 2017, *Land Warfare Doctrine 1: The Fundamentals of Land Power* (Canberra: Australian Army), 19.
- 6 Ibid., 7.
- 7 Ibid., 50. Force weight is a product of the combat mass of the force and the environment it operates in. Combat mass is then the product of combat power and structural flexibility. Structural flexibility is achieved through the organisation's structure and its fighting power.
- 8 Australian Army, 2019, *Army's Contribution to Defence Strategy* (Canberra: Australian Army).
- 9 Australian Army, 2017, 37.
- 10 Ibid., 37.
- 11 Ibid., 39.
- 12 Department of Defence, 2014, *Campaigns and Operations*, Australian Defence Doctrine Publications (ADDP) 3.0 (Canberra: Commonwealth of Australia), 62.
- 13 Marine Corps University Research Library, 'Warfighting Discussion Panel', GEN Alfred M Gray, LTGEN Paul Van Riper, MAJ John F Schmitt (Marine Corps Base Quantico, VA: MCB Quantico Combat Camera, 2015), 3.
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The Implications of Terrorism and Violent Extremism for the Future Australian Defence Force

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Abstract

Emerging challenges that are beyond the capability and intent of terrorist actors will require changes to the Australian Defence Force (ADF) counterterrorism (CT) enterprise. The ADF has been developing specialist CT capabilities since the Sydney Hilton bombing in 1978,¹ and has applied these skills to pronounced effect in many international theatres, including East Timor, Iraq and Afghanistan. However, recent operations have seen a transfer of those skills from the special operations force (SOF) to the conventional force and their use in building partner nation capacity. Beyond the necessity of being prepared for terrorist threats, this article defines the current and future challenges of a complex strategic CT environment and the implications for the ADF. This article examines gaps in the public discussion of the ADF's role in domestic CT, explores developments in Australia's strategic focus and intelligence tradecraft challenges, and provides some discussion on the influence of culture, ethics and foreign competition on the development of a CT capability.

Evolving Domestic Counterterrorism Requirements

The continued development of CT capabilities in Australian state police forces will drive a transition of reliance away from their traditional military partner, Special Operations Command (SOCOMD). At the same time, as newly minted federal legislation indicates,² the door is open for state governments to look towards more significant involvement of the conventional elements of the ADF to support a police-led response. The progression from reliance on specialist military capability to law enforcement independence is natural in a democratic society and not something for ADF or public concern.³ Right now, the ADF should seek to understand how it can establish the appropriate force posture, capability and readiness for when it is called to assist.

As Australian police forces demonstrate increased capability and capacity for CT resolution activities, the ADF should expect a corresponding decrease in their reliance on short-notice SOF contingency forces.⁴ Special operations forces are traditionally used to enhance or supplant police resolution forces⁵ when events are of significant scale, complication, or duration. While the 2005 National Counter-Terrorism Plan discussed the methodology for the ADF to support states,⁶ the question of operational primacy was open to interpretation. The New South Wales Police Force response to the 2014



Lindt café siege demonstrated the capability, capacity and primacy of state police⁷—an approach that is in line with incremental changes to federal CT policy. By 2017, the policy expression had changed, noting ADF domestic response capability but clearly articulating the primacy of state police.⁸

The need for a military contingency force to provide depth to a police response remains valid, but SOCOMD could look to increase that commitment in terms of size and readiness. SOCOMD will continue to retain specialist capabilities beyond the scope of state police, such as chemical, biological, radiological and nuclear (CBRN),⁹ and will continue to be a premier training partner for police CT organisations. A potential transition of SOCOMD effort away from domestic CT, a mission captured under the 2016 Defence White Paper's first Strategic Defence Objective,¹⁰ will enable a transition of operational effort to the remaining two internationally focused objectives. That transition provides a variety of opportunities for SOCOMD interactions in the region and globally, increased training and exercise exposure with the conventional force, or potentially a reduction of commitments for SOCOMD to focus on internal development and reduction of operational tempo. However, a reduction of SOCOMD's domestic CT structures could conceal subtle but adverse consequences.

A decrease of SOCOMD's domestic CT commitment is likely to have an adverse effect on its capability. SOCOMD maintains two Tactical Assault Groups (TAGs): TAG East, generated from the 2nd Commando Regiment in Sydney, and TAG West, generated from the Special Air Services Regiment in Perth.¹¹ These groups provide, among a variety of tasks, domestic CT when required by the Australian Government.^{12,13} 'Force generation' of a TAG—the process of raising, training, sustaining and rotating it—sharpenes the skills needed for domestic CT, namely urban and close-quarter tactics.¹⁴ Simultaneously, this drives force development, including the drive for modern and continually improving equipment, technology and methods. That very process of preparing a force for domestic CT in Australia then allows the provision of training, advice and assistance to international partners. When given the likely characteristics of future operating environments—congested, connected, urban and littoral¹⁵—the skills developed for domestic CT may prove to be those most valuable in future operational deployments.

Regardless of the potentially changing role of SOF, the capacity for broader responsibility across the conventional force is evident. On 27 November 2018, the Australian Parliament passed the Defence Amendment (Call Out

of the Australian Defence Force) Act 2018.¹⁶ Developed in close consultation with state and territory governments, the Act provides the legislative framework authorising the ADF to be called out and to use force to resolve incidents of significant violence. As was explored in detail by a recent Australian Army Research Centre paper, the conventional force could now be called out to ‘help the public feel safe, protect critical functions ... or otherwise restore public confidence’.¹⁷ Corresponding tasks could include crowd control, protection of critical installations, and logistics support for the movement of personnel and civilians. The implications are broad for the conventional force. ADF units will need to conduct contingency planning, examine training regimes and preparedness, determine capacity and review authorities in order to shape the force to be ready for a wide array of possible tasks. These preparations will not come without a cost, which will need to be weighed against the likelihood and potential impact of a call out.



Shifting Strategic Focus

With the gradual drawdown of ADF combat operations in the Middle East and Central Asia, the ADF is likely to lose some organisational knowledge in terms of operational exposure and experience. Large military operations improve the professional skills of ADF personnel, drive force development

and generate global awareness of ADF capability. With a move away from these large, globally relevant operations, the ADF should expect a gradual depreciation in these areas; but this is not new. The 2009 Defence White Paper addressed the depreciation of capability that was likely to result from the drawdown of ADF effort in Afghanistan. The authors highlighted opportunities to pivot operational effort to the near region, alongside the risks of decline in skill, loss of expertise, and general degradation of warfighting assets through lack of use.¹⁸

In search of an activity to fill the void of operational commitments, the ADF will increasingly employ large exercises to hone the force; but it will struggle to fill the gap. International conflict and Australia's military contribution to it are not persistent. Ebbs and flows in force capability and experience are natural; however, large exercises are costly¹⁹ and rarely expose participants to the same degree of complexity or force diversity as military operations.²⁰ Such exercises require complex and voluminous scripting, more significant technical support, and investment from government agencies that should not be readily expected, owing to their commitments elsewhere. Large exercises will need to form part of the solution to maintain an experienced force, but are unlikely to replicate operational experiences.

As the ADF responds to the national focus on the Asia-Pacific, deployments to support regional neighbours will remain common. The deployment of ADF personnel and assets in support of the Armed Forces of the Philippines following the seizure of parts of Marawi in 2017 demonstrates the ADF's need for force preparedness across broad CT roles. The desire for Australian military assistance among our regional partners will remain tied to the ADF's CT credentials. These credentials are not passed from one country to another through written evidence or certificates, but rather are evident through publicised operations and international training activities and are discussed by peers at military and diplomatic forums. As such, a deliberate transition from coalition operations to regional engagement could be used to promote ADF CT credentials, in combination with existing training and liaison. This would also provide an opportunity for sustained military and diplomatic engagement in the region.

CT is not a role that lies solely within the responsibility of SOCOMD, and CT expertise is not captured in the combat formations. ADF expertise in critical, but often overlooked, components of large CT activities is worthy of consideration for export. Planning and executing large-scale CT

operations, or developing a robust national CT enterprise, requires a variety of expertise. The ADF has proficiencies in strategic and operational logistics, inter-agency coordination, and equipment procurement processes. These are examples of areas that often lack development and focus in the CT enterprise, to which the ADF can offer its noteworthy expertise. Viewing the ADF's opportunities for CT engagement through a wider lens enables a wider variety of regional engagement and credential-proving opportunities. Flexibility and responsiveness will be essential.

Just as terror organisations move rapidly across state boundaries, future ADF operations to counter terrorist activities must be prepared for geographically dispersed and legally complex battlespaces.²¹ While still acting locally, today's terror organisations utilise global networks for inspiration and guidance, together with regional connections for financing and logistics. Several organisations have been established solely to address the trans-regional problem of foreign terrorist fighters, most notably Operation GALLANT PHOENIX (OGP). OGP tracks foreign fighters through conflict zones and liaises with relevant governments to facilitate law enforcement solutions.²² That trans-regional approach is relevant to other areas, including terrorist financing and messaging, which are the foundation of the approach taken by the Global Coalition Against Daesh.²³ Just as the Department of Defence tracks these groups globally, so it must be prepared to act. Information operations and cyber effects can cross national borders quickly, and the legal apparatus must be prepared for those eventualities.

The Cognitive Dimension

The ADF and the global community will continue to face significant challenges in trying to assess the future of terrorism. Indicators of an individual's mobilisation to violence can be challenging to observe, and the process is rapid.²⁴ On a greater scale, national analysts continue to struggle with the identification and accurate prediction of conflict; the emergence of ISIS and the 2017 Marawi crisis are potent examples. Decades of attempts to predict future acts of terror and the terrorist landscape demonstrate the complexity of the target and the need to accept uncertainty.

The CT and ADF intelligence communities continue to refine their analytic capability, improve processes and eliminate 'stovepiping'. Nevertheless, future analysis of terrorism features less clarity than that of emerging

technology and state conventional force development, and the latter forms the backbone of ADF force development considerations. Without methods that articulate the size, scope and capability of a threat actor, decisions about force composition and development cannot be tailored accordingly. The relationship between strategic intelligence and force design and development is strong. Therefore, if CT intelligence practitioners cannot provide a compelling narrative in contrast to conventional military analysis, the Department of Defence will logically defer to conventional force development over the nuanced force requirements of future CT capability.

The ADF, like its coalition peers and inter-agency colleagues, has passed through what was a 'golden age' of CT focus, and subsequently the capability has both decreased and become more nuanced. In line with the changing strategic focus, personnel and funding for CT have also diminished over time. One notable change is the decrease in CT specialised staffing across the organisation. In most ways, this is a positive development. An extended period of 'testing and adjusting' staff levels, training and expertise requirements has led to a steady state of CT staff effort across relevant organisations. It displays the organisational capacity to shift effort to more significant priorities, but it is also prophetic of declining experience. Senior Defence leaders will need to be aware of this declining specialty and the need to enable staff to mitigate the loss of expertise through alternative strategies. This means sometimes paying for that expertise.

There is no disguising the lack of CT analysts now compared to a decade ago when commitments in Iraq and Afghanistan necessitated a more substantial effort. In the long term, this means fewer ADF personnel are exposed to CT, less CT expertise is generated, and staff work will suffer a corresponding decrease over time. There are ways of managing this lack of depth in CT expertise within the ADF. Civilian staff, who rotate less and can stay in organisations longer, may provide the additional depth where required. However, the most significant offset will have to come from outside the Australian Government. The ADF could take advantage of academic and industry expertise, particularly at the operational and strategic levels, notably in the delivery of informed policy. Defence's future CT expertise network will require active engagement by the ADF, a budget, and an understanding of where the gaps are.

Culture

As right-wing extremism (RWX) assumes a prominent place in global media, the ADF should consider the impact of and response to instances of extremist actions or ideology among its members. Australia is far from immune from such influences. As Kristy Campion states, 'Right-Wing Extremism ... in Australia is historically persistent and contemporarily well-established.'²⁵ If we adhere to the logic that volunteer militaries are representative of the culture from which they are born, then subsequent logic would indicate an RWX presence in the ADF, if not now then soon.

The ADF should not leave this problem to existing legal procedure, as the cultural complexity of social interactions requires greater nuance. An example of this is the complicated approach the ADF took to serving members' membership of and association with outlaw motorcycle gangs.²⁶ The ADF will have to navigate problems such as how to address membership of groups that are not listed as extremist organisations but may espouse similar ideology; if and how to observe group membership; how to treat extreme right-wing influence in military units; and ethical methods of surveillance of members suspected of RWX association. There are lessons to be learnt from others. The United States manages extremist ideologies among its military members, and RWX has been recently highlighted. However, knowledge of RWX specifically is not the only answer. Many Muslim majority nations have fought a similar battle against violent extremist ideologies over the past decades, and are now the experts on this topic. It is appropriate that the ADF ask for advice now, and take preventive action, rather than seek support after a problem emerges.

Ethics

As Defence modernises the means of support to partners, so too must it review and refine the ethics of 'train, advise and assist' operations and what the US military refers to as 'by, with and through'²⁷ and 'remote advisor' operations. The 'remote' style of operation is prolific in CT operations and is likely to expand. As Deane-Peter Baker states, 'this type of operation provides a reduced risk to own forces, reduced cost, and a lower threshold for involvement in conflict.'²⁸ At the same time, however, it presents a range

of ethical challenges that Defence will need to consider if it is to maintain the moral and therefore strategic high ground.

Modern technology will increasingly enable military personnel to conduct their work from afar, which brings ethical challenges. The ‘train, advise and assist’ style of operations the ADF has become familiar with in Afghanistan and Iraq will lever technology to distance ADF personnel from harm’s way. Where once an experienced soldier may have attended a host nation patrol to provide advice to its commander, that interaction can, and already has, occurred through a digital medium like a smartphone, tablet computer or radio.²⁹ Many existing examples of this approach are SOF led, but an application across the conventional force is within sight. The challenges facing ‘remote advisors’ are similar to those for pilots, particularly drone pilots, whose distance from the effect of their decision is significant.³⁰ These implications combine to lower the threshold for engagement in conflict and violence.

Likewise, the use of ‘by, with and through’ operations can be ethically complex. We need to ask, for example, ‘Is it ethical for ADF personnel to provide remote training of a partner force in psychological operations during the pre-conflict phase?’ And, if so, ‘How do we avoid the possible misuse of such a capability by a foreign force?’ Following human rights concerns about partner forces,³¹ the United States adopted a system of ethical scrutiny of partner forces commonly referred to as ‘Leahy vetting’.³² That scrutiny helps the US to avoid training forces that have been guilty of human rights abuses, thereby avoiding some ethical concerns. This has led some to comment that the law is under-applied.³³ However, it also prevents their ethical training and development, effectively limiting the US military from proactively engaging a force to prevent further unethical conduct—leading some to comment that the law is over-applied.³⁴ Leahy vetting only addresses human rights abuse, and should not be conflated to cover all aspects of ethical behaviour in a potential partner force. The ethical considerations here should prompt continued demand for the development and study of emerging ethical issues.

Foreign Competition and Counterterrorism Diplomacy

CT will increasingly become a vector for access and influence in Australia’s near region. As terrorism matures, so too do the skill sets of states to counter those threats. The result is a body of expertise and capability, often

poised for global action and available to support external states through missions such as 'train, advise and assist'. Countering terrorist organisations offers governments an easy mechanism for inter-state dialogue and diplomacy where the shared condemnation of terrorism provides common ground.³⁵ That increase in expertise and in availability of assets, and a lower bar for diplomatic engagement, increases the number of CT engagements, and hence competition in the region.³⁶

China and Russia have demonstrated agility in CT diplomacy and a corresponding desire for diplomatic access and influence. With competition comes the likelihood of an increasingly contested and congested CT landscape. Just over a month after ISIS-aligned militants seized parts of Marawi in May 2017, gifted Chinese military material, predominantly small arms, arrived in the Philippines. At a handover ceremony of equipment and funds attended by President Duterte, China deftly demonstrated the impact of rapidly delivering CT services to a client state in need when Chinese Ambassador Zhao Jianhua stated:

*It is a demonstration of our growing bilateral relationship. It's also a demonstration of a new era of friendly and cooperative relationship between our two militaries.*³⁷

China's rhetoric speaks to the long-term goals of access and influence, although single acts do not necessarily cause enduring changes. China–Philippines military relations remain very limited, predominantly along CT and humanitarian aid and disaster relief lines;³⁸ however, the long-term effects may take shape at levels below the strategic political sphere.

Even if Chinese equipment were to receive poor reviews from users, its impact could be felt elsewhere in the political, diplomatic and military systems. Parts are needed for repair of existing weapons, replacement systems may be desired, ammunition is a persistent demand, and specialised training may be sought or offered; all of these requirements establish long-term relationships between the provider and the receiving country. It may be true that, over the long term, soldiers could advise senior decision-makers not to purchase or accept specific weapon systems; however, the relational effects of gifted systems may already be established and felt. Once these weapons are in the system, soldiers establish familiarity with them, while senior leaders, diplomats, politicians and logisticians develop relationships with foreign interlocutors, potentially resulting in foreign

access and influence. Countering that influence is difficult without persistent commitment.

Inaction or reductions in the ADF commitment to partner forces provides gaps that competitors can exploit for access and influence. Recent testimony from the Commander of United States Africa Command, General Townsend, is indicative of the emerging issues caused by competition in CT. His assertion that '[in] Africa, counter [violent extremist organisations] is global power competition'³⁹ demonstrates the interwoven nature of global competition and CT. Allowing voids in CT assistance to exist enables foreign powers to seize those opportunities to develop access and influence—potentially limiting our ability to affect strategic goals in the future.⁴⁰ The danger of trading continued assistance to partner forces is summarised by Townsend:

*... enduring relationships built while we develop partner capabilities provide us with the long-term strategic alliances we need to address future challenges.*⁴¹

The increasing focus on CT diplomacy as a mechanism for access will quickly surpass the capacity to absorb of regional partners. A haphazard approach to training and operations is unlikely to generate meaningful progress in CT capability. The US experience in the Philippines over a decade of Operation Enduring Freedom Philippines demonstrates this.⁴² The implications for the ADF are twofold. First, force posture and operational readiness needs to reflect the capability to provide CT assistance to regional partners on short notice across a wide variety of capabilities. Second, the ADF will face increasing competition for CT engagement with our partners. In the long term, even those the ADF considers to be 'partners of choice' may find other political or economic reasons to favour external partners.

Conclusion

A potential shift in the focal point of domestic CT from SOCOMD to the conventional force is likely to characterise the coming decades. This will be set against changing ADF operational commitments, the drawdown of distant operations providing the space and time for a pivot of effort towards supporting partners in the near region. Challenges in the cognitive domain will probably remain consistent, although awareness of the shortfalls in

understanding should be prioritised to ensure effective decision-making at all levels. The ethical challenges of emerging technology and military methodologies are not novel, but should remain a point of consistent interest for a military community that wishes to remain morally forthright. Finally, foreign competition is already influencing the CT domain. To remain a partner of choice, the ADF will need to retain and develop its CT credentials and maintain persistent relationships with partners.

The challenges facing the ADF's CT capability in the future are not simple to solve. They go beyond the topics we favour in academic discussion, such as urbanisation, ideology, technology and workforce diversity, into areas seldom discussed by non-practitioners. The themes addressed in this article do not come with simple solutions. Indeed, some probably cannot be solved—they are simply the conditions within which the ADF will operate. Developing this conversation will enable the ADF to understand its limitations and tailor solutions accordingly.

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The Australian Defence Force Gap Year—Army Program: Real or Rhetorical Success?

Colonel Philip Hoglin

Abstract

The first version of the Australian Defence Force Gap Year—Army (ADFGY-A) program, which ran between 2007 and 2012, aimed to develop a pool of willing applicants who would extend their commitment to the Army.¹ Although it has often been cited as a success, when the quantitative outcomes are reviewed more closely the extent of its success becomes somewhat ambiguous and largely dependent on views on the ADFGY-A program's purpose. Despite the possibility that some intangible and immeasurable objectives were achieved, such as attributable changes in community perceptions towards the Australian Defence Force, less than one-third of the participants eventually entered the Australian Regular Army (ARA) during or after the program, and six years later only one in five remained. This low transfer rate and ongoing separation rate suggests that, if success is defined as the proportion of participants who transferred into the ARA, the ADFGY-A program represents a costly and inefficient alternative avenue of entry.

Introduction

In 2006 and 2007, the unemployment rate was low, the economy was performing well and there was relative political and leadership stability. Despite the low unemployment rate, which stood at around 4.3 per cent² for the national rate and 9.0 per cent³ for youth in early 2007, programs such as Work for the Dole continued to be considered for expansion alongside various youth employment initiatives and a consistent, although small, voice for some type of national service. Concurrently, recruitment into the Australian Defence Force (ADF) had been experiencing long-term underperformance at a time when Army required growth through its Hardened and Networked Army (HNA) and Enhanced Land Force (ELF) programs. In both financial years 2005–06 and 2006–07, just 84 per cent of the recruiting target for the permanent force had been obtained.⁴ In this national context, and in the lead-up to the 2007 federal election, the Australian coalition government announced the Australian Defence Force Gap Year (ADFGY⁵)—a program that would continue after the election victory of the Labor Party.

There have since been two ADFGY programs. The first ran from 2007 to 2012 and there were 1630 Army participants before it was ceased.⁶ The second program commenced in 2015 and is ongoing. Although there were changes in the way the program was managed and the opportunities that were available for continued service after completion, they were otherwise very similar in terms of structure and the range of employment categories (job roles) available to participants.

This article will focus specifically on the outcomes of the 2007–2012 program. As it has now been over 13 years since the first cohort commenced their ADFGY, and eight years since the final 2012 cohort commenced, all participants have had an opportunity to complete ADFGY, transition to the Australian Regular Army (ARA) or Army Reserves (ARes), complete any initial service obligation period and continue to serve voluntarily. This also means that sufficient longitudinal data now exists with which to conduct a quantitative analysis to facilitate a broader and more factual discussion on the actual outcomes of the entire 2007–2012 program.

This article will focus primarily on examining the ADFGY completion rate and subsequent transfer into the ARA and ARes.⁷ In doing so, this article

also aims to moderate some public statements proclaiming the program a success that were made well before any reasonable period had elapsed that would normally allow for a balanced evaluation to be conducted.⁸ To establish the contextual scene, this article will review the original aims of the program as defined by the ADF and Army, along with previous research and public comments. This is followed by an outline of the workforce climate at the start of the program to help explain why particular decisions were made and the impact these have since had on analysis. Finally, the analysis methodology and results relating to Australian Defence Force Gap Year—Army (ADFGY-A) participation and retention are detailed.⁹ This article will not cover attitudinal aspects of ADFGY, as this is detailed separately in other reports.¹⁰

The ADFGY Program

Incorporated into the Recruitment and Retention (R2) Program in 2007 as part of the Howard government's broad range of initiatives to improve the ADF's recruiting and retention,¹¹ ADFGY offered 'an opportunity for young adults to experience military training and lifestyle within a 12-month program'.¹² The program was intended to appeal to a slightly different and narrower recruiting demographic than the traditional ADF candidate through the deliberate targeting of young post-secondary men and women because a shorter commitment was thought to reduce a barrier to enlistment for that group. Most notably, there was no compulsion to continue to serve in the ADF after completion of the program's 12-month period and there was no expectation that participants would choose to do so.¹³

Other differences between the program and normal ADF service included the education, aptitude and age requirements of participants. ADFGY applicants had to have completed year 12, be aged between 17 and 24 and obtained an aptitude score higher than that required for normal ADF entry. These requirements ensured that participants were of the same demographic as those who might normally undertake a tertiary gap year.¹⁴ The first Army participants commenced the program in November 2007 and the last participants commenced in April 2012.¹⁵

From the program's inception, the Defence-wide objectives of ADFGY were non-specific and tended to oscillate from experiential outcomes to recruiting objectives. Subsequently, when the Defence-wide objectives were distilled

into Army's own, several subtle differences emerged such that Army's objectives did not completely correspond with those of the ADF. Although these were not in direct conflict, there were enough differences to create ambiguity with respect to defining success for the ADFGY.

ADF's aim for the ADFGY program was formally outlined in the 2008 release of *DI(G) PERS 5–10 Australian Defence Force Gap Year*.¹⁶ The document detailed that the 'aim of the ADFGY is to provide young men and women with a meaningful experience that allows them to gain a better understanding of the opportunities available to them in the ADF'.¹⁷ Similarly, the ADF Retention and Recruitment Strategy Implementation Plan (2007) outlined that the program was to 'allow young Australians to better understand the opportunities available to them in the ADF, with a potential benefit of increased recruitment'.¹⁸ Publicly, the program was marketed by Defence Force Recruiting (DFR) as a 'try before you buy' experience to 'gain the skills and experiences to get ahead in the 21st Century'.¹⁹

The aim and marketing statements suggested that the ADFGY was only partially intended as a recruiting avenue for the ADF, as it also emphasised its experiential objective.²⁰ On the one hand, the directive explained that the ADFGY is 'one of a number of initiatives developed to assist with improving the recruitment and retention of personnel within the Australian Defence Force' and on the other it was occasionally reinforced that no recruiting outcome was intended.²¹ This gave rise to potential ambiguity in the true program objectives and subsequent performance indicators.²²

Army's internal aim for the program was outlined in *DI(A) PERS 34–13 Australian Defence Force Gap Year—Army Management, Policy and Procedures*. In contrast with the ADF policy, Army's main objective was unambiguous: 'The Army's objective is to develop a pool of willing applicants who wish to extend their commitment to the ARA or Army Reserves after or during the initial year of service'.²³ In other words, from Army's perspective, the program was 'about the Army being an employer of choice and providing training and lifestyle experiences for young people'.²⁴ The Army document even specified that the program was 'a contemporary pathway into the Australian Army'.²⁵

Superficially, there is no particular conflict between the dual aim of providing youth an opportunity to experience military service and providing an additional method of entry into the ADF. However, a misalignment in the



definition of success can arise where success for the *experiential* objective does not necessarily represent success in terms of a *recruiting* outcome. Conceptually it was quite possible for individuals to have a positive experience but not extend their service, in which case a measure of success from the ADF perspective might not directly translate into a success for Army.

Defining Success

Although there were objectives, the expected performance outcomes or indicators were not developed until well after ADFGY started. It is unclear whether this was through a lack of expectation for the program from which to develop outcomes, through genuine oversight or through lack of guidance from ADF leadership. However, no evidence was found during the research that supports a conclusion that performance indicators were even a basic consideration during development of the program. Ultimately, this is reflected in the understanding that neither the ADF nor Army had any particular defined expectation or planned outcome for the program beyond merely meeting the ADFGY recruiting target. This resulted in success metrics being developed after the program had already commenced.

Metrics and performance indicators for the program were progressively developed during the first two years. By this time the Air Force gap year

program was being scaled back, Navy had significantly reduced its target and Army's program had been reduced due to situational factors that will be described later. The only departmental review of ADFGY, conducted in 2010, implied that there was still no formal view of what constituted success of the program; instead, a definition had to be derived ('synthesised') by the authors of other documents.²⁶ Subsequently, the review determined:

[It would] examine the ADF Gap Year Program's potential to benefit the ADF through:

- Participants transferring into the Permanent or Reserve forces either during or immediately on completion of their ADF Gap Year service.
- Creating a cadre of 'ambassadors' for ADF careers, additional to those already existing in the Permanent and Reserve Forces.
- Accessing demographic groups that would not normally consider military career options.
- Providing 'test bed' opportunities for new approaches to recruitment and training'.²⁷

In other words, the review adopted a broad definition of success relating to an opportunity for youth to experience military service and subsequent recruiting into the ADF. At the time of its publication, the review had only one cohort of participants from which to make observations and limited longitudinal data to assess recruiting and retention outcomes; it was therefore constrained in making observations relating to some success metrics. To address the absence of empirical evidence that existed at the time of the review and to fill a gap in knowledge about the eventual outcomes, this article defines success more narrowly in terms of the results for recruiting and continued service in either the permanent or reserve forces after participation in the program.²⁸

Previous Findings

Within the first 12 months of the program a perception arose that ADFGY was a success.²⁹ This view could only have resulted from assessment against the experiential objective because, in reality, insufficient time had elapsed since the commencement of the program to make an assessment against any other objective. Unfortunately, the numerous media reports claiming success, fed by

often repeated and inappropriate statistics that did not actually demonstrate success, are likely to have contributed to an unbalanced and unchecked public perception that the program was a success.

Departmental Review

The 2010 departmental review possibly contributed to some of the prevailing misperceptions of the program's success. Aside from some findings relating to the intangible successes of the program, the review made findings that 'The ADF Gap Year appears to have provided additional recruitment potential to the ADF via transfers from the ADF Gap Year Program to the Permanent Forces and Reserves' and that 'The ADF Gap Year Program has successfully attracted females to the ADF'.³⁰ While these statements have a strong prima facie appeal given the limited data available at the time (just one full cohort), the report did not consider many other factors, discussed later, that give rise to these assertions being challenged.

Unfortunately, the assessments made by the departmental review infiltrated much of the ensuing public narrative about the program's success without the opportunity for sensible discourse surrounding the quantitative aspects of the program. Ultimately, and in contradiction of some of the review's findings, the program was closed because it was viewed as unnecessary for recruiting and added an unnecessary burden on the training system given the proportion of participants that eventually transferred into the permanent forces.

Media Reporting

Perhaps capitalising on the 2010 departmental review, most of the media articles about the program espoused its success based on the attractiveness of the program to year 12 graduates and their ability to fill the available ADFGY opportunities. For example, in December 2007, just one month after the first participants had started ADFGY, newspapers were reporting that the program was a 'huge success'.³¹ The use of this one-dimensional definition of success risked the program being labelled as such when the reality was less clear. Unfortunately, after media reports and articles are published in the public domain, it becomes difficult to moderate public perception, particularly that which is held within the ADF. It is fair to suggest that, shortly after the launch of the program and as a result of media reporting, the public perception of the program had already been entrenched and any real analysis would have been unlikely to change the prevailing views, even in the presence of evidence.

Situational Factors

The claims of success of the ADFGY program that permeated through the media and were supported by the departmental review were at best premature and did not consider many of the situational factors that influenced ADFGY throughout its duration. Had more time been taken and situational factors considered, many of the conclusions and findings may have been quite different. Throughout its duration, the ADFGY-A program was constrained by a number of influences. The capacity of DFR and Army training establishments to recruit and then train participants represented just two of the more practical constraints on the numbers that could be accepted into the program. Accommodation, facilities, training duration, course scheduling and other considerations provided further limitations on the number of candidates that could be accepted.

However, there were two factors that placed very specific pressures on the program. First, Army changed its force structure and, second, it over-achieved on its own retention goals. These factors created internal pressure to reduce ADFGY-A recruiting targets and constrained both the employment categories available to participants and the ability to transfer into the ARA on completion of the program. Furthermore, these constraints were inconsistent and varied throughout the program's duration, making comparisons between cohorts problematic and thereby confounding any analysis.

When the ADFGY commenced in 2007, it was expected that the total target would remain around 500 eventual recruits, with targets for each employment category relatively consistent from one year to the next. However, a program to increase Army's strength, announced in 2007 as the ELF/HNA, changed this expectation. While unintended, the need to recruit and train additional ARA personnel had four key detrimental impacts on ADFGY-A, including:

- a reduction in ADFGY-A recruiting opportunities, decreasing from 500 in financial year 2007–08 to 317 in the following financial year, partly due to a loss of training positions
- a reduction in opportunities to transfer into the ARA due to a lack of available positions that were now taken up by the HNA increase
- a reduction in the number of targets for the popular ADFGY-A role of Infantry Soldier, due to the heavy growth in ARA Infantry Soldier for the HNA recruiting that consumed infantry training positions

- the allocation of General Enlistment ADFGY-A participants toward employment categories that they may not have otherwise chosen.

The requirement for growth in Army also necessitated the commencement of the R2 Program and other favourable changes in conditions of service. These changes resulted in a dramatic decrease in separation rates that, when combined with the increased ARA recruiting achievement, further limited opportunities for transfers into the ARA from ADFGY. Although opportunities for transfer still existed, they were significantly constrained to just a few employment categories where the recruiting targets were not already being met and where vacancies existed.

Finally, workforce funding had a significant impact on the program. Unlike most funding for military personnel, ADFGY was funded under neutral arrangements—that is, it did not come from Army's bottom line and was funded separately. Although this meant there was no funding risk for Army in increasing or decreasing participation in the program, there were very significant pressures rising from over-retention elsewhere within the ARA. Army had started to exceed its personnel funding—a problem that first arose in 2009 and then became significant in 2010—which presented a significant problem. Strength became intensively managed and any initiative that increased strength beyond Army's funding was closely scrutinised. As a result, the ADFGY-A program was progressively wound down and its funding was eventually used in support of the burgeoning ARA workforce.³²

The effect of changes in force structure, recruiting and retention initiatives, and funding on the program should not be understated. These factors, which existed at varying stages and degrees throughout the program's duration from 2007 to 2012, collectively distort and confound any analysis of the program. It is unfortunate and detrimental to the historical record that reporting to date has not given an appropriate level of consideration to these factors. Nonetheless, Army's ability to conduct the ADFGY-A will remain subject to the effects of structural changes, workforce initiatives and funding, which suggests that such a program can unnecessarily burden an already complicated Army workforce planning system.

Data and Methodology

ADFGY participants were specifically recorded and identified in Defence's human resource system as their own 'service type'. This allowed all participants to be identified and accurately tracked throughout their time in the program along with any subsequent service in the ARA, ARes or Standby Reserve (SRes). For this analysis, data fields obtained included the ADFGY enlistment date, employment category, gender, separation or transfer date, and any subsequent movements into the ARA, ARes, SRes, or other Service. Using the data available, and with respect to the purpose of ADFGY mentioned earlier, analysis of the program was approached from three perspectives:

- achievement of ADFGY-A recruiting targets
- completion of ADFGY-A and/or transfer into the ARA or ARes
- retention of those ADFGY-A participants who had transferred into ARA or ARes.

Results

The key statistics relating to the program and subsequent service are relatively simple to ascertain but have not previously been released for wide distribution. There has been no final report of the 2007–2012 version of ADFGY-A and the figures concerning recruiting results, completion outcomes and ongoing service have not been previously published in any form. This section will detail the known figures on recruiting results and retention of ADFGY-A participants.

Recruiting Outcomes

As highlighted in many media articles and the departmental review, recruitment into the ADFGY was successful, with most targets achieved.³³ This was exhibited through not just the achievement of the target for recruitment directly into an employment category but also the achievement of the target for recruitment into a generic, non-specific category known as General Enlistment (GE), where participants would later be allocated to a specific employment category during training. Table 1 shows the recruiting targets for each financial year along with the totals recruited into each employment category before and after allocation of GE participants to a certain category.

Table 1. ADFGY-A recruiting targets and achievement

Employment Category (EC)	Target					Total target	Achievement	
	2007-08	2008-09	2009-10	2010-11	2011-12		Recruited EC	Allocated EC
Dispatcher Air (ECN 099)	13	25	25	25	20	108	110	2
Artillery Gunner (ECN 162)					5	5	4	179
Artillery Command Systems Operator (ECN 254)		5	5		4	14	14	4
Cavalryman (ECN 063)								32
Clerk Finance (ECN 076)								2
Combat Engineer (ECN 096)		5	10	10	13	38	38	46
Cook (ECN 084)	7	4	1	1		7	5	5
Dental Assistant (ECN 029)	3	10	10	35	10	65	7	8
Driver (ECN 109)	10	12	21	21	19	83	65	111
Ground Based Air Defence (ECN 237)	14	30	31	51	34	160	75	81
Operator Administration (ECN 074)	17	12	10	15		54	132	165
Operator Catering (ECN 363)	2	5	6	6	2	21	42	48
Operator Movements (ECN 035)		3	2	2	8	11	22	21
Operator Petroleum (ECN 269)		3	2	2		7	10	10
Operator Radar (ECN 271)		3	2	2		7	6	9
Operator Unmanned Aerial System (ECN 250)	1	3	2	2		8	8	11
Operator Supply (ECN 294)	22	35	34	71	41	203	193	238
Rifleman (ECN 343)	192	85	76	76	56	485	498	613
Signaller Combat (ECN 660)								1
Tank Crewman (ECN 065)					6	6	6	2
Technician Preventative Medicine (ECN 322)					2	2	1	1
Marine Specialist (ECN 218)	4					4	4	2
Medical Operator (ECN 031)								2
General Enlistment (ECN 500)*	215	80	82	315		377	390	37**
Total	500	317	315	315	220	1,667	1,630	1,630

* Personnel enlisting as General Enlistment were allocated to an employment category after completion of recruiting and training.

** Thirty-seven General Enlistment participants did not complete initial training and were therefore not allocated to another employment category.

The data suggest that there was little difficulty in reaching the ADFGY recruiting targets, with a final recruiting result of 98 per cent.³⁴ The program remained popular with applicants throughout the entire period of 2007–2012 and it was normal for DFR to receive far more applications than there were positions for most employment categories. This most likely reflected the positive ‘employment value proposition’ that provided successful applicants with training, salary and experiences with a limited obligation period of just one year. What remains unclear is the extent to which the program attracted applicants who would not otherwise have considered an Army career, whether it was a competing product alongside the usual *ab initio* avenue of entry for the same candidates, whether it attracted a group of marginal applicants who were uncertain about an Army career and were therefore at a higher risk of leaving during or immediately after the program, or whether a combination of all of these factors contributed to success ambiguity. While this will be discussed later, what has emerged is that, unless success is defined as an opportunity to experience military training and lifestyle, recruiting success alone is most likely a poor metric for overall program success and perhaps retention beyond the ADFGY might have been more appropriate.

Regardless, because of its popularity among applicants, it can be safely assumed that a larger overall ADFGY target could have been achieved; however, the effect on the training system and facilities would have been significant and prohibitive. If the program were expanded, it is likely that the usual *ab initio* target would have required a reduction in order to accommodate the additional ADFGY participants. As it turned out, the situational factors detailed earlier actually necessitated increases in the usual *ab initio* intake, which, due to facilities constraints, necessitated a decrease rather than an increase in ADFGY-A targets. This decision tacitly acknowledged the importance of sustained recruiting of people who have a longer service obligation period, rather than one year, for the provision of capability.

Completion of ADFGY-A and Transfer into the ARA and ARes

Perhaps the most under-reported metric concerning ADFGY-A is that over one-third (35.2 per cent) of the participants did not continue into either the ARA or ARes.³⁵ Precise reasons for this cannot be determined purely from the available data, but some possibilities include self-realisation of a poor job fit with Army (self-selection), a marginal propensity to join or affinity for Army in the first place, lack of desire for further immediate service after fulfilment of

the 12-month obligation, or a perceived lack of opportunity in Army after the program. Interpretation of a 35.2 per cent loss rate as a good, a bad or an indifferent outcome will depend on whether success is viewed as providing an experience or providing additional recruits into the permanent or reserve force. If it is the latter then, arguably, losing over one-third of all participants can only be viewed as a loss of opportunity and resources.

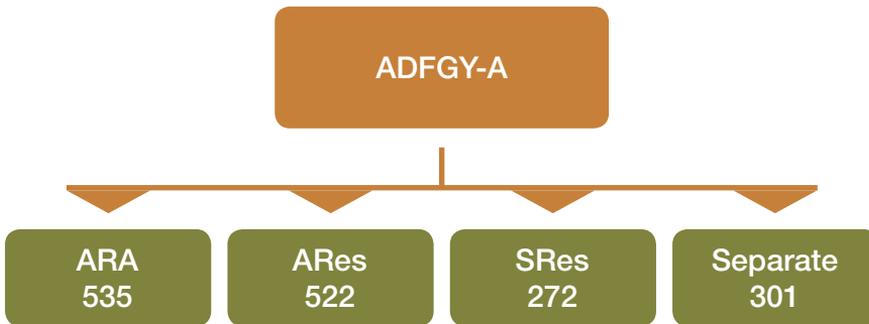
Figure 1 and Table 2 show where ADFGY-A participants transferred immediately after completion of the program or during the program itself. By the end of the program, 32.8 per cent had transferred to the ARA, 32.0 per cent had transferred to the ARes and the remaining 35.2 per cent had either separated or remained in the SRes. Differences between male, female and different employment categories are likely to reflect the varying constraints on transferring into the ARA rather than a characteristic of gender. Specifically, many of the male-dominated employment categories had limited opportunity for transfer into the ARA, which was not the case in employment categories where women were participants. This had consequences for the transfer rate from combat employment categories, where only 26.5 per cent eventually transferred into the ARA compared with a transfer rate of 42.4 per cent into combat services support (CSS) employment categories.

Table 2. Transfer of ADFGY-A participants

	ARA	ARes	SRes/ separation	Total
Total*	535 (32.8%)	522 (32.0%)	573 (35.2%)	1630
Combat	235 (26.5%)	314 (35.4%)	337 (38.0%)	886
CSS	300 (42.4%)	207 (29.3%)	200 (15.4%)	707
Males	354 (28.2%)	418 (33.3%)	482 (38.4%)	1254
Females	181 (48.1%)	104 (27.7%)	91 (24.2%)	376

* Thirty-seven General Enlistment participants of the 1,630 were not allocated to an employment category.

ADFGY-A = Australian Defence Force Gap Year—Army; ARA = Australian Regular Army; ARes = Army Reserves; SRes = Standby Reserve; CSS = combat services support.



ADFGY-A = Australian Defence Force Gap Year—Army; ARA = Australian Regular Army; ARes = Army Reserves; SRes = Standby Reserve.

Figure 1. Transfer and separation of participants after ADFGY-A

Publicly reported results initially suggested that ADFGY-A might have been particularly successful for the recruiting of women,³⁶ with almost half (48 per cent) of the 376 women transferring into the ARA, an outcome that was substantially larger than that for male participants (28 per cent). However, in survey responses, one-third of the starting number of women indicated they would have joined the ARA anyway, which means that over the five-year duration of the program as few as 75 additional women entered the ARA.³⁷ Therefore, ADFGY-A was only a marginal initiative in attracting women into Army and would probably be insufficient to justify the program on the basis of diversity outcomes alone.

Speculatively, had situational factors and constraints on transfer into the ARA not existed, it is possible that the combined transfer rate into the ARA for male and female participants could have exceeded 50 per cent. Even if this figure was realised, the loss of participants of somewhere between the observed figure of 32 per cent and a speculative figure of 50 per cent within a year, most of whom were fully trained at the time of their separation, represents a costly avenue of entry into the ARA and a costly experiential opportunity for those who did not go on to provide further service in the Army. The ADFGY-A cost around \$66 million³⁸ in salaries alone, which means that up to \$44 million was paid in salaries for people who would not go on to provide any full-time capability (or, alternatively, the apportioned cost for every ADFGY-A participant who transferred into the ARA was three times greater than a person who was recruited directly into the ARA without going through ADFGY-A).

Retention of ADFGY-A Participants in the ARA and ARes

Initial transfer rates provide only part of the interpretation and sufficient time has now elapsed for a longitudinal analysis of the entire 2007–2012 program. This is because all participants have completed the ADFGY, made decisions to transfer to the ARA or ARes and have been able to complete any obligation period that they may have been required to complete when they transferred.

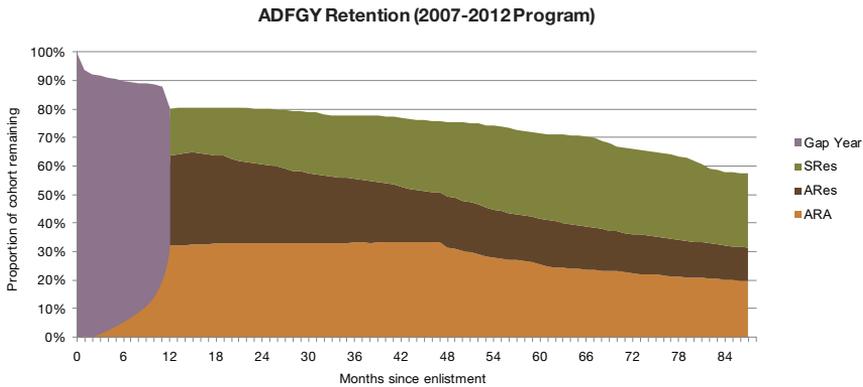
One of the most significant behavioural observations after the 48-month mark, shown in Figure 2, is that the separation of former ADFGY participants partially mimicked the same surge in separation behaviour exhibited by the ARA after the four-year initial period of service, with 21.8 per cent of those who completed their fourth year separating in the fifth. This indicates that the 32.8 per cent of participants who transferred into the ARA were not substantially more likely to maintain a career beyond their initial obligation period in the ARA than their ab initio counterparts. This debunks a view that the ADFGY-A participants who transferred into the ARA were somehow more committed after having being exposed to a ‘try-before-you-buy’ opportunity.³⁹

Cumulatively, one in three participants (32.8 per cent) transferred into the ARA, one in four (26.3 per cent) completed a fifth year, and one in five (20.5 per cent) remained after just seven years. This observation challenges the view that ADFGY-A was a success because not only did less than one-third transfer into the ARA but also those who did exhibited separation behaviour similar to normal ab initio recruits. Furthermore, it introduces the possibility that if the program drew applicants away from the ARA then it may actually have been detrimental, rather than beneficial, to Army. Survey data of the first cohort indicates that 47 per cent of male participants would have joined the ARA in the absence of ADFGY-A, but only 28 per cent did.⁴⁰ If extrapolated through the whole program (1,254 male participants), the competition between ADFGY-A and normal ab initio entry may actually have resulted in the loss of around 230 male participants who might otherwise have joined the ARA.

Unfortunately, the ARes did not fare any better. While 32.0 per cent (522) of participants transferred directly into the active ARes, only one-third of those (181), or just 11 per cent of the original ADFGY cohort, were still in the active ARes four years after they finished program. This proportion has since

increased to 16 per cent through transfers of ADFGY participants into the ARes who initially transferred into the ARA.

Overall, just four years after their participation in ADFGY-A (five years of total service), only 26.3 per cent of the original cohort were in the ARA and just 16.0 per cent were in the active ARes. Another two years later, or six years after their participation in ADFGY (seven years of total service), the retention had further degraded to just 20.5 per cent in the ARA and 12.2 per cent in the active ARes. This means that, after their service in ADFGY-A and subsequent transfer into the ARA and/or ARes for a period of six years, less than one-third of the total number of ADFGY-A participants were serving in any capacity, or, conversely, two-thirds were not providing any capability whatsoever in any capacity.



ADFGY = Australian Defence Force Gap Year; ARA = Australian Regular Army; ARes = Army Reserves; SRes = Standby Reserves.

Figure 2. Retention of ADFGY-A 2007–08 and 2008–09 participants

Discussion

Was the ADFGY Program a Success?

An assessment of the ADFGY's success depends primarily on the criteria by which success is defined. As discussed earlier, the actual definitions of success varied and were not necessarily complementary. I argue that, if experiential objectives are set aside, the transfer rate of just 32.8 per cent of fully trained personnel into the ARA, of which 21.8 per cent separated in their fifth year, represents an ineffective and costly avenue of entry regardless of the attractiveness of the program to applicants. This loss rate is not sufficiently offset by the 32.0 per cent of participants who transferred directly into ARes, where fewer than half remained at the end of five years of total service. Additionally, the possibility that ADFGY-A had a detrimental impact on the normal ab initio avenue of entry through a competing rather than complementing offer cannot be discounted. This means that if success is defined as those participants willing to transfer into the ARA or ARes then, from a numerical perspective, it was at best questionable and at worst unsuccessful.

However, it remains a valid assessment that some of the intangible benefits of the program may have been realised. There is evidence from internal reporting and the departmental review that the participants themselves were satisfied with the program, and the 'try before you buy' approach attracted a wide range of applicants. It is possible that individuals subsequently took their positive experiences of military service into the broader community, which may have had benefit for the nation and the ADF. Unfortunately, the extent to which this occurred has not been the subject of research (which is increasingly difficult given the passage of time), so, for now, qualitative measures of success against the experiential objectives must remain the subject of speculation.

How the Message of Success Became Compromised

Given the speed at which the ADFGY was publicly announced as a success before a cohort had even finished one year, moderating and providing a ground truth for this perception was always going to be difficult, even when data became available. This was not helped by the absence of a robust definition of success, which allowed for wide flexibility in what could be termed successful. The haste to announce policy success, overlaid with no clear definition for it, conspired to compromise any sensible discussion

concerning the real outcomes of the program and make the perception of success almost irreversible, whether it was correct or not.

This observation highlights a potential risk for Army personnel policy, where there is sometimes a conflict between the time it takes to record the outcomes accurately and the pressure to make positive public announcements. This is particularly problematic if it turns out that an earlier announcement may be at odds with an emerging reality, as may have been the case with ADFGY. Typically, the Department of Defence does not have a strong appetite for correcting, withdrawing or retracting previous assessments and announcements unless there is a reason to do so, especially if some (but not all) objectives were achieved. Unfortunately, this reluctance does little more than perpetuate potentially false views of a particular policy.

Lessons for Future Personnel Policy

One of many of the harsh realities of personnel policy analysis is that it is very rare that outcomes can be observed and measured in a short time frame. In the case of the ADFGY, a complete review had to wait until the last participant from 2012 had completed their service obligation period. By then, any findings of a review may only be relevant as an historical artefact because, as is the case, the ADF embarked on a second version of the program without a review of the first.

The generic risk for Army is that an incomplete analysis of a policy or program can threaten the sound development of evidence-based policy on other related topics, such as reductions in service obligation periods (for example, Army's one-year Initial Minimum Period of Service trial). Although a balance may be required between early evidence of success versus a more complete analysis, this only amplifies the necessity for robust definitions and associated metrics from the start. There are several lessons arising from the ADFGY-A program that are relevant for future personnel policy initiatives. First, the aim and objectives should be consistent and unambiguous between policy documents. Second, metrics must be developed for each objective and must be specific, measurable, attainable, realistic and timely. Third, interim or preliminary measures of success should be defined and associated with the long-term objectives. Fourth, preliminary announcements of success should always be moderated and should never restrict the subsequent announcements of revised and updated information. Fifth, the organisation with responsibility for analysis and reporting should

be centralised and intimately involved in policy metric development. Finally, outcomes of personnel policy initiatives will rarely be evident within 12 months and this fact should prevail in discourse, reporting and analysis.

Conclusion

The ADFGY-A program has widely been considered a success, particularly in attracting personnel who might not have otherwise considered an Army career. However, although there may have been constraints on personnel transferring into the ARA, particularly male participants, less than one-third of all participants eventually chose to do so. The fact that participants were trained to an ARA standard and had been fully exposed to an early ARA career but still separated at such high rates provides strong evidence that the program was an ineffective and costly avenue of entry. This finding draws into question the common perception of the 2007–2012 ADFGY-A as a success and the rationale behind its reintroduction in 2015.

Perpetuation of the view that the program was successful has much to do with the ambiguous aims and objectives that various policy documents had for the program. The fact that there were no specific or measurable objectives or performance indicators did little to help the situation. This alone constituted a significant oversight in policy development and represents one of the more significant lessons for Army and the broader ADF. Ultimately, if Army is to be able to identify and capitalise on successful workforce policies, or remediate those that are not successful, an adequate framework of success definitions and metrics must be developed before the policy is implemented.

Endnotes

- 1 Department of Defence, 2008a, Defence Instruction (Army) Personnel 34-13 Australian Defence Force Gap Year—Army Management, Policy and Procedures (Canberra: Department of Defence, 2008a), 2.
- 2 Australian Bureau of Statistics, 6202.0—Labour Force, Australia, table 1, Series ID A8442305A, Unemployment Rate: Persons, Seasonally Adjusted.
- 3 Ibid, table 13, Series ID A84424185C, Unemployment Rate: Persons, Seasonally Adjusted.
- 4 Department of Defence, 2007, Annual Report 2006–07 (Canberra: Department of Defence), table 4.10, at: https://www.defence.gov.au/AnnualReports/06-07/2006-2007_Defence_DAR_04_v1_s3.pdf
- 5 The Australian Defence Force Gap Year (ADFGY) program was initially called the Military Gap Year Scheme (MGYS). This name was changed prior to final release of policy and marketing campaigns to avoid any unintended association through use of the word ‘military’ and ‘scheme’ that might imply conscription.
- 6 By the time new entries into the ADFGY program closed in 2012 some 2,590 personnel, 1,630 of whom were Army, had participated, with the last completing his ADFGY service in April 2013.
- 7 Since 2012 it has been increasingly common to refer to the Australian Regular Army as the Permanent Force and Service Category 6 or 7; the Army Reserve as Service Categories 3, 4 or 5; and the Standby Reserve as Service Category 2.
- 8 Noetic Solutions, 2010a, Evaluation of the Australian Defence Force Gap Year Program (Canberra: Department of Defence).
- 9 As reports on behavioural aspects of the program have already been released, this article’s scope has been narrowed to examine those measures of success that can be quantitatively and accurately observed and measured.
- 10 Directorate of Strategic Personnel Policy Research, 2012, Project LASER ADF Gap Year Report 2010/11 and 2011/2012 (Canberra: Department of Defence).
- 11 Other initiatives, familiar to many currently serving personnel, included the Graded Other Ranks Pay Scale, Army Expansion and Rank Retention Bonus, and Defence Home Owner Assistance Scheme. For a consolidated detail of initiatives, see Noetic Solutions, 2010b, Review of the Australian Defence Force Recruitment and Retention Strategy (Canberra: Department of Defence).
- 12 Department of Defence, 2008b, Defence Instructions (Army) Personnel 34-13 Australian Defence Force Gap Year—Army Management, Policy and Procedures (Canberra: Department of Defence), 1. A total of 2,590 comprising 633 Navy, 1,630 Army and 327 Air Force (Source: PMKeyS).
- 13 In fact, in some advertising materials the program was marketed as a ‘try before you buy’ initiative. See, for example, Defence Force Recruiting, 2007a, ADF Gap Year Program, fact sheet (Canberra: Department of Defence). This was emphasised in media—for example, Kerry-Anne Walsh, ‘Join the Army for a Year, Students Urged’, The Age, 15 October 2006, at: <http://www.theage.com.au/news/national/join-the-army-for-a-year-students-urged/2006/10/14/1160246371620.html>

- 14 Furthermore, after completion of the program, a financial incentive to return to the ADF within five years after obtaining further education or a certified trade skill was available. Department of Defence, 2008c, Defence Instructions (General) Personnel 05-10 Australian Defence Force Gap Year (Canberra: Department of Defence).
- 15 Navy and Air Force programs commenced in January 2008. The last Air Force participants commenced in January 2010 and the last Navy participant commenced in June 2011.
- 16 Department of Defence, 2008c. See also Department of Defence, 2011, Defence Instructions (General) Personnel 05-10 Australian Defence Force Gap Year, Complete Revision, (Canberra: Department of Defence).
- 17 Department of Defence, 2008c, 1.
- 18 Department of Defence, 2007, ADF Retention and Recruitment Strategy Implementation Plan (Canberra: Department of Defence).
- 19 Defence Force Recruiting, 2007.
- 20 Department of Defence, 2011. Introductory paragraphs 2 and 3 describe the ADFGY as providing experiences within the military.
- 21 *Ibid.*, 1.
- 22 A synopsis of the political discussion concerning whether recruiting was an intended aim is in N Church, 2014, The Evolution of the Australian Defence Force Gap Year Program (Canberra: Parliamentary Library, Parliament of Australia) at: http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1314/ADFGapYear. Although the programs of the three Services differed significantly, all three had a longer term aim for participants that included the potential for re-enlistment or continued service.
- 23 Department of Defence, 2008a, 2.
- 24 *Ibid.*, 1.
- 25 *Ibid.*, 1.
- 26 Noetic Solutions, 2010a, states (at 8): 'The performance of the ADF Gap Year Program was then evaluated against: objectives synthesised from the R2 Implementation Plan, the relevant Defence Instruction and the Request for Quotation and Tasking Statement'.
- 27 *Ibid.*, 7.
- 28 An assessment of success against an experiential objective would require methods such as surveying the participants—an approach that is beyond the scope of this article.
- 29 For example, see Warren Snowdon, Minister for Defence Science and Personnel, 2008, 'ADF Gap Year a Resounding Success', media release, 13 November 2008, at: https://parlinfo.aph.gov.au/parlInfo/download/media/pressrel/OP3S6/upload_binary/op3s60.pdf;fileType=application%2Fpdf#search=%22media/pressrel/OP3S6%22
- 30 Noetic Solutions, 2010a, 8. The claim of additional recruitment potential made in Noetic Solutions, 2010a, was not made against a benchmark or an expectation of what might have been expected from the program, nor was this balanced against what might have been achieved in the absence of the program. This is an unfortunate oversight of the departmental review.

- 31 There are many examples, including, 'Defence Gap Year "Outstanding Success"', *The Sydney Morning Herald*, 22 December 2007. Also see Australian Defence Association, *ADF Gap-Year Program Aimed at the Future*, at: <http://ada.asn.au/commentary/formal-comment/2007/adf-gap-year-program.html>
- 32 See reporting in Sean Parnell, 'Swollen ADF Puts Brakes on Recruiting', *The Australian*, 31 May 2011. See also Jennifer Crawley, 'Army Gap Year Misfires', *The Mercury*, 4 August 2012; 'Defence Makes Cuts to Gap-Year Scheme', *The Sydney Morning Herald*, 11 February 2011. Also outlined in Church, 2014.
- 33 Denis Peters, 'Army Recruitments Above Target Last Year', *Brisbane Times*, 4 January 2008, at: <http://www.brisbanetimes.com.au/news/national/army-recruitments-above-target-last-year/2008/01/04/1198950037532.html>; Jorja Orreal, 2008, 'Hundreds Sign Up for Taste of Army Life in Gap Year', *The Courier Mail*; 'Defence Declares ADF Gap Year Huge Success', *The Sydney Morning Herald*, 14 November 2008, at: <http://news.smh.com.au/national/govt-declares-adf-gap-year-huge-success-20081114-66fm.html>
- 34 Recruitment into the program was aligned roughly with the end of the school year, with the majority of participants joining between January and March and a smaller intake later in the year. The largest number of participants in Army at any one time was 463 in March 2008, shortly after the program's commencement and when the target was still relatively large. The number of participants declined progressively until April 2013.
- 35 There is some evidence that initial expectations of the program were not especially high. At the opening of applications for the program in August 2007 the then Minister for Defence, Dr Brendan Nelson, stated 'Probably half or so will probably leave and not ever come back but there will also be a proportion who we will encourage to come back within five years'. In hindsight, this statement was somewhat more accurate than much of the public discourse that came afterwards. 'PM Announces Gap-Year Army Program on YouTube', *The Daily Telegraph*, 9 August 2007; 'Prime Minister John Howard's Defence Gap Year Announcement' [video], 8 August 2007, at: <https://www.youtube.com/watch?v=rYzxhLCuluY>
- 36 For example, see 'Defence Gap Year "Outstanding Success"', *The Sydney Morning Herald*, 22 December 2007; 'Recruits Bridge the Gap', *The Daily Advertiser*, 31 March 2008, at: <http://www.dailyadvertiser.com.au/story/723425/recruits-bridge-the-gap/>
- 37 See Army Supplementary Data to Directorate of Strategic Personnel Policy Research, 2012, Project LASER ADF Gap Year Report 2010/11 and 2011/2012 (Canberra: Department of Defence).
- 38 In financial year 2012–13 salaries, the salary component for a gap year participant is estimated to be at least \$40,500 over the duration of the year. This does not include other allowances such as trainee, service and uniform allowances, and does not factor other benefits such as medical, housing and superannuation.
- 39 This is despite having had the opportunity to leave without detriment in the first 12 months of ADFGY.
- 40 Army Supplementary Data to Directorate of Strategic Personnel Policy Research, 2012, Project LASER ADF Gap Year Report 2010/11 and 2011/2012 (Canberra: Department of Defence).

Opinion Piece

Australia, the Grey Zone and National Security

Dr Joyobroto Sanyal

The supreme art of war is to subdue the enemy without fighting.

Sun Tzu, *The Art of War*

Gray zone conflict must be understood in fundamentally different ways from major warfare.

Michael Mazarr, *Mastering the Gray Zone*

The international system, like any dynamic system, is always in a state of flux. Forces of change, whether we are conscious of it or not, are continuously shaping the environment inside and outside nations. Nations respond to these changes in different ways. One significant area of national policy which reveals mainstream thinking around the basic national need of safety and security, and which also reflects ways in which a nation approaches these emotive and physical requirements, is security policy. Although the fundamentals underlying a national security policy remain more or less constant, the strategy changes in the light of the strategic environment. Since Federation, Australia (emerging from an outpost colony of the British Empire to a middle power) has met its fundamental security needs through membership of the Western alliance. Consequently, Australia's security thinking has been shaped by the realities of the two

world wars, followed by four decades of Cold War, and the post-Cold War challenges—most notably terrorism and violent extremism.

However, as international events have shown, security challenges since 9/11 have steadily shifted from the potential of war in a Clausewitzian sense to a state of rising tension, uncertainty and uncontrollability. This environment is diffuse and multi-level and has the potential to erupt into physical violence in a number of geopolitical hotbeds spread across geographical areas of strategic interest to Australia.¹ Therefore, assessing how well Australia is prepared for the security challenges it faces in the 21st century is both timely and pertinent. It is in this context that this article presents some key points regarding a particular group of security challenges that thrive in the zone between peace and war—the grey zone. This article argues that there is a strong need to revisit Australia's national security and defence policy at a time of emerging grey zone challenges, where having a relatively small but highly capable and modern defence force would neither sufficiently meet nor satisfy all security needs. There is a need to acknowledge the potential and limitations of the Australian Defence Force in guaranteeing the nation's security. The demand for agility and strategic depth in our understanding of the nature, interlinkage and manifestation of emerging security challenges, such as those involving the grey zone, is high. Therefore, the need for clarity of purpose and direction in Australia's security and defence policy thinking is premium.

A key feature of international relations post-Westphalia is the oscillation between peace and war. Peace and war describe the condition of the international system at a given time but may not reflect all aspects of the system. In other words, this paradigm falls short of appreciating the seriousness of the variety of challenges that thrive in the international system. Contemporary international relations cannot thus sit comfortably within the binary paradigm of peace or war; it needs to be approached differently. International relations between and among state and non-state actors must be understood as displaying degrees of cooperation and conflict and conceptualised as a system of calibrated engagement and not in absolutes. It is important to note here that peace and war should be appreciated as relative, as there has rarely been a time of absolute global peace or war. In reality, international relations have been practised largely in a space somewhere in between on the peace–war continuum in an environment characterised by unequal distribution of power and scarcity of resources.

Grey zone activities have implications for national security and, therefore, comprise an important and inescapable aspect of international relations.

In the lexicon of international relations, the term grey zone is used to describe extreme, competitive state behaviour that is below the threshold of war but distant from peace.² Grey zone activities are characterised by ‘aggression’ and ‘coercion’ without a corresponding escalation to war and have thus been described by some as ‘guerrilla geopolitics’.³ Strategically, the grey zone is closer to war than to peace as it involves coercive behaviour and simmering conflict under the guise of competition. Grey zone activities are an obvious fallout in a highly contested world that is characterised by relentless competition and shifting sources of power and wealth, and such activities often imply conflict between two or more asymmetric powers. However, unlike the state of event horizon that contains a high degree of unknown uncertainty, the dynamics of the grey zone can be understood through its visibility—hence, its recognition as a threat to national security.

The grey zone poses particular challenges to middle powers such as Australia, as they have neither the deterrent effect of a superpower nor the timidity of a small power. Australia’s model of pluralistic democracy that is rooted in a multicultural society is pertinent in this context. The ambitious vision of global engagement projected by Australia’s policymakers will lead to more extensive global connections, increasing Australia’s exposure to potential grey zones not only in its immediate strategic environment but also beyond. The display of China’s growing economic and military influence in the Pacific and its implications for Australia’s strategic environment, which is located in the Indo-Pacific, is a key factor. The geopolitics in Australia’s strategic environment shaped by rising competitive US–China rivalry is likely to create different levels of tension that will impact on Australia’s short and long-term foreign policy and security interests. A recent study published by RAND shows how Australia is already exposed to some grey zone challenges involving China.⁴

No wonder the Chief of Army has identified the grey zone as one of the key challenges of ‘Accelerated Warfare’ and stressed the need to ‘pre-empt, prevent, prepare and respond to emerging threats in a way that avoids this escalation of competition into direct conflict’.⁵ Writers like Michael Mazarr have argued in favour of a new theory of conflict to understand the multifaceted aspects of grey zone challenges.⁶ Thus, it is timely to ask: how should Australia prepare for all degrees of conflict, ranging from grey zone

challenges to the outbreak of total war, in its strategic environment? To date, Australia has not exercised enough prudence in planning for a range of scenarios in which it may find itself, and is more exposed to hostile attempts from adversaries in the form of interference, influence, and intervention that is backed by a certain degree of coercion.

The grey zone threatens national security in its multifaceted form (different shades of grey) in a way that can linger indefinitely. As a step towards a fully-fledged war, grey zone activities can be used by the enemy as a subversive tool to weaken its opponent before military force is applied. Grey zone activity can also be a form of retribution from a state that has lost a war. The lesson for Australia's national security apparatus is to prepare for a future in terms of capability, goals, strategies and tactics, the use of which will involve 'escalation dilemmas' for the Australian Defence Force (ADF). These dilemmas can affect decision-making and lead to confusion, which can aid the enemy's intentions. Therefore, the availability and flow of information that is timely and credible is crucial when operating in the grey zone. This includes protection of information-sharing networks and platforms like social media. The use of such tactics by Russia as it prepared to annex Crimea from the sovereignty of Ukraine is an example of how grey zone activities undertaken by a hostile power can create and exploit information gaps to confuse the other side. In this regard, C4ISR capability on one hand and whole-of-government coordination and seamless decision-making on the other are vitally important to prevent hostile use of information and coercive acquisition of networks.

The need for a whole-of-government effort is further strengthened by the fact that grey zone activities are often hybrid in nature and this requires the involvement of a variety of authoritative actors for a comprehensive response. The recent RAND study mentioned above has suggested a number of options that range from military to diplomatic, informational and economic to respond to grey zone challenges.⁷ A close appraisal of these options implies that a range of actors from different areas of government need to be involved in the decision process. Thus, responding to grey zone activities will involve not only the ADF operating in a whole-of-government space but also other government departments in order to muster the appropriate level of capability that closely fits into whole-of-nation capability which can harness all the elements of national power. Grey zone activities not only involve a degree of ambiguity but also blur the distinction between civilian and military assets in

terms of effects and response. This requires coordination between several areas of government. It is no surprise then that the Chief of the Defence Force has described grey zone conflicts as ‘political warfare’.⁸ However, grey zone conflicts are not always fought on the political front: often they are multifaceted and insidious (especially in the context of cyber warfare).

Furthermore, grey zone activities may not be restricted to one geographical area or have a fixed duration. They are usually subtle, dispersed and persistent operations that aim to confuse and subdue the adversary. Versatility will be needed to respond to the multidimensional challenges posed by the grey zone. Hence primary responsibility lies with the government of the day, although the ADF can provide niche capability to respond to such challenges—for example, through advanced ISR systems or Special Forces. The Australian Government’s decision to bolster investment for the Australian Special Forces under Project Greyfin is, therefore, a preliminary step—albeit an important one—in the right direction and the beginning of a process of agile thinking surrounding the multifaceted problem of grey zone challenges.⁹

Grey zone activities usually take place outside the purview of international law or involve deliberate means to circumvent existing legal and/or regulatory frameworks. Therefore, effective use of public diplomacy in support of a rules-based order can be useful to put pressure on potential adversaries in a given strategic setting: giving prior warning to discourage or even prevent an opponent from engaging in grey zone subversive activities. This is not just for achieving the moral high ground; it is using the existing international legal order—its institutions and practices—to gain tactical and strategic advantage. When used effectively through diplomatic channels by decisive actors, international law can be an effective tool that can be used pre-emptively to influence the opponent’s thinking and decision to act. Australia has been a vocal advocate for the preservation of the rules-based order only accepting change through peaceful means, and this line of international public engagement needs to be followed diligently. At the same time, there is also some utility in leading an effort to plug gaps in international legal frameworks that adversely constrain the protection of Australia’s national security and strategic interests, especially in sensitive geo-political areas.

Soft power can have a useful application to build support in the immediate region in favour of such a posture. Building new and resilient networks of mutual trust, sustaining historical alliances, and active engagement through defence diplomacy, police diplomacy (for example, the networking role of the

Australian Federal Police in the south-west Pacific countries) and people-to-people contacts are some of the key measures which can add to Australia's diplomatic strength. This is particularly important when established institutions and practices are challenged by hostile powers through the use of coercive tactics and other measures.

A relevant example is the leadership Australia showed in the wake of the shooting down of flight MH17. In particular, the call to bring those responsible to justice and put diplomatic pressure on Russia was made in partnership with a number of countries, not all of whom were traditional allies. Australia's recent decision to 'step up' its engagement in the Pacific can count as a pre-emptive move to use instruments of soft power to shield its neighbourhood against China's expansion of influence in the region. This is a timely move to gain strategic advantage in a geopolitical area that can appear as a hotbed for grey zone activities as China speeds up efforts to weaken US power projection in the Asia-Pacific and attempts to place itself in a position of strength through targeted measures such as the Belt and Road initiative.

Grey zone challenges can emerge with little or no warning time. They can put a heavy demand on resources and divert the government's attention away from the policy priorities of the day. This is precisely what the adversary aims for: to catch a party off-guard. The Chief of Army's strategic guidance document *Army in Motion* rightly notes the challenge of 'compressed strategic warning times' to respond to 'surprise and uncertainty' in the future operating environment. Therefore, response should involve planning in advance using a comprehensive prism of national security strategy that not only identifies (albeit in its classified version) weaknesses and vulnerabilities but also stocktakes all the national power capabilities at Australia's disposal. Such a document needs to be updated regularly to account for the changes in the country's security setting. After all, 'eternal vigilance is the price of liberty'. Agility, resilience, and innovation will be crucial to counter challenges from enemy grey zone activities. The utility of an alliance, military or otherwise, may have limited or no use to fighting in the grey zone, as it can result in an escalation leading to the direct use of physical force, which may not be in the interest of any party.

Perhaps it is also wise to remember that capability and strong alliance may not guarantee prevention of hostile activities, as demonstrated by China's continued military activities (including creation of new military bases) in the South China Sea. The fear of escalation to war has perhaps discouraged the

US and its allies from intervening or even from managing the not-so-benign activities vigorously pursued and aggressively defended by China. Expansion of China's military power over the South China Sea has created a sensitive grey zone in Australia's front yard, and uneasiness and tensions surrounding it are likely to continue and increase, as experienced by the crew on HMAS *Canberra* during Exercise Indo-Pacific Endeavour 2019.

Furthermore, China's crystallising Belt and Road initiative and the nature and direction of its future has strong potential to create a chain of areas of uneasy peace and tension in the Indo-Pacific region. Strategic planners need to consider creating and using tactical alliances in the region that can be used pre-emptively to reduce the possibility of grey zone challenges not only in a geopolitical sense but also in terms of national security. Traditionally, diplomacy has been the tool to create such protective networks. The ADF's pursuit of defence diplomacy can be useful in this context. However, there is a strong need to synchronise the ADF's efforts with those pursued by other areas of government, to bring in the strength of a whole-of-government focus. Given the nature of grey zone activities, a whole-of-government coordinated response can be effective as it can offset the deficiency in separate measures that do not fulfil the common goal or serve the common interest. It is in this regard that Australia needs a broader national security strategy that can provide a clear direction on how to approach current and future challenges involving the grey zone and hybrid tactics.

The emerging security environment surrounding Australia is changing, and grey zone activities (potential and actual and both short and long term) pose an important challenge to Australia's interests and role in the region. The trends which comprise the paradigm of Accelerated Warfare are only tips of the iceberg. As Australia embraces the space age and invests in significant economic and security activities, its exposure to grey zone challenges will only increase over time. As steady change in climate makes the appearance of an ice-free Antarctica inevitable, we should also take into account the future of the Antarctic Treaty and the potential for vigorous competition among a group of technologically advanced countries over the sharing of its resources.

It is, therefore, prudent to undertake a comprehensive strategic security assessment in order to identify both actual and potential areas of vulnerability. Such an assessment would measure the propensity of Australia's adversaries in the region who may be engaging in grey zone activities to subdue and weaken the ADF's force posture. In addition to

investing in acquiring capabilities for the three services to fight and win future wars, the need for a strategy to prepare for grey zone challenges as they arise is equally important. Given the very nature of the grey zone, a different approach shaped by a different style of thinking is important. Conventional strategies and weapons will only have limited use unless the tensions escalate to war—a situation where the ADF will undoubtedly lead.

From a planning perspective, grey zone strategies are yet to be reflected by policy. The 2016 Defence White Paper explicitly mentions grey zone activities perpetrated by Australia's adversaries. The 2017 Foreign Policy White Paper only briefly discusses the challenges of the grey zone while describing it as 'measures short of war'.¹⁰ The RAND study referred to above, however, discusses a number of grey zone challenges experienced by Australia, which range from diplomatic and military pressure to interference and regional economic dominance as an avenue of coercion.¹¹

However, the views and arguments of influential defence experts continue to be shaped by the macro security challenges, the practicality of whose maturity and the probability of whose manifestation are far from being certain or inevitable. Investment in defence capability over recent years has been almost entirely made in the areas of hard security, with a particular focus on Australia's commitments as a member of the US alliance. Thus, the introduction of a new Army futures statement, *Accelerated Warfare*, which acknowledges the complexity and multidimensional nature of the current strategic environment and points to trends that will have significant impact on the policies and interests of Indo-Pacific powers, is both timely and apposite. However, the concept captures only a part of the challenge. The question remains as to how Australia will face these challenges, many of which are likely to assume a grey zone dimension as relentless competition and high-stakes contest between old and new and emerging powers evolve.

It is worth noting again that grey zone challenges are not the ADF's exclusive burden to carry. But the ADF can certainly contribute significantly to the efforts of defending national interest: it has access to a range of capabilities—human and technological—which it can muster quickly and defend the nation. The idea of an 'Army in Motion' is, therefore, a timely reminder of the real need for continuous transformation and betterment in order to keep up with the forces of volatility and uncertainty. After all, as the axiom and later credo of Sir Francis Walsingham (Queen Elizabeth I's

principal secretary and intelligence chief) warns us, 'there is less danger in fearing too much rather than too little'.¹²

Australia, like any country, is undergoing change but there is no single analytical framework that captures the security implications of these forces. What the concept of grey zone teaches us, at best, is the value in developing a critical appreciation of minute, intricate dynamics and pulses that can transform into big security challenges for the nation. Australia, as an ardent follower of pluralism in its polity, and a society that is heavily reliant externally for its internal prosperity, is particularly vulnerable to grey zone challenges. But it is yet to have a public narrative that draws on the strengths of the myriad elements that comprise its national power. A precondition for its feasibility is having an agreed position on where the nation wants to go. There is a need for Australia's foreign, security and defence policy to have a fair degree of self-reliance that is expressed confidently yet sensitively, and supported by a proportionate level of power posture and projection.

The question, therefore, is which path Australia should choose to ensure a manageable balance between its power aspirations, security interests, appetite for risk, and defence structure and force posture. This kind of clarity of purpose and direction is essential for responding to the current and future challenges posed by the grey zone in Australia's strategic environment. This message is perhaps best captured by the following conversation between Alice and the Cheshire cat in *Alice's Adventure in Wonderland*:¹³

Alice: 'Would you tell me, please, which way I ought to walk from here?'

The Cat: 'That depends a good deal on where you want to go.'

Alice: 'I don't much care where ____'

The Cat: 'Then it doesn't matter which way you walk'.

Alice: ' ____ so long as I get somewhere'.

The Cat: Oh, you're sure to do that, if you only walk long enough'.

But in the real world of relentless competition and strategic rivalry, going somewhere may be as bad as going nowhere.

Endnotes

- 1 The impact of this, especially in the domestic context, could not be shown any more clearly than by the transformation of Australia's domestic intelligence and security apparatus under the aegis of the Department of Home Affairs.
- 2 Sam J Basch, 'Understanding the Grey Zone', 8 May 2018, at: <https://www.janes.com/article/79861/understanding-the-grey-zone-sofexd1>
- 3 'Neither War nor Peace: Special Report', *The Economist*, 25 January 2018, at: <https://www.economist.com/special-report/2018/01/25/neither-war-nor-peace>
- 4 Lyle J Morris et al., 2019, *Gaining Competitive Advantage in the Gray Zone* (Santa Monica, California: RAND Corporation), 122–125.
- 5 Australian Army, 2019, *Army in Motion: Chief of Army's Strategic Guidance 2019* (Canberra: Australian Army), 12.
- 6 Michael J Mazarr, 2015 *Mastering the Gray Zone: Understanding a Changing Era of Conflict* (Strategic Studies Institute and U.S. Army War College Press).
- 7 Morris et al., 2019.
- 8 See the keynote address by General Angus Campbell, Chief of the Defence Force, at the Australian Strategic Policy Institute International Conference 'War in 2025', 13 June, 2019.
- 9 'Special Forces to Meet Pacific Threat: SAS Fighting Funds to Get \$3bn Boost', *The Australian*, 12 August, 2019
- 10 Department of Foreign Affairs and Trade, 2017, *Foreign Policy White Paper 2017*, 24.
- 11 Morris et al., 122–123.
- 12 Sir Francis Walsingham quoted in Christopher Andrew, 2018, *The Secret World: A History of Intelligence* (London: Allen Lane), 158.
- 13 Lewis Carroll, 1998 (1865), *Alice's Adventures in Wonderland* (Chicago, Illinois: VolumeOne Publishing), 89–90. Italics in original.

Opinion Piece

The 2nd Lieutenant— a Necessary Development Pathway for Part-Time Officers

Brigadier Douglas Laidlaw and Lieutenant Colonel Scott Denner

The Australian Army operates as a total force, integrating personnel from a range of service categories (SERCATs) in order to generate the capabilities required to win the land battle. The re-introduction of the rank of 2nd Lieutenant for General Service Officers (GSO) whose ab initio training is the Part-Time Officer Commissioning Course (PTOCC), will enable superior alignment of foundation workforce capabilities across the total force, and create a cogent framework for the conditions-based development of part-time junior officers.

The All Corps Generalist Lieutenant (Part-Time)

The role of the part-time generalist Lieutenant as described in the All Corps Employment Specifications differs substantially from that of the full-time generalist Lieutenant. Practically, there is a significant difference in the quantity of training that can be provided during the slightly more than 100 training days of the PTOCC, and full-time attendance at the Royal Military

College, Duntroon. This is explained in the Employment Specifications, which note that ‘as the generalist Lieutenant is the first appointment as an officer, they are prepared for their employment exclusively through Army training and education’,¹ and are therefore not able to draw on their experience as is the case for more senior ranks.

Current policy notes that officers who successfully complete an Officer Commissioning Course will normally be promoted to the rank of Lieutenant;² however, it also provides that ‘at the direction of the delegate, an applicant may be appointed as a 2nd Lieutenant’. The points to note are, firstly, that the rank of 2nd Lieutenant is extant, and, secondly, that appointment to that rank is a matter of *policy*—that is, something within the control of Army.

The Problem

The proposition advanced is that junior officers employed under SERCAT 5 are advancing too quickly to be afforded an effective foundation during their early regimental career. Anecdotally, this is demonstrated by limited on-the-job experience in leading soldiers, planning and executing training and conducting necessary personnel management and administration.

A good starting point is the graduate of the PTOCC. While the ideal set of skills of a fully effective Lieutenant is detailed in the Employment Specifications,³ there can be no doubt that on commissioning, a SERCAT 5 officer will have had neither the training nor the experience to be at that standard. Indeed, the recent history of the PTOCC saw a substantial modification of the course in 2017 as a result of continued unacceptably high failure rates during Training Block 5.⁴ As a result, recent graduates are more competent tactically than previous graduates; however, they carry into service a knowledge gap.

In the broader sense, the part-time generalist Lieutenant is appointed to command at platoon or troop level. Compared to their full-time counterpart, they have less training and awareness of:

- the functions of command and the management of the organisation
- planning tactical actions which integrate capabilities from a combat brigade
- planning at combat team level in support of a brigade plan

- integrating joint capabilities
- planning collective training
- implementing individual and collective training.

With the requirement for a part-time Lieutenant to complete their Regimental Officers Basic Course (ROBC) and the All Corp Captains Course (ACCC) during their three or four years as a Lieutenant,⁵ it is practically possible for part-time Lieutenants to spend the majority of their block-periods of service on course, with limited or no long periods in the field in which experiential learning may ameliorate some of the knowledge gaps between them and their full-time counterparts. Compounding that issue, the force generation cycle (FCG) means that the likelihood of participating in significant collective training activities is affected where a junior officer's brigade is in the FCG when they take up their first appointment. The functions of the generalist Lieutenant make up the foundational functions for all officers. Reduced education as a Lieutenant weakens the scaffolding on which an officer builds their professional competence.

Training and Experiential Learning

Although it does not formally capture this, Army implicitly relies on the fact that most generalist part-time officers from senior Captain onward are in management or executive positions in their civilian employment. This provides them with both formal and experiential learning in leadership, management, organisational planning and personnel development that is broadly equivalent to that of their full-time counterparts. They additionally bring to Army a range of skills and experience that are not natively developed within Army.

The individual training provided to part-time and full-time generalist Captains and Majors is far more aligned than for Lieutenants. This is possible because the ACCC and the All Corp Majors Course are relatively short, and thus able to be modularised in such a fashion that part-time officers can attain similar competencies. While the majority of the part-time officers have less practical experience in the field than full-time officers, the common competencies provide a framework on which they can build knowledge and understanding. However, as noted above, the divergence between the part-time and full-

time commissioning courses is significant, and there is no formal process to manage that ongoing gap for the part-time Lieutenant.

The challenge for Army in developing and utilising the part-time Lieutenant is that they have substantially less military education than their full-time counterpart; limited opportunity for experiential learning in the field, due to competing course requirements; and generally limited leadership experience in their civilian career at that stage.

A Practical Approach

A practical approach to recognising the difference in training and education between full-time and part-time Lieutenants, and providing the opportunity to remediate some of that differential, is the re-introduction of the rank of 2nd Lieutenant for part-time officers, with promotion to Lieutenant dependent on the attainment of a number of competencies and participation in specified activities.

Those competencies and specified activities would include completion of the ROBC, participation in field exercises, directed in-barracks tasks and possibly an element of online learning. While many options may present as to how such 'on-the-job training' might be tracked, consideration should be given to empowering commanding officers and holding them accountable for the development of their junior officers. This would occur in a similar manner to the way a commanding officer is able to substantively promote a soldier to Lance Corporal or Corporal if they are appropriately qualified and the commanding officer assesses that they are suitable. Rather than simply keeping an officer for a fixed period of time at the rank of 2nd Lieutenant, a commanding officer would make the recommendation, if not in fact the determination, to promote the officer on the basis of their achieving the list of competencies and specified activities as well as on their performance.

Implementation of this model would not entirely remediate the differential in training and education between the part-time and full-time Lieutenant; however, it would more closely align their abilities. This enhanced level of training would better enable the part-time Lieutenant to achieve their required operational capability within the generally longer notice period of Reserve units, and create a stronger foundation upon which to build the training and education of part-time officers as they progress through their careers.

Endnotes

- 1 'Employment Specifications All Corp', Part 2, Chapter 2, Annex A.
- 2 'Army Standing Instruction (Personnel)', Part 4, Chapter 2, paragraph 53.
- 3 'Employment Specification All Corp', Part 2, Chapter 3, Annex I.
- 4 The reforms to the PTOCC addressed the failure rate, which was almost exclusively due to a lack of field and tactical ability. The reforms involved reducing non-field training wherever possible in favour of more field training.
- 5 The minimum time in rank for a SERCAT 5 Lieutenant is either three or four years, depending upon Corp. See 'Employment Specifications All Corp', Part 2, Chapter 2, Annex C, Appendix 3.

Book Review

The Strategic Corporal Revisited: Challenges Facing Combatants in 21st Century Warfare

Eds: David W Lovell and Deane-Peter Baker

UCT Press, 2017, ISBN 9781775822202, 210pp

Reviewed by Diana Clark Gill

Edited books command a reader's attention differently from single-author volumes. The former are beehives of perspectives, while the latter enjoy the force of a single mind. For this book, though, I endorse the editors' choice of the group approach due to the complexity of the subject. The book's contributors, several of whom are former soldiers, include professors of ethics, international law and international relations.

The phrase 'strategic corporal' was coined in 1999 by US Marine General Charles Krulak in a Marine Corps magazine. The label captures how low-level squad leaders, while on a mission, can be simultaneously confronted with multiple tasks (combat, peacekeeping operations and humanitarian aid) within a very small area—the colloquial 'three-block war'.

Lovell and Baker divide the book's focus into two halves. The first deals with how modern warfare increasingly requires non-commissioned officers (NCOs) with superior 'strategic skills'. The second focuses on how the training of such soldiers should be conducted. Outside these practicalities, though, the book is also what contributor Anthony Moffitt terms 'a call to action for an outdated military paradigm'.

Editor David Lovell explains how NCOs have risen in importance due to reductions in manpower in military areas of operation. Today's lower-level officers, leading small groups of soldiers, may 'have a level of autonomy to carry out the mission that those who breasted the trenches on the Western Front during the First World War could not even conceive'.

Contributor Nick Jans states that Australia, in particular, stands out amongst its allies for the efficacy of its 'small-group operations' and that:

[Anzac 'junior leaders' have proven their 'three-block' proficiency] in a range of operational areas over the past few decades (Somalia, East Timor, Iraq and Afghanistan), contributing significantly to the success of Australian operations, while at the same time avoiding the damaging operational and ethical scandals experienced by Canadian, Italian, Belgian and American allies.

But even these successes, Jans points out, are marred by later findings that training for such eventualities had been primarily informal; his implication being that any successes could only be credited to the soldiers' quick-wittedness as opposed to Australian Defence Force structured training.

The Strategic Corporal Revisited voices the consensus that, while global military conflict has changed, the training of Western soldiers has not, especially in regard to 'small-group operations'. David Lovell stresses that this is a time for senior officers 'to listen to their juniors'. These young officers, leading missions with six to eight soldiers, regularly encounter rapidly shifting threats not on traditional battlefields but in congested urban centers, and their combat has been skewed into asymmetrical skirmishes against small groups of insurgents dressed as civilians and operating high-tech weaponry. As Krulak warned, the 'lines separating the levels of war, and distinguishing combatant from non-combatant, will blur'.

It is vital then that, to protect members of the local population from their own section weapons and carry out the mission, an NCO must lead as a general, showing the section a steadfast calm along with a ‘familiarity with legal and ethical issues, and an ability ... to understand local culture and communicate with those in villages and neighbourhoods whose goodwill, or at least neutrality, are vital to ultimate success’.

As to how to create such NCOs, contributor David Lovell stops short of advocating that soldier-scholars become the norm, but he does support the principle that even the lowest officer should be given an ‘advanced study of history, of politics, of law and of literature [that] are essential to the modern soldier ... [Basically] I am commending the ability to process the vast amounts of information with which we are confronted to create knowledge; ordered and connected information’.

In assessing this book, I was struck by its surprising density of information. Unfortunately, not all of it was devoted to the ‘strategic corporal’. Too often, that label was brought in at the end of an essay by way of justifying the chapter’s inclusion in the book. One contributor even confessed that the subject was a ‘non-issue’ in his chapter. This criticism aside, *The Strategic Corporal Revisited* has much to recommend it—mainly its positive attitude about updating the military to respond to the needs of the 21st century soldier. Lovell reminds us that to choose the armed services is to choose ‘a career open to talents’. Contributor Anthony Moffitt elaborates, ‘Given opportunities to be creative, innovative, to act and think independently and autonomously, given responsibility our soldiers will spring to life; they will astonish you’.

Book Review

Making Warriors in a Global Era: An Ethnographic Study of the Norwegian Naval Special Operations Commando

By Tone Danielson

Lexington Books, 2018, ISBN 9781498561815, 178pp

Reviewed by Dr Kieran Stewart

I am not even sure what our culture is today. So many things have changed. It might help us to have an outsider's view and analyses. You know how things are normally done in the military; they [strategic level] send a hired consultant who will tell us 'use this model, and then you will have synergies, and everything will work out perfectly.' It never does—those models don't fit. An anthropologist has a different toolbox, sees things from a different perspective. We need it tailor-made.

Tom Robertson, Commanding Officer, Norwegian Marinejegerkommando

Since the Vietnam War, anthropology and its array of associated disciplines has largely neglected military culture, policy, ethos and, in particular, *people*. Likewise, the Australian Defence Force (ADF) has yet to foster a relationship with the former. Yet, for those of you who are social anthropologists, there is a rich, multifaceted bank of human knowledge there to describe and explicate, but only for those who are willing. Likewise, the ADF should not underestimate the critical insights anthropology and its ethnography (the methodology used to study the cultural aspects, or the 'everyday life', of a particular group) would give if only it took a leaf out of this pioneering work by Tone Danielson. Danielson has done nothing short of open the doors to a modern anthropological study of armed forces and provide a clear, meticulous methodology. This leads to some stunning conclusions.

Danielson highlights how essential it is to conduct anthropological work in a military setting in order to:

1. allow us to realise things about ourselves (habits, how we conduct ourselves, cultural specificities) and our organisations (for the military this would be Standard Operating Procedures) that we had not once conceptualised let alone critiqued
2. make us think about *why* we do the things we do rather than just doing them.

She writes: 'War is merely the context in this book ... the making of warriors and their everyday life is the focus.' And so, with careful precision, Danielson describes how young Norwegians are socialised into Norwegian defence culture, 'made into warriors', and forces a reflection about change, whether that be for the benefit of the organisation's 'capability' or at the individual level.

For an academic to be able to study a special operations unit is as remarkable as it is almost unbelievable. As a world first, Danielson was given privileged access to the *Marinejegerkommandoen* (MJK), having been headhunted by Tom Robertson, whose words are at the top of this review, in order to gain anthropological insights into a special forces unit. Chapters 1 and 2 set out the methodological framework of the fieldwork (participant-observer) undertaken over two years and how Danielson was able to access the unit. Danielson explores the oral traditions of the MJK while also tracing the cultural parameters around which the unit orbits; defining the central

aspects of a culture is a key component in anthropological work. Chapter 3 explores the transformation of a civilian into an elite soldier, describing what Danielson considers to be an ‘institutional apprenticeship’ and what the MJK looks out for when recruiting its most elite unit (if you wish to know more about the ‘fine-grained’ detail of making a warrior from a young person, jump straight to this chapter).

Chapters 4 and 5 broadly discuss the rare skill set that is required of the MJK. MJK soldiers continually train to be novel and innovative and able to ‘switch’ on and off between different social forms and organisations. Chapter 6 concerns itself with the mental health issues that arise with being an elite soldier, how an MJK soldier ‘releases tension’ and the rituals that are practised as a way of maintaining sanity.

Chapter 7 analyses leadership—in particular, the importance of a commanding officer in the MJK knowing each operator back-to-front and not losing sight of the social nature of the MJK’s operations. Leadership in the MJK is highly fluid and dynamic depending on the training or combat needs of the unit. After reflecting on the many stories and first-hand accounts of the culture of an elite unit within the armed forces of a small state, Danielson concludes her study by asking how a military culture will go about adapting to change, particularly technological change in a global era. She elucidates not only the harsh truths embedded in an increasingly networked world but also the perpetuated myths about elite special forces that have a negative trickle-down effect on regular forces in training and combat situations. In the final chapter, Danielson not only reflects on the culture she has studied intensely for a number of years but also describes the transformative pressures placed on the MJK in the global era and how the MJK may gain the upper hand by being a step ahead.

The difference between anthropological work and other ways of obtaining important information from a defence force (the dreaded survey) is that, instead of handing out what are usually largely static questionnaires to uncover some highly specified, narrowly focused aspects of the military experience, an anthropologist walks alongside the cadet, the officer or the general and asks them to reflect on what it is they do and why they do it and remains open to the life that is lived, for culture is not a monolith but, rather, something that is alive. Danielson puts the goal of anthropology in the military in succinct terms. She writes: ‘contextualised ethnography and analysis aim to contribute to discussions and reflections on continuity,

reinventions, and transformations in armed forces.’ A culture can only change if it knows where to look and what it is that requires change.

A final word from an anthropologist working in the military: anthropology allows for an outsider who has been expertly trained to examine the make-up of a particular culture in order for us to be self-reflective enough as individuals, communities and organisations alike to ask the eternal and fundamentally hard questions: who are we, where did we come from and, most importantly, where are we going? *Making Warriors in a Global Era* makes an important contribution to answering these questions. May we continue that work.

Book Review

The Official History of Australian Peacekeeping, Humanitarian and Post-Cold War Operations Volume 1: The Long Search for Peace, Observer Missions and Beyond, 1947–2006

By Peter Londey, Rhys Crawley and David Horner

Cambridge University Press, 2019, ISBN 9781108482981, 899pp

Reviewed by Jason Thomas

Despite being entitled ‘Volume 1’, this is one of the final volumes of the Australian War Memorial’s peacekeeping series to be released. With a title that matches its length (900 pages), it is a meticulous, exceedingly well-written, important and informative official history. It presents to the reader Australian perspectives that range from the strategic level of initial mission engagement to the personal observations of deployed observers.

The timing of the release is fortuitous. With the current strategic emphasis of regional engagement, we read of the difficulties, costs, small victories and defeats of ‘small’ contingent peacekeeping contributions. It provides those

still serving with essential insights into the difficulties and isolation of these types of operations—operations which, for some periods, were all that the Australian military had available to them.

The history is in three parts: early Cold War, late Cold War and post Cold War. This structure helps the reader navigate long missions such as the United Nations Truce Supervision Organisation (UNTSO). It provides anyone daunted by the size of the book the ability to read a chapter at random and then put it down again. The chapters stand up well when read alone but also spur the reader to *maybe read just one more*.

Importantly, the volume covers missions that are no longer active but still provide valuable insight—in particular, the early and ultimately successful mission in Indonesia in the late 1940s and the tragedy of the division of Kashmir. Key Australian commanders and staff and the efforts of observers receive proportional and respectful treatment. The level of research is as expected from such a group of well-established authors and this further strengthens the solidity of the work.

The volume cannot escape what it is—an official history—but it should never be the sole source of insight. For example, required reading for any personnel deploying on UNTSO is Robert Fisk's *Pity the Nation* among others. In this context, it is, however, a brilliant accompaniment.

The Long Search for Peace is written from a profoundly Australian perspective, with an extensive amount of interview material. There is, rather disappointingly, the reinforcement of some ANZAC mythology, such as the 'honest' Australian who is not playing the political game. While appearing commendable to the primary audience, in reality this often resulted in pyrrhic victories in the behemoth that is the United Nations, besides causing disengagement by the already strangely detached being that is the United Nations public servant.

The history credits Australia with the invention of modern peacekeeping with the first operations in Indonesia in the late 1940s. I am sure those of the Allied occupation forces and members of the United States Marine Corps before the Second World War would debate this. I doubt French army captains charged with the administration of portions in Algeria in the 1950s sought advice from United Nations Global Observer Coalition (UNGOC) members (and, before you ask, they did just fine without it). It is an

unnecessary and self-ingratiating thesis framed only in this portion of military history using primarily Australian sources. To assume other contributing nations do not bring unique and sometimes superior skill sets to a mission is erroneous. It would not have been beyond the authors' considerable abilities to have struck a nobler balance.

If one of the purposes of the Australian War Memorial is to frame the tragedy of war as well as the heroism, there is some careless wording equating the commencement or involvement of observers in war (for example, the 1973 Arab–Israeli War, in which over 20,000 died) with 'excitement'. In a personal account or as a quote in an unofficial history this may be acceptable; however, it does nothing to portray the terror that a Golan Heights observer must have felt as the Syrian artillery fire walked its way to his observation post. As such, it sits uncomfortably in an official history.

The reader gains a fascinating but inconsistent insight into the impact that these missions had on individuals and the Australian military. Some chapters provide it, others do not, and it is a noticeable omission from the conclusion. I wish there has been more of this in the history. I returned from my service in UNTSO with a far broader and nuanced view (I think) of the world, that region and military operations. Given the list of observers named in the text who moved on to star rank, how this affected them and the military is not readily apparent.

The sweep, structure and style of this volume are striking, and do not be daunted by its size. It is a highly accessible and important part of Australia's military history that makes a timely arrival. It provides valuable insight into the nature of UN missions and the importance of enduring individual qualities—initiative, fair play, ingenuity and common sense—when, on these types of missions, that is literally all there is to rely on anyway. It acknowledges the contributions of an at times ignored body of police, servicemen and women. The history concludes by being 'the story of heroic efforts amid an overall landscape of failure'. In times of government criticism of the UN, this is a call not to turn away but to understand the risks and benefits of involvement. This official history is well worth the time it takes to read it, in addition to being an essential study of some corners of Australian military history that have been in the dark for too long.

Book Review

Messing With the Enemy: Surviving in a Social Media World of Hackers, Terrorists, Russians and Fake News

By Clint Watts

Harper, 2018, ISBN 9780062795984, 304pp

Reviewed by Major Lee Hayward

Messing With the Enemy is a contemporaneous look at our hyper-connected world, the way that the rise in social media has enabled state and non-state actors to influence individuals, and how these actors potentially can affect Defence, government, business and individuals.

Clint Watts points out that state and non-state aggressors will continue to evolve, migrate and innovate these new and emerging technologies to advance their goals, faster than most targets can keep pace. He suggests that, if we are to defend and harden ourselves against these 'soft attacks', we need to act swiftly and not just maintain a thorough understanding of emerging technology but also adjust our administration and management to decrease the impacts on individuals and governments.

As Watts takes us through the evolution of the internet, from chat rooms to the rise of social media platforms such as Facebook, he introduces us to the innovative ways in which terrorists and issue-motivated groups have been able to recruit followers and influence the behaviour of governments, militaries and individuals.

Rapid improvement in communication methods across the globe has resulted in reduced reliance on traditional sources of information such as print media. Individuals have replaced traditional trusted sources of information with what can be located on the internet. This new era of information exchange has improved global connectivity and provided the opportunity to share information that is taken for granted by many and assumed to be correct. The ability of these sources of information to be actively manipulated presents a multitude of opportunities to shape and influence target audiences.

In *Messing With the Enemy*, Watts talks at length about computational propaganda and the use of information and communication technology to manipulate perceptions, affect cognition and influence behaviour. As an example, he discusses the way recruitment and radicalisation of individuals was a lengthy and cumbersome process before the arrival of social media. Now issue-motivated groups can use computing algorithms and programs to identify and target vulnerable individuals and continually reinforce the feed of information those individuals get through their smart devices, social media applications and newsfeeds. Individuals who might be vulnerable to extremist messages can be radicalised and recruited at a distance, through a multitude of sources, by using confirmation bias algorithms, which amplify the presence of information appearing in news and social media feeds based on what those individuals show an interest in and who they associate with online.

The author includes an interesting case. Towards the end of the Cold War, Russia realised that it could not defeat the US from the outside and could not outspend on military hardware, but might just be able to divide and defeat democracy from the inside by adapting an approach referred to as 'Active Measures' — that is, the use of anonymously sourced falsehoods, mixed with true information and disseminated through proxies. However, Active Measures did not become particularly effective on a large scale until the advent of the internet. Watts uses recent examples of the US Senate Select Committee on Intelligence on Russian Active Measures Campaigns and

Interference in the 2016 US election, demonstrating how no-one escapes the risk of being exploited and manipulated by their reliance on the internet.

Messing With the Enemy demonstrates the need for greater technical education in Western democracies and for military and government to invest in, recruit and train skilled IT workers within their ranks. Watts has interesting insights into the need for more creative thinking and ability to act quickly to counter cyber attacks and disinformation when they are located.

Messing With the Enemy is fascinating and, arguably, essential reading for military leaders of all ranks who want to better understand the double-edged sword that the internet has become. It helps us understand how target audiences can be controlled and manipulated and why it continues to be important to educate and inoculate our own people to reduce the risk of falling prey to the cyber-age guerrilla tactics of state and non-state aggressors.

Authors

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Captain Nicholas Barber is an Intelligence Officer in the Australian Army. He has operational experience in Afghanistan and Iraq and has instructed on ISR at the Defence Force School of Intelligence. He is currently deployed as a United Nations Military Observer.

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Scott Denner

Lieutenant Colonel Scott Denner has served for 20 years as a regular and reserve officer. He is currently the Commanding Officer of Queensland University Regiment, and has operational service in Iraq and Afghanistan. He is a graduate of the Australian Institute of Company Directors and holds the degrees of Bachelor of Management and Professional Studies and Master of Management.

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Colonel Phillip Hoglin graduated from the Royal Military College, Duntroon, in 1994, having completed a Bachelor of Science (Honours) majoring in statistics. In 2004 he completed a Master of Science in Management through the United States Naval Postgraduate School, graduated from the Command and General Staff College of the Armed Forces of the Philippines in 2006, and was awarded a Master of Philosophy (Statistics) through the University of New South Wales in 2012. He has been involved in workforce analysis since 2004, was the Director of Military People Policy from 2014 to 2017 and has been the Director of Military Recruiting since 2018.

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Captain Toni Pachernegg is a part-time Royal Australian Army Ordnance Corps officer and works full-time as an Assistant Director in the Department of Defence. She is undertaking her Masters in Strategic People Management at the University of New South Wales and has an interest in understanding the dynamics of organisational design and culture to

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Major James Roberts is the Officer Commanding of the 5th Royal Australian Regiment, Logistics Company. He is a graduate of the Royal Military College and has served in regimental, staff and command positions across 1st, 3rd and 7th Brigades. He is an accomplished Indonesian linguist, having won the Australian National Tournament in 2018. He is an advocate of modernisation and contributed to the recent winning pitch at the 2019 Defence Entrepreneurs Forum (DEFAus19) to introduce a deployable 3D printing and additive manufacturing capability into Army.

Joyobroto Sanyal

Dr Joyobroto Sanyal is a former Marie Curie Visiting Fellow at Pembroke College, Cambridge University. For his PhD, Dr Sanyal analysed the Common Foreign and Security Policy of the European Union, with a particular focus on EU–Russia and EU–China relations. In 2017, Dr Sanyal joined the Australian Army Research Centre as lead researcher on Army's *Towards an Army STEM Strategy* report, following a period of association with the Australian Bureau of Statistics. He has published in the *Security Challenges Journal*, *Land Power Forum*, *The Strategist*, and *Australian Outlook*. Presently he is a Senior Research Officer in the Department of Home Affairs.

Calum Stewart

Captain Calum Stewart is the Operations Officer for 101 Field Workshop Company, 1st Combat Service Support Battalion. A graduate of the Royal Military Academy Sandhurst, he served 11 years as a REME Engineering Officer within 20th Armoured Infantry Brigade. Highlights of his time with the British Army include commanding the Theatre Log Support Company for Operation HERRICK 20 (Afghanistan) and commanding the Light Aid Detachment to the Royal Dragoon Guards Battlegroup, as part of the British High Readiness Vanguard Armoured Infantry Brigade. Captain Stewart holds

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Will Viggers

Major Will Viggers has served in the Australian Army for 21 years as a RAEME officer, and has bachelor's and master's degrees in management from UNSW at ADFA. He completed a master's degree in political and social science at the University of Paris II Pantheon-Assas while attending the French War College. It was during these studies that he decided to further examine this topic, after forming an opinion that Western doctrine did not satisfactorily define the 'levels of war'.

Martin White

Colonel Martin White is a Canberra-based Army officer with previous operational experience in Timor Leste, Iraq and Afghanistan. He has recently been awarded a PhD from Latrobe University.

Matthew Wood

Major Matthew Wood is a Royal Australian Electrical and Mechanical Engineer officer currently posted to the Directorate of Land Force Design, Future Land Warfare Branch at Army Headquarters. He is part of a small team focusing on robotic and autonomous systems, future power and energy, and advanced manufacturing. The team is currently managing a number of research agreements with universities and various organisations to develop future operating concepts and better understand how emerging technology can enable the future land force. He has filled a broad range of roles across Army combat brigades, supporting brigades and training establishments, and is passionate about advancing capabilities through best use of engineering design and technology.

Kane Wright

Lieutenant Colonel Kane Wright is the Commanding Officer of the 1st Combat Service Support Battalion. He is an Art of War Scholar and Distinguished Honour Graduate of the United States Army's Command and General Staff College, and Honour Graduate of the United States Army War College's Strategic Art Program. He has served in regimental, staff and command positions in 1st and 3rd Brigades, 17th Sustainment Brigade and Army Headquarters. He is published in the *Australian Army Journal*, The US journal *Military Review* and online through *Grounded Curiosity*.

About the Australian Army Journal

Today, the *Australian Army Journal* is published by the Australian Army Research Centre but was originally founded by Colonel Eustace Graham Keogh in 1948.

Enlisting in the AIF in 1916, as an underage 17 year old, he sailed with the 3rd Reinforcements of the 1st Australian Wireless Signal Squadron and served as a driver during the Mesopotamian campaign. He served again during the Second World War as a Major in the 2/24th Infantry Battalion during the campaigns in Greece, Crete and Syria, and later New Guinea.

After the war, and various staff and training roles, he was given the task of editing, publishing and distributing the Army Training Memorandum which was a training journal. Keogh later turned this into the *Australian Army Journal* and was its first editor.

The original, and now enduring, aims of the *Australian Army Journal* included stimulation of thought and encouragement of the study of military thought, and to provide the foundations for an Australian military literature to which officers were encouraged to contribute. So proficient was Colonel Keogh in fulfilling this through the *Australian Army Journal* that his role expanded and soon he was writing lectures, speeches, and other special articles for the journal, as well as a number of books.

The annual E.G. Keogh Visiting Chair (a travelling event hosted by the Australian Army Research Centre) is named in Colonel Keogh's honour.

How to Contribute

The Australian Army Research Centre has a varied and exciting publications program, including the *Land Power Forum* blog, the *Australian Army Occasional Paper* series, the *Australian Army Journal* and a variety of other initiatives.

For the latest guidance on writing for the Australian Army Research Centre, please visit researchcentre.army.gov.au

About the Australian Army Research Centre

The Australian Army Research Centre (AARC) was established in mid-2016 in accordance with the wishes of the then Chief of Army Lieutenant General Angus Campbell. It is the successor to the Land Warfare Studies Centre. It sits as a Directorate within the Army's Future Land Warfare Branch in the Land Capability Division of Army Headquarters.

Role

The AARC conducts research and analysis, fosters debate and advocates the value of the joint land force to Government, academia and the public.

Charter

The AARC is dedicated to improving the Army's understanding of the profession of arms. Its purpose is to promote the contribution of the land force to joint operations in peace and war. The AARC conducts applied research on the employment and modernisation of Army with particular reference to Australia's circumstances and interests. It raises the level of professional debate on war and its challenges within the Army, the nation and international audiences. The AARC enhances the professionalism, leadership and ethical awareness of Australian soldiers and officers.

To disseminate ideas and to promote debate, the AARC maintains a vibrant publication and seminar program.

The AARC contributes to Army's understanding of the future character of war and the advancement of land power through a number of initiatives.

These include:

- organising and conducting the Chief of Army's Land Forces Seminar as part of the biennial Land Forces exposition;
- contributing to the development of strategic concepts, strategies, and force structure options;
- assisting in the development of Army doctrine and facilitating its incorporation into future Australian Defence Force joint doctrine;
- managing the E.G. Keogh Visiting Chair and the Staff Ride Programs;
- managing the Army Research Scheme; and
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