Australian Army Research Centre

Transforming Land Power

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Transforming Land Power

Future Land Warfare: Short Thoughts Collection

Serving our Nation

Contents

FOREWORD

Our region is entering an increasingly challenging strategic environment. In response, it is the responsibility of all ADF members to be alert to the implications of current and emerging threats and their relevance to the military's ability to deliver capability, where and when it is needed, in support of Australia's national interests. As the ADF's instrument of land power. Army needs to be willing to engage intellectually with the questions central to its contribution to the joint force, and how it may be employed in a complex, rapidly evolving and increasingly contested strategic setting. To this end, Future Land Warfare (FLW) Branch -through the Australian Army Research Centre (AARC) - strives to raise the level of professional debate on war, military force, future landcapability development and its challenges within Army, the nation and beyond. An Army able to canvas ideas from across the professional spectrum, and able to engage in mature debate about the challenges it faces, is one that is intellectually equipped to deliver the agile and progressive thinking needed to inform the decisions that are demanded of it; at the strategic, operational and tactical levels.

In April 2022, the AARC's Land Power Forum invited authors to contribute 600-1000 word submissions directly related to the theme of 'Transforming Land Power'. The number and quality of responses to this 'Short Thoughts' competition reflected positively on the willingness of our men and women to take on the challenge of helping to shape Army's future. Authors ranged from current serving to retired ADF members,

soldiers to senior officers, and APS. Each author brought unique perspectives on issues as varied as institutional transformation, a deep battle concept, home defence, UAVs, and alternative fuels to power Army's vehicle fleet. The breadth of topics and spread of ranks proves that good ideas are not the monopoly of a particular area, group or rank band. Rather, inspiration and a willingness to contribute a good idea is something that is a fundamental strength of our Army, and Defence more broadly.

This publication is a compilation of the 'Short Thoughts' entries that were assessed by FLW Branch as the most meritorious. The award of modest travel and book prizes for the winners, publication on the Land Power Forum for all entries, and the delivery of this document recognises the efforts of the authors and further encourages intellectual engagement with issues facing Army. I commend this document to you as a basis to help further stimulate consideration and debate on the questions facing Army as it tackles the challenge of transforming land power.

Anthony Duus
Colonel
Acting Director General Future Land Warfare

6 July 2022

WINNERS

THINKING DEEP: THE NEED FOR A DEEP BATTLE CONCEPT FOR THE AUSTRALIAN ARMY

Jason Kirkham

Introduction

As the Australian Army contemplates the transformation of land power, one area that is worthy of focused effort is the development of a deep battle concept.[1] Currently, Army lacks a unified concept for how it intends to employ its incoming deep-ranging platforms to achieve advantage in depth. To remedy this, Army must expand its concept of land power to include methods of credibly competing in areas of the battlespace beyond the influence of its close combat formations. To create a deep battle concept, one must consider the evolving nature of war, as well as modifications to the way Army views both its enemy, and the purpose of land combat. Furthermore, a deep battle concept tuned for Australia's needs should consider the themes of deterrence, information dominance, and multi-domain access.

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1   The deep areas is defined as the area that extends beyond subordinate unit boundaries out to the higher commander's designated AO – ATP 3-94.2 Deep Operations, September 2016

Warfare Evolving

Any consideration of Army's future application of land power would be incomplete without due regard for the growing interconnectedness between the close and deep battlespace. While deep battle concepts have existed since WWI, technological advancements have markedly altered the means of executing them.[2] For example, indirect fires systems can reach further and at greater speeds. Sensors, both crewed and uncrewed, have made fire power more accurate. The digital and information age have fused sensing, shooting and decision-making cycles, acting as a kill-chain accelerant. In step with such technological developments has been the professionalisation of battlefield targeting procedures. Russia, for example, has created teams composed of intelligence, fire control and fires delivery staffs who together form 'strike complexes'.[3] Furthermore, global military powers are investing heavily in sensor-shooter fusion from the tactical through to operational levels, providing them the ability to deliver fires at ranges up to 35,000 km from land.[4] The last decade has seen what Palazzo terms the institution of 'the 2000 km kill zone', muddying the distinction between the close and deep battlespace.[5] As the time of writing, the destructive effect of long-range fires on land operations is being demonstrated daily in the Donbas region of Ukraine. These developments are occurring irrespective of Australia's preparedness for them, thus underscoring the importance of conceptual development.

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2   McPadden, Christopher P., "Mikhail Nikolayevich Tukhachevsky (1893–1937): Practitioner and Theorist of War".

3   Grau, Lester W., Bartles, Charles K., 2018. "The Russian Reconnaissance Fire Complex Comes of Age, May 2018", in Changing Character of War Centre, University of Oxford, http://www.ccw.ox.ac.uk/blog/2018/5/30/the-russian-reconnaissance-fire-complex-comes-of-age

4   Gatopoulos, Alex, Russia's Sarmat and China's YJ-21: What the Missile Tests Mean, Aljazeera, 22 Apr 22, https://www.aljazeera.com/features/2022/4/22/russias-sarmat-and-chinas-yj-21-what-the-missile-tests-mean

5   Palazzo, Albert, Crossing 2000 Kilometres of Death, Land Power Forum, 17 Sep 2019, https://researchcentre.army.gov.au/library/land-power-forum/crossing-2000-kilometres-death

Army's Concept of the Adversary

The development of a deep battle concept should begin with the adversary. As a concept, deep battle is incongruent with Army's concept of a classical training adversary. For decades, Army's warfighting exercises have focused on close battle against conventional formations. During training, the enemy is traditionally characterised along continental Cold War themes: as an assortment of line combat units. Although this close battle mind-set is essential, it potentially overlooks contemporary developments. The recent infusion of information warfare in the battlespace, as well as the concepts of 'unrestricted' and 'hybrid' warfare, pose questions about how Army applies violence.[6] Most crucially, these new concepts enable adversaries to initiate targeting and theatre-setting campaigns across great depths of the battlespace.[7] Paired with this is the challenges presented by systems overmatch in firepower, force projection, and sensing. For example, the United States, Russia and China each field long range land-based strike capabilities that are paired with dedicated drone units to enable the delivery of fires deep into their enemy's rear areas.[8] These complexities necessitate that Army's perception of the adversary matures from a collection of line combat units to a network of diverse combat systems operating at depths: both in and beyond the confines of the close battle. If Army treats these as problems for another service to solve, it is liable to be dominated by them.

6   Chivvis, Christopher S., Understanding Russian Hybrid Warfare, 2017, RAND Corporation, Santa Monika, California, 3-5.
    Commin, G; Filiol, E., "Unrestricted Warfare versus Western Traditional Warfare: AComparative Study", in Journal of Information Warfare, Vol 14, Issue 1, (2015).

7   Brady, Anne-Marie, "China in the Pacific: from 'friendship' to strategically placed ports and airfields", ASPI Strategist, 20 Apr 2022, https://www.aspistrategist.org.au/china-in-the-pacific-from-friendship-to-strategically-placed-ports-and-airfields/

8   Sunil Nair, Advancing Artillery: Improving Accuracy, Range, and reaction time for the 'King of Battle', Janes, 29 Jun 2021, accessed Dec 2021, https://customer.janes.com/Janes/Display/BSP_559-IDR

Army's Concept of Land Combat

Crucial though it is to understand our enemy, a concept for deep battle also requires Army to broaden its concept of the role of land combat. Traditionally, Army conceives of joint land combat solely as the means of achieving decision. Deep battle, however, upends this formula by subordinating the role of land combat to an enabling action, rather than a decisive one. This is because the West is trending towards an increasingly multi-domain approach, where the primacy of a single service or domain is becoming irrelevant, and the coordination of the collective talents of the joint force is central. This trend recognises adversaries' improving deep battle capabilities, which they use to generate anti-access area denial (A2AD) threats. Against such threats, our traditional close combat formations may be rendered irrelevant until access to the battlefield is gained. In this context, a deep battle concept serves as a vehicle for Army to explore how land power can best *enable* the delivery of decisive fires and effects from the joint force. To train this concept is to challenge Army's bias towards fielding trinities of armour, infantry and artillery teams. Instead, Army's force elements may be composed predominantly of artillery, target acquisition and air defence systems, with a smaller proportion of other arms for force protection.

Theme One: Deterrence

Having discussed the context, the question arises as to the themes by which Army's deep battle concept should be defined. The first proposed theme is deterrence. Army is acquiring organic deep battle systems that may enable it to eventually range out to 500 km and beyond.[9] In Australia's Pacific operating environment, where armies must project via risky island-hopping bounds, 500 km holds significant deterrence value. For example, from Australia's northern coast, fires platforms armed with anti-ship effectors

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9   Malcolm Davis, "More work needed but precision strike missile a good fit for the Australian Army", ASPI Strategist, 18 Apr 2021, https://www.aspistrategist.org.au/more-work-needed-but-precision-strike-missile-a-good-fit-for-the-australian-army/

could range southern Papua New Guinea, and the Solomon Sea, presenting an anti-access deterrent. One such fires platform under consideration is the High Mobility Artillery Rocket System (HIMARS). The inherent mobility of HIMARS, or similarly equipped system, multiplies its deterrence value as it is C-130 deployable, making it rapidly force projectable to airfields throughout the Pacific. This projection of force is practiced routinely by the United States through the conduct of High Mobility Rapid Insertion (HIRAIN) exercises. The deterrence is amplified further when transposing the relative austerity of the Pacific environment, which would cause militaries to congregate at a small number of key ports. If Army, through pre-emptive positioning, could hold the ports at risk from an invading force, it would impose force projection and sustainment dilemmas on an adversary that are not easily remedied below the threshold of conflict. Should deterrence fail, Army's long-range effectors would reserve the capability to execute deep counter-preparation fires programs to degrade or deny logistic hubs before an invader's superior mass could materialise.

Theme Two: Information Dominance

The second theme of Army's deep battle concept should focus on information dominance. Tapping into the information environment would allow Army to influence targets at ranges far surpassing our greatest weapons, hence its importance to deep battle. Through information actions, target audiences could be convinced to resist an adversary's malign and invasive presence by disrupting rear lines of communication or providing the location of key adversary systems located beyond the range of our organic sensors. At the operational level, the adversary's branding of the conflict could be delegitimised and rendered untenable in the global commons.

These information effects will never advance beyond good ideas until a centralised coordinating function is assigned to orchestrate information effects in synchronicity with our kinetic warfighting effects. To do this

requires Army to build both an appetite and understanding of information effects in a manner equal to its understanding of lethal effects. Such a capability is uniquely suited to Army. Specifically, on account of its persistent presence on the ground, Army constantly interfaces with human terrain, thereby unlocking reservoirs of intelligence and targeting potential. Unified under a central deep battle concept, Army could coordinate all levers of the information environment to collectively render the battlespace non-permissive to the adversary.

Theme Three: Multi-Domain Access

Finally, the third theme is multi-domain access, which is a perennial challenge to the achievement of deep shaping operations. Gaining access, and thereby the freedom of movement and opportunity in the deep, is an adversarial proposition. Typically, a multitude of anti-access threats, such as maritime cordons and integrated air defence, are arrayed to preserve the sanctity of the deep against interference. The cost of removing these obstructors has traditionally been born by Air Force and Navy. However, Army's acquisition of organic deep shaping fires and sensors would provide the means to contribute to the access battle. This would enable the use of long-range rockets, high endurance UAS, extended range artillery and improved attack aviation in a variety of methods. To achieve this, Army could provide another anti-access strike option that adds all-weather persistence to the presently transitory joint arsenal. This is called cross-domain cuing and target hand-off. Another method would be through deep shaping fires, whereby Army destroys or overwhelms support systems such as air surveillance radars or surface-air jammers. The cumulative attrition of these systems would then create entry windows for joint strike packages to exploit. Army could make unprecedented contributions to joint force synergy, signifying its maturation from a close battle centric organisation into one capable of waging deep battle. Although this topic is not alien to Defence's warfighting concept library, the Army is yet to generate a widely comprehensible vision to enable its realisation.

Conclusion

The creation of a deep battle concept would fill a widening gap in the Australian Army's approach to land power; particularly as Army's deep-ranging system acquisitions are yet to be rationalised under a unifying concept. A deep battle concept requires Army to recognise the increasing interconnectedness of the contemporary battlefield. It also requires adaptation of Army's concept of the adversary to include a complex network of systems operating both from and into the deep battlespace. Furthermore, Army's concept of land combat must expand to include its increasingly important enabling function. A deep battle concept relevant to Australia should be built on three themes. The first is the achievement of deterrence effects that maximise the use of long-range effectors to obstruct access to Australia's approaches. Secondly, complementing our lethal effects should be information actions, intended to impede adversary freedom of manoeuvre. Finally, the concept must also prioritise multi-domain access as a key prerequisite for exposing the enemy's target-rich rear areas. A deep battle concept will enable Army to graduate from a close combat force to an exponent of unified combat operations across close and deep areas.

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INTELLECTUAL TRANSFORMATION: PROFESSIONALISATION OF THE OTHER RANKS

John Wellfare

Army is transitioning to a more mechanised, mobile and protected force structure. Amid billion-dollar materiel investment, the 2016 Ryan Review,[1] a subsequent professional military education (PME) strategy[2] and its accompanying CA Directive 22/17[3] determined that the most pressing transformation that needs to occur in Australian land power is intellectual. Since then, a range of meaningful initiatives and contributions have made PME more accessible and prevalent in the Army training landscape.

One contribution of particular note came from COL Richard Barrett and was published in *The Forge*[4] in June 2020. In an essay titled *The Professions of Arms Needs a CPD Program,*[5] COL Barrett outlined a justification and structure for a formal program of continuous professional development (CPD) for the Australian Defence Organisation (ADO). This Land Power Forum Post supports COL Barrett's proposal, both conceptually and in detail, and aims to build upon it. It does so in a bid to resolve a challenge faced by many leaders throughout the organisation – how to achieve professionalisation of the ADF at the other ranks (OR) level.

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1   Ryan, M. BRIG (2016) *The Ryan Review: A Study of Army's Education, Training and Doctrine Needs for the Future*, Australian Army, available at: https://researchcentre.army.gov.au/sites/default/files/2016_05_dgt_theryanreview_web.pdf

2   McDermott, T. LTCOL (2017) *Evolving an Intellectual Edge: Professional Military Education for the Australian Army*, Australian Army, available at: https://cove.army.gov.au/article/evolving-intellectual-edge-professional-military-education-australian-army

3   CA Directive 22/17, available at: drnet/Army/CA/Documents_Site/Pages/CA%20Directives.aspx (DPN only)

4   https://theforge.defence.gov.au

5   Barrett, R. COL (2020) *The Professions of Arms Needs a CPD Program*, Australian Defence Force, published 23 Jun 20, available at: https://theforge.defence.gov.au/publications/professions-arms-needs-cpd-program

The justification for a CPD program was laid out clearly by COL Barrett and should only need brief summation here. He argued that, if the military's goal was to achieve an intellectual edge, then all personnel needed to engage in PME throughout their careers. It follows that, if Army seeks to professionally develop its people through PME, then it needs a system that encourages, monitors and measures participation in the process. COL Barrett rightly pointed to the JPME curriculum as an ideal content base – advocating that access to meaningful and engaging learning material is an important CPD pillar. I would add that any practice of mandating a prescribed number of hours within the JPME curriculum every year is unlikely to have a transformative effect on intellectualism or professionalisation. Another important pillar will be learner choice, achieved through a tailored but broad CPD curriculum, encouraging exploration and intellectual curiosity rather than the completion of a rigid task-list. Two more pillars will be the modelling of intellectual behaviours by senior enlisted personnel, and the achievement of a cultural shift in the way Army views its ORs, including the level of professional responsibility it expects from them.

A simple and industry-standard CPD structure might assign a 'points value' to certain activity types. For example, twenty points for completing a Cove+ module, ten points for reading a book from a reading list and so on. Such an approach could require soldiers to accrue a certain number of points to progress through different stages of their careers. For example, a soldier may have to accrue 100 points to attain Private Proficient, and another 150 points – including at least 50 points from a leadership PME list – to be eligible to attend Sub 1. As with any CPD program, regular review of the structures and their effects on the program's goals would be key to maintaining its relevance.

Senior enlisted personnel at the corps, unit and specialisation level should be tasked to implement tailored PME options that contribute to CPD requirements. These options should naturally be relevant to soldiers' core roles. For example, a soldier might meet the CPD

requirements by completing a unit of study on Cove+, reading a book recommended by his platoon sergeant and then submitting an entry in his brigade RSM's essay competition. A different soldier in the same platoon might instead choose to read two books from the CSM's reading list, complete a different unit on Cove+ and produce a 40-minute presentation on the Battle of Cannae to deliver to the member's platoon. A third soldier may be interested in a book that is not on any reading lists, but makes a case for the book's relevance during monthly reporting and the section commander then assigns a points value to the reading.

This flexibility contributes to the much-needed choice component of professionalisation.[6] Soldiers who are in control of their PME options, able to pursue areas of interest and to satisfy curiosity, are far more likely to see themselves as professionals in a profession rather than workers simply conducting mandated training within mandated timeframes. Reading lists, research tasks and essay competitions released by senior enlisted personnel reinforce the message that the Army values knowledge and help dispel the myth that "old-school" soldiering is anti-intellectual.

Much of a CPD program's effectiveness will depend on how soldiers are motivated to engage with it. If PME is mandatory, then is there a punishment for failing to complete it? Social scientist Alfie Kohn suggests that influencing by punishment elicits, at best, "only resentful obedience" and at worst, "defiance, defensiveness, and rage."[7] A simple analogy is the application of traffic law. In this case, there is a punishment for exceeding the speed limit. As a result, most drivers habitually drive - not below the speed limit - but as far above it as they feel they can reasonably "get away with" without invoking

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6   Kohn, A. (1993) *Punished by Rewards: The Trouble with Gold Stars, Incentive Plans, A's, Praise and Other Bribes*, Houghton Mifflin Company, pp. 221-23

7   *Ibid.* pp. 135-36

the punishment.[8] Taking a similar approach to PME can hardly be expected to achieve an intellectually curious, innovative and quick-thinking force.

So, if punishing non-compliance is not the solution, should a reward be offered to encourage participation in a structured CPD program? Kohn suggests that - not only do rewards fail to influence long-term action - extrinsic motivators actually undermine an individual's intrinsic motivation to engage in a task.[9] This seems counter-intuitive. One would naturally assume that, given the offer of a reward for completing a task, one would be more motivated. And this is true. Rewards are highly motivating when it comes to completing quantitative tasks. For example, if the task is to read books and a reward of $10 is offered for every book read, it is likely that people engaged in the rewards program will be motivated to read more books. The quality of the books chosen, however, is likely to suffer. After all, why read T.E. Lawrence's 748-page *Seven Pillars of Wisdom* when Eric Carle's 22-page *The Very Hungry Caterpillar* nets the same $10 reward?[10]

This analogy speaks to why Skinnerian[11] motivation practices are effective in training dogs to perform tricks, but ineffective in motivating humans to perform better at qualitative tasks over the long term. By offering a reward for the quantity of books read, the focus

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8   Department of Infrastructure, Regional Development and Cities, *Community Attitudes to Road Safety – 2017 Survey Report*, Australian Government, S. 6.2 Acceptable Speed Tolerances, pp. 42-45, available at: https://www.infrastructure.gov.au/sites/default/files/migrated/roads/safety/publications/2018/pdf/community_att_17.pdf

9   Kohn, A. (1993) *Punished by Rewards: The Trouble with Gold Stars, Incentive Plans, A's, Praise and Other Bribes*, Houghton Mifflin Company, pp. 136-42.

10 In fairness, both books are worthy classics, the point of this reductio ad absurdum is only that Lawrence's work serves as more appropriate PME than Carle's.

11 Skinnerian: According to the teachings of B.F. Skinner, the "father of behaviourism" and creator of the theory of Operant Conditioning – the use of punishments and rewards to influence behaviour.
    Skinner, B.F. (1953 (original publication)) *Science and Human Behavior*, Simon and Schuster (original publisher). Digital edition referenced, published 2012 by Free Press.

shifts from an intrinsic motivation for engagement and learning to an extrinsic economic calculation of how to achieve the maximum reward for the minimum effort. There is also a more dangerous side effect of such motivation methods. Specifically, by shifting the focus from qualitative performance to gaining a reward or avoiding a punishment, in a corporate context the Skinnerian approach has been shown to motivate all manner of unethical and illegal practices.[12] For an organisation like the ADO, which counts "integrity" among its values, knowingly introducing such a system is untenable.

This being the case, the challenge remains to introduce a CPD program, with a particular focus on the junior enlisted ranks, while neither financially rewarding soldiers for engaging with the program - nor punishing them for failing to engage. The solution is not policy based. It is instead dependent on a mindset shift among those who train, manage and lead ORs. This in turn necessitates an understanding, among all who lead soldiers, of the Pygmalion effect[13] and the power

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12 Sinek, S. (2019) *The Infinite Game*, Penguin RandomHouse, Loc. 1955-1996 (Kindle edition)

13 In *Pygmalion in the Classroom*, Robert Rosenthal and Lenore Jacobson outline a study in which the authors identified to school teachers which of their students were expected, based on a "standardised test", to experience a "growth spurt" in their learning and performance over the coming year. In reality, the test was a standard IQ test and the students identified were chosen at random. Nevertheless, those students identified to teachers as expected to improve in the coming year did perform better than their non-identified peers in a subsequent IQ test. Rosenthal and Jacobson suggested that the teacher's change in expectation and consequent change in the teacher's treatment of the identified students led to a change in the students' expectations of themselves, which improved their performance. They further hypothesised that the opposite would also be possible (to lower a student's performance by lowering his teacher's expectations), but unethical to test in a live study. – Rosenthal, R. & Jacobson, L. (1968) *Pygmalion in the Classroom: Teacher Expectation and Pupil's Intellectual Development*, Holt, Rinehart & Winston. The term "Pygmalion" is a reference to a character in Roman poet Ovid's epic *Metamorphoses*. Pygmalion created a sculpture of a "perfect" woman with which he fell in love and began to treat as if it were a real person, so much so that the sculpture came to life. – Ovid (8 CE (original)) *Metamorphoses, Book X, Fable VII*, English version referenced, translated by Henry T. Riley, reprinted 2010 by Digireads.

it has to influence qualitative performance. Essentially, how a leader treats a soldier affects how the soldier sees himself, which affects how he acts. Breaking the Pygmalion effect's negative cycle requires leaders to resist the urge to reflexively introduce stricter controls in response to every breach of standards or behavioural shortfall.

A CPD program applied to an OR cohort of professionals could achieve force multiplying effects on an unquantifiable scale. A CPD program implemented as an additional burden on soldiers who lack the autonomy to pursue their own professionalisation will only rob already cynical junior enlisted personnel of any remaining enthusiasm. To make CPD work (indeed to make an intellectual edge work), leaders at all levels must treat soldiers like the professionals they are. Further, senior enlisted personnel must model the knowledge-seeking behaviours desired of their subordinates. Finally, soldiers must have a wide array of options available to engage with the CPD program and those options should be open to expansion at the discretion of the participants themselves. Penalties and inducements to engage with PME must be handled delicately, through collaborative meetings and routine reporting, and not overshadow the goal of the CPD program. After all, that goal is to professionalise the force, not simply to achieve a certain number of ticks in a certain number of boxes. If all this can be accomplished, then a CPD program offers considerable potential as the foundation of Army's intellectual edge.

TRANSFORMING LAND POWER FROM THE AIR: CLOSE AIR SUPPORT WITH UNMANNED COMBAT AERIAL SYSTEMS

James Eling

> *"Strategy sometimes matters a lot."*
> *John Mearsheimer*

Introduction

The 2020 Defence Strategic Update (DSU), the most recent articulation of Australian military strategy, describes the objectives to shape, deter and respond as the centrepiece of the Australian defence strategy.[1] The strategic situation has worsened since the DSU's release with war in Ukraine, and increasing Chinese belligerence, increasing the requirement for a credible ability to shape, deter and respond.

This Land Power Forum Post will argue that Australia should look to develop a sovereign manufacturing capability for Unmanned Combat Aerial Systems (UCAS) – drones capable of delivering kinetic effects to provide a scalable, effective and agile capability for our soldiers. This sovereign UCAS capability will augment ADF combat power generation, increase the complexity of the modern battlefield for our enemy and, by using 'Drone Diplomacy,' provide strategic shaping capabilities for Australia throughout the Indo-Pacific region.

The evolution of the Unmanned Aerial System

Many US drones are complex, expensive and complicated to operate. They are not systems that can be ramped up quickly or economically to meet the requirements of conventional warfighting. They have been developed for the engagement of High-Value Targets, often individuals

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1   Department of Defence, *2020 Defence Strategic Update*, Canberra, Commonwealth of Australia, p. 24.

or small groups, not the conduct of the conventional war on the modern battlefield. Their complexity and expense creates a logistic burden that would be difficult to sustain in high tempo conflicts. The risk of a shortage of drones would be akin to the shell crisis of 1915, where operations were dramatically limited whilst manufacturing capability was developed to meet the unprecedented demands of combat.

The Turkish company, Bayraktur, diverged from the US way of UAS development. It developed the TB-2, an austere, but capable, low cost (low 7 figures) platform. It is battle-proven in Syrian, Nagorno-Karabakh and Ukrainian conflicts. The TB-2 is a medium-range, long-endurance (MALE) UAS. It cruises at 70 knots and has a range of 4,000 km. The service ceiling is 25,000 feet and its endurance is 27 hours. It is capable of carrying a range of ordnance including laser-guided rockets, a quad rack of GPS/INS guided 81 mm mortars and guided bombs. Given its simplicity, affordability and reliability, its success has seen it named the 'Kalishnakov of the sky'.[2]

Arguments that the TB-2 was too simple to be effective on the modern battlefield did not take into account dispersion across the battlefield. The openness of the modern battlefield enables UCAS to not only operate through the GBAD gaps but also avoid combat air patrols – there are simply not enough AD assets and fighters to deny all UCAS the ability to operate.

Tanks vs Drones

Recent conflicts have made it clear that the characteristics of modern war are changing, with armed forces attempting to anticipate how future combat will evolve. The discussion around UAS quickly devolves into a 'tank vs drone' argument. It is important to recognise that the nature of the modern battlefield is only partially a mystery. Part of the battle – our part - will be dictated by our doctrine, equipment and culture. The art is ensuring that the combat power these elements combine to generate provides the required capabilities to defeat the enemy.

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2   Kasapoglu,C., Bayraktar (Story of a Drone) podcast, *Modern War Institute at West Point*, 2022.

Conflict in Nagorno-Karabakh and Ukraine enables the extrapolation of the kinds of tasks the ADF will be required to perform and the capabilities they will require. Strategic imagination[3] should be used to consider issues like logistic supply, expected sortie rates and combat casualties replacements. The same imagination will also be needed to determine exactly how will CAS be provided to troops in contact. The 1,000-foot air battle has been described as an existential fight for ground formations,[4] but UCAS are not a panacea for all of the ills of the modern battlefield. They still require integration, synchronisation and orchestration. Combined arms is not dead, it has just evolved. Reducing the UCAS question to tanks versus drones risks ignoring the lessons from recent conflict, just as the Russo-Japanese war was largely ignored, to the great detriment of all participants in WW1.

Turkey and the Baytraktur TB-2

The development of the Baykar family of drones is not just about effects on the battlefield. Turkey has developed a strong export market for drones, it has exercised strategic power through 'drone aid' and it has been able to achieve independence from weapons importation. Most importantly the TB-2 was developed to integrate with a Turkish strategic concept of war.

Australia, with an Australian made drone, would be able to cheaply augment the forces of many of our near allies. This drone diplomacy would provide capability to our partners along with making Australia a more attractive alliance partner. This would enable Australia to better shape our strategic environment and would also support partners as they look to deter aggression and transgression of the rules-based order.

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3   Sargeant, B., Challenges to the Australian Strategic Imagination, *The Centre of Gravity Series*, Strategic & Defence Studies Centre, 2021.

4   Barrick, T., On Future Wars and the Marine Corps: Asking the right questions. *War on the Rocks*, April 12, 2022, https://warontherocks.com/2022/04/on-future-wars-and-the-marine-corps-asking-the-right-questions/, (accessed 29 May 2022).

Footage from TB-2 strikes have formed an integral role in Information Operations. Armenian drivers in Nagorno-Karabakh were handcuffed to their vehicles to overcome their fears of drone strike. Azeri drone footage reinforced the dominant narrative of Azeri superiority and undermined Armenian morale. Ukraine has reinforced international perception of its capability and strike footage has amplified the effect on Russian troop morale.

Australian Way of War

The current strategic environment sees the possibility of the ADF operating in multiple AOs simultaneously. This will place significant demand on ISR and CAS assets. It will demand the development of low cost, scalable solutions and doctrine to provide greater flexibility on the battlefield.

As Napoleon said, 'Quantity has a quality all of its own.' The reliance on premium capabilities has created a wide range of capabilities with little depth. This lack of depth minimises ADF resilience in the face of persistent high tempo operations. It is unlikely that some platforms will be able to manage the maintenance requirements for high tempo warfare for longer than 90 days, let alone replace losses from combat and accidents. As all nations involved persist, the average quality and capability of systems employed will decline, shifting the balance to those with larger numbers with less logistics overhead.

The Ukrainian Army has looked to UAS to bolster a range of capabilities using non-traditional methods. In April 2022, it requested volunteers from the population with experience flying consumer-quality drones to augment ISR capabilities. It has also resorted to using COTS UAS to drop grenades in plastic cups on Russian troops. It would be unthinkable to consider the Australian Army employing these methods. However, strategic imagination could envisage multiple scenarios in which the ADF would be found wanting in UAS capabilities. Bolstering UCAS capabilities now provides a robust solution when it is required, rather than cobbling together less than satisfactory solutions after operations have commenced.

The 90-day Challenge – Agile Manufacturing

SpaceX has fundamentally changed the space domain, decreasing payload lift costs from USD 30,895 to just 2,720. This is a 90% fall in cost.[5] Baykar is running a similar agile methodology for UCAS development.

Agile manufacturing processes could rapidly develop prototype UCAS. This would encourage local economic activity and support sovereign manufacturing and IP development. This could be started with a 90-day challenge.

The concept of a 90-day challenge is not be without precedent. In WW2, the RAAF struggled to source fighters and so Australia resorted to the development of a sovereign manufacturing capability to quickly deliver aircraft. This was achieved through the development of a fighter plane design process which leveraged existing capability and local manufacturing skills. The process started on 21 December 1941, and the first Boomerang fighter flew on the 29th of May, 1942, just 5 months later.[6] Ultimately, Australia would produce 250 of these planes, which found a niche as CAS aircraft. The Boomerang was developed as all fighter manufacturers ceased exporting due to operational requirements of home Air Forces. This scenario may have parallels in the future.

The benefit of a 90-day challenge today is that design can evolve through multiple 90-day sprints and that the ADF and Australian industry have the strategic time available to devote to this endeavour. In the future, if decisively engaged, the ADF would not have the time nor the resources to develop as quickly a sovereign drone capability.

5   Whitman Cobb, W., How SpaceX lowered costs and reduced barriers to space, *The Conversation*, 2019, https://theconversation.com/how-spacex-lowered-costs-and-reduced-barriers-to-space-112586, (accessed 29 May, 2022).

6   Weston, B., *The Australian Aviation Industry: History and Achievements Guiding Defence and Aviation Industry Policy*, RAAF Air Power Development Centre, Working Paper 12, 2021.

Sovereign manufacturing capabilities should also look towards software development, a key component of UCAS capability. Future battlefields could see GPS and communications degraded environments. Software with machine learning and artificial intelligence will mitigate these risks, and enable UAS missions to continue. Swarming capabilities, which RAND wargames have shown to be decisive in Taiwan Straits conflicts,[7] is another area of software that should be developed.

Conclusion

Technological development has changed war. Turkey has reaped the benefits of these changes by developing the TB-2 UCAS. They have produced an extremely cost-effective platform, with a wide range of capabilities across anti-armour, SEAD, maritime strike, ISR and deception operations. This capability has benefited their strategic power projection through drone diplomacy.

Given the rapidly deteriorating strategic situation that Australia faces, the nation would benefit immensely from a rapid design process to create a sovereign manufacturing capability for UCAS. Not only would this augment Australia's warfighting capability, but it would also assist in shaping and deterring foreign aggression. 'Drone diplomacy' could assist in developing mature and resilient relationships with our near neighbours and help deny foreign influence developing further within the Indo-Pacific region.

7   Hamilton, T., & Ochmanek, D., *Operating Low-Cost, Reusable Unmanned Aerial Vehicles in Contested Environments*, RAND Corporation, 2020.

TRANSFORMING LAND POWER FROM TANKS TO ROBOTS: REIMAGINING LAND WARFARE THROUGH TECHNOLOGY

William Hill

Robotic and Autonomous Systems represent the potential future of land warfare where militaries can effectively strike their opponents while removing humans from the conflict zone.

Looking back at his experiences leading up to the Second World War, in *The Gathering Storm* Winston Churchill quipped that, "the War Office is always preparing for the last war." Churchill was chiding the tendency of military planners not to appreciate the potential of new technologies in war, and not to adapt their strategies accordingly. While it might take time to recognise the full potential of Robotic and Autonomous Systems (RAS), Army should not make the mistake of assuming that our current land capabilities represent the future of land warfare.

In order to avoid the same trap Churchill was warning against, it is worth examining one of the key examples of the evolution of land warfare: the tank. The tank represented both a transformation and a tragically missed opportunity for land warfare after the appalling and wasteful attrition of the First World War. When first deployed onto the battlefield, the technology and tactics of tank warfare did not live up to expectations. However, their potential for transforming warfare away from the conventional practice of entrenched and defensive combat quickly became evident.

The experience of Churchill's contemporary, General Charles De Gaulle, offers a cautionary tale of the consequences of failing to adapt when technology transforms war. As a junior officer, De Gaulle came away

from the trenches determined to break away from the established French military thinking that dictated static defence reinforced by sheer numbers of soldiers; the 'nation in arms' concept. While the French general staff did not see the potential for armored warfare, De Gaulle developed and advocated a military strategy built around rapidly deployable and highly maneuverable concentrated armored units. Judging that the established strategies were sufficient, and that tanks would (at best) have a future as a supporting capability, the French military approached the Second World War without the capabilities that De Gaulle envisioned, and which the German Army had largely adopted.

De Gaulle recognised that land warfare had to evolve in response to new technology and the associated need for technological solutions in the battlespace. Prior to the First World War, the classical European conception of land warfare centered on large infantry forces fighting in a limited space with artillery support at a limited range. Heavy artillery increased the depth at which opposing forces could inflict damage on each other, and the introduction of machine guns on the frontline increased the danger to attacking infantry forces. The First World War was fought by the French despite the changes brought about by these technological advances. However, if the French had failed to learn the lessons of armored warfare during WWI, the German *Panzer* forces of the Second World War demonstrated their effectiveness beyond doubt, cementing their relevance to even the most reluctant French military thinkers.

Looking forward, almost 80 years since the end of the Second World War, technology has transformed the nature of warfare nowhere more so than in the domain of land combat. Much like the changes that led strategists to prioritise mobile armored units in order to retain the advantages of speed and firepower, the transformation underway at present also calls for new technologies and concepts of warfighting.

Before considering how land combat capabilities should evolve, it is necessary to understand the major changes redefining warfare. Specifically, in recent years there have been many technological advances across the domain of land combat, ranging from improved precision targeting, strike range and personal protective equipment. But the most significant change is the modern phenomena of battlespace awareness and visibility. Never before have modern militaries enjoyed such capacity to achieve multi-spectrum awareness of land terrain, enemy forces, supply lines and supporting infrastructure. Through satellites, electronic surveillance and aerial monitoring (to name a few such capabilities), modern militaries can maintain near constant awareness of the locations of an opponent's forces; diminishing if not quite eliminating the capacity for tactical surprise.

During the Second World War Battle of the Bulge, the German Army was able to launch an offensive attack involving 1,500 tanks and upwards of 400, 000 troops, taking the Allies completely by surprise. Today, it would be practically impossible to achieve such a feat. Barring an extraordinary failure of intelligence and surveillance, a land force of that size (and even smaller) could not mobilise undetected, let alone deploy without its movements being observed.

The capabilities required to effect battlespace awareness are no longer the sole preserve of Australia and its allies. Potential adversaries are building the capabilities that will allow them too to gain a complete picture of their foes' military forces. Recognising that the future of modern warfare will be shaped by militaries that all enjoy maximum awareness of their opponents' forces, there is a debate to be had about the utility of deploying manned land forces in combat. A force that can't conceal itself can't achieve tactical surprise. Opponents will inevitably be aware of the force's capabilities and direction, will have ample time to impede its advance, and will be able to target the force with their own strike capabilities. An example is when the conventional Iraqi forces were confronted by US led multinational forces in two wars. As an early example

of this military technological transformation in action, the coalition enjoyed overwhelming advantages in its surveillance capabilities. The essential point here is that, through greater battlespace awareness, future militaries will possess the means to inflict greater damage on their opponents, increasing the risk to exposed ground forces.

Future manned ground forces will be confronted with more capable opponents, and will operate under greater exposure to enemy capabilities. In response, military planners need to confront the increasing likelihood of more lethal fighting conditions and to balance the associated risk in a new way. Seeking to develop means to disrupt an opponent's battlespace awareness in order to maintain present warfighting strategies is one option. But there is also a potential technological solution that involves, not simply supplementing, but revolutionising land combat.

Reducing the exposure and risk faced by soldiers in the field has been a priority for modern armies since the First World War. The introduction of the tank into warfare served the dual purpose of achieving a maneuverable means of striking power while at the same time reducing the casualties suffered by infantry forces in previous wars. The next transformation should look to a future in which manned capabilities are replaced by unmanned capabilities. RAS are being increasingly used for specific missions to reduce the risk to soldiers such as bomb disposal, mine clearance, low-level aerial surveillance and drone strikes. While these are examples of RAS being used in a supplemental fashion, there is strong evidence that they can become the core of future land warfare strategy much like the tank was.

The 2020 Nagorno-Karabakh War provided evidence of a military exploiting Unmanned Aerial Vehicles (UAVs) to their tactical advantage against a conventional enemy with equal capabilities. Although the Azerbaijani military certainly utilised conventional capabilities and tactics, their use of UAVs for surveillance and strike demonstrated their capacity to provide fire power while reducing the exposure of troops in battle.

The future use of unmanned ground vehicles (UGVs) represents the logical extension of remotely guided and autonomous military capabilities and the further removal of personnel from the battlespace. Unmanned military combat systems that retain the ability to traverse vast areas and strike enemy forces will also allow for more expansive deployment options as the degree of human exposure to enemy fire will be reduced. A military force that has a zero (or a very minimal human component) can be deployed against a more superior force as a means of distraction. This will allow other units to engage in more favorable (and less risky) engagements thus reducing causalities.

At present, it appears unlikely and unworkable for any military to commit to the concept of an almost totally unmanned force. Nevertheless, UAVs have proven their capacity in air-to-ground strikes and UGVs are fast in development. As a controlling mechanism, Artificial Intelligence is growing increasingly sophisticated and will further enhance the capacity for more conventional military capabilities to be converted into unmanned systems.

Whatever the military technologies of the future are capable of, it is essential that their use is given full consideration and that no option for major redesigns of force structures and battlefield tactics is discounted. Churchill and De Gaulle both learnt through bitter experience that the 19th Century tactics adopted in the First World War were out of date and resulted in tremendous human waste for little military gain. De Gaulle then labored, unsuccessfully, to convince his military to abandon past practices and to recognise the potential of rapid armored warfare built around the tank, a capability that did not live up to its potential in the First World War but by the Second certainly had. Unmanned capabilities are growing in use and sophistication and represent the transformation of land combat to a point where humans are removed from the battlespace while retaining and, indeed, enhancing Army's ability to deter its opponents.

COMMENDED

AN AUSTRALIAN ARMY APPROACH TO 'TRANSFORMING LAND POWER': EIGHT STAGES FOR SUCCESSFUL TRANSFORMATION

Chris Field

Introduction

John P. Kotter, the Konosuke Matsushita Professor of Leadership, Emeritus, at the Harvard Business School, argues that successful transformation requires time to succeed, usually measured in years. Kotter emphasises that successfully transformation includes eight distinct stages, worked through in sequence.[1]

The success of any given stage of transformation depends on the work done in previous stages. A critical mistake, or skipping a step, in any of the stages, can have a devastating impact. Kotter forewarns that, 'perhaps because we [all] have relatively little experience in renewing organisations, even very capable people often make at least one big error'.[2]

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1   John P. Kotter, *Leading Change: Why Transformation Efforts Fail, Harvard Business Review*, Harvard Business Publishing, Boston, Massachusetts, May-June 1995 https://hbr.org/1995/05/leading-change-why-transformation-efforts-fail-2 [accessed 13 May 2022]

2   John P. Kotter, Ibid.

Kotter's eight stages of transformation are:

1. Establishing a sense of urgency.
2. Forming a powerful guiding coalition.
3. Creating a vision.
4. Communicating the vision.
5. Empowering others to act on the vision.
6. Planning for and creating short-term wins.
7. Consolidating improvements and producing still more change.
8. Institutionalising new approaches.[3]

Employing Kotter's eight stages of transformation, the purpose of this paper is to examine how the Australian Army could approach *transforming land power.*

What is 'Transforming Land Power'?

In 2004, Christian L van Tonder, observed that 'by far the most common practice observed in [his] literature [review], is the tendency of authors to use the term *transformation or transformational change* freely yet without explicitly defining it'.[4] Christian van Tonder continues, 'although an implicit definition is sometimes apparent in these instances, it is exceedingly difficult to extract clear meaning parameters about the nature of this type of change'.[5]

Following his literature review, van Tonder settled on the following definition of *transformation*:

> *… a type of change that is not only comprehensive in its scope and severity but likely to unfold quite rapidly to a point where its impact on the organisation will be irreversible*

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3   John P. Kotter, Ibid.

4   CL Van Tonder, *"Organisational Transformation", Wavering on the Edge of Ambiguity*, South African Journal of Industrial Psychology, 2004, 30 (3), p. 54

5   CL Van Tonder, Ibid.

*and evident in a total state change i.e. the organisation's
character, form and appearance will display this discontinuity
with the pre-transformation state of the organisation.[6]*

Reflecting van Tonder's observations on imprecise definitions,
the *Australian Defence Glossary* provides 22 references to
transformation including: transformation centres; representatives;
command; logistics; processing, exploitation and dissemination; voltage;
serious games; escalation/de-escalation; encryption; polymerisation;
reform; mobilisation; preparedness; capability; climate; cryptography;
digital signature; mission data; and, resilience.[7] None of these 22
references, however, describe people, leadership or organisations.

Fortunately, the Australian Army's *Land Warfare Doctrine 1:
The Fundamentals of Land Power*, more precisely, defines 'land power' as:

> *The ability to project force in and from land in peace, crisis
> and war to achieve strategic and operational objectives.[8]*

Combining van Tonder's and the *Land Warfare Doctrine 1's* definitions,
it is possible to define *transforming land power* for the Australian Army as:

> *Comprehensively changing the Australian Army's ability,
> in scope, range and speed, to project force in and from land
> in peace, crisis and war to achieve strategic and tactical
> objectives, through operational art, to a point where change
> in the Australian Army becomes irreversible and evident in
> total force effectiveness. In other words, the Australian Army's
> character, form and appearance display a discontinuity with
> the pre-transformation state of the Army.*

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6   CL Van Tonder, Ibid.

7   Australian Defence Glossary, 'transformation' http://adg.dpe.protected.mil.au/Search/
     Quick [accessed 15 May 2022]

8   Australian Army, Land Warfare Doctrine 1, *The Fundamentals of Land Power*,
     Canberra, 2017, p. 48

Based on this definition, it is self-evident that *transforming land power* is a serious business.

An Australian Army Approach to 'Transforming Land Power': Eight Stages for Successful Transformation

The Australian Army consists, broadly, of three capabilities available for employment:

- Combined Arms Manoeuvre Forces. Unifying interdependent, collaborative and mutually supporting teams of armour, infantry, aviation, fires, close support forces, such as engineering, communications, uncrewed systems, and logistics.

- Amphibious Forces. Specialised units which - mission and task dependent - join with combined arms manouevre forces and Special Forces.

- Special Forces. Specialised units which - mission and task dependent - join with amphibious forces and combined arms manouevre forces.

Changes in policy and strategy inevitably require changes in operational art and tactics. For example, Australian government policy decisions may, in the future, change Australian strategic objectives. In turn, changed strategic objectives may require the *transformation of land power* to include changes to the three capabilities available for employment within the Australian Army.

Such a development could mean that the Army's 'character, form and appearance [may] display a discontinuity with the pre-transformation state of the Army'.[9] This process of change - connecting policy, strategy, operational art and tactics - could be achieved within the conceptual framework outlined in Kotter's eight stages of transformation. Specifically:

9   CL Van Tonder, Op Cit.

1. **Establishing a Sense of Urgency.** Significant numbers of influential leaders throughout the organisation must see the need for change and then 'cooperate aggressively' to achieve change.[10] These leaders must understand that 'business-as-usual is totally unacceptable'.[11]

   This need for change may derive from the urgency of an impending or actual conflict or crisis. Alternatively, change may result from internal or external organisational pressures, including budgetary changes, capability success or failure, or recruiting / retention challenges. According to Kotter's observations, 'well over 50 per cent of companies fail in this first phase'.[12]

2. **Forming a Powerful Guiding Coalition.** Leaders must create a shared commitment, or 'minimum mass' to enable renewal.[13] Key leaders form the core of a coalition for change representing a mix of 'titles, information and expertise, reputations and relationships'.[14] To enable transformation, these leaders may need to operate 'outside formal boundaries, expectations, and protocol'.[15]

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10 John P. Kotter, Op Cit.

11 John P. Kotter, Ibid.

12 John P. Kotter, Ibid.

13 John P. Kotter, Ibid.

14 John P. Kotter, Ibid.

15 John P. Kotter, Ibid.

3. **Creating a Vision.** In failed transformations, Kotter 'often finds plenty of plans and directives and programs, but no clear and compelling vision'.[16] For success, a vision requires a 'picture of the future that is relatively easy to communicate and appeals to government, stakeholders, and employees'.[17] Without a 'sensible vision, a transformation effort can easily dissolve into a list of confusing and incompatible projects that can take the organisation in the wrong direction or nowhere at all'.[18]

4. **Communicating the Vision.** Responding to a sense of urgency requires maximum employment of fast communications.[19] Leaders must be able to communicate their vision in three minutes or less, while evoking a reaction from stakeholders indicating both understanding and interest.[20] Leaders who 'communicate well incorporate messages into their hour-by-hour activities'.[21] In Kotter's view, 'transformation is impossible unless hundreds or thousands of people are willing to help, often to the point of making short-term sacrifices.

   Employees will not make sacrifices, even if they are unhappy with the status quo, unless they believe that useful change is possible'.[22]

16 John P. Kotter, Ibid.

17 John P. Kotter, Ibid.

18 John P. Kotter, Ibid.

19 John P. Kotter, Ibid.

20 John P. Kotter, Ibid.

21 John P. Kotter, Ibid.

22 John P. Kotter, Ibid.

5. **Empowering Others to Act on the Vision.** Obstacles to transformation, requiring momentum, power, or time to overcome. Such obstacles may include:

- Rigid organisational structures blocking the unconventional ideas that are called for in the vision.

- Narrow or specialised job categories that undermine efforts to increase productivity.

- Changes in compensation or performance-appraisal systems that require people to choose between the new vision and their own self-interest.

- Leaders who refuse to change.[23]

Empowering others to act on a vision includes crossing organisational boundaries to unify disruptive and diverse thinkers; expanding people's employment experience within and beyond Defence; and, nurturing creative thinking, when and where it is found, in our workforce.

6. **Planning for and Creating Short-Term Wins.** Leaders 'often complain about being forced to produce short-term wins', but Kotter observes 'that pressure can be a useful element in a change effort'.[24] Kotter argues that short-term wins in successful transformation involved leaders 'actively looking for ways to obtain clear performance improvements, establish[ing] goals in the yearly planning system, achiev[ing] the objectives, and reward[ing] the people involved with recognition, promotions, and even money'.[25]

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23 John P. Kotter, Ibid.

24 John P. Kotter, Ibid.

25 John P. Kotter, Ibid.

7. **Consolidating Improvements and Producing still more Change.**
Kotter emphasises that 'until changes sink deeply into
an organisation's culture, a process that can take five
to ten years, new approaches are fragile and subject to
regression'.[26] The protracted time periods involved in achieving
transformation is supported by the late-Professor Jeffrey Grey
who first articulated the idea of Australian Army 'generations'.
Grey argued that each Army generation – 1901-1939 (1st),
1939-1945 (2nd), 1946-1999 (3rd), 1999-early 2020s (4th) –
has built and culminated in conflict, then entered periods of
peace, before transforming to the next generation.[27] It is arguable
that, due to contemporary changes in the strategic environment
and associated revised strategic thinking, the fourth-generation
Australian Army of today will gradually transform to become
the fifth-generation Army.[28]

Kotter notes that 'a combination of change initiators and change
resistors [usually] create premature transformation victory
celebrations'. Change initiators seek success to justify their
transformative actions. Resistors, who are quick to spot any
opportunity to stop change, support the enthusiastic declaration
of success by change initiators. In turn, 'weary employees allow
themselves to be convinced' that transformation has occurred.[29]

26 John P. Kotter, Ibid.

27 Chris Field, *The Fifth-Generation Australian Army-Leadership and Ethics in 2040*,
Australian Army Research Centre, Australian Army Occasional Paper No. 10,
Commonwealth of Australia, 2021, pp. 5-6

28 Chris Field, Ibid.

29 John P. Kotter, Op Cit.

8. **Institutionalising New Approaches.** Enabled by a communicated vision, *transformed land power* seeks to build upon success and to learn from failure in order to realise change. Importantly, leaders must show people that new behaviours and approaches to *transforming land power* effectively employ Defence resources while improving Army's performance.[30]

Conclusion

Employing John P. Kotter's eight stages of transformation, this paper has examined how the Australian Army may approach *transforming land power.*

Transforming land power is a serious business, especially when it involves comprehensively changing the Australian Army's ability, in scope, range and speed, to project force in and from land in peace, crisis and war to achieve strategic and tactical objectives, through operational art. In turn, successful transformation creates irreversible and evident change in the total force's effectiveness. In other words, once transformed the Australian Army's character, form and appearance will display a discontinuity with the pre-transformation state of the Army.

Importantly, as Kotter forewarns, transformation is difficult, 'perhaps because we [all] have relatively little experience in renewing organisations, [which means] even very capable people often make at least one big [transformation] error'.[31] Ultimately, overcoming obstacles to change requires the steadfast commitment of Army's leaders and a clear vision of Australia's strategic requirements for our future force.

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30 John P. Kotter, Ibid.

31 John P. Kotter, Ibid.

LIQUEFIED NATURAL GAS: KEEPING AUSTRALIA IN THE FIGHT

Connor Cruickshank

Introduction

Australia presently has almost zero capacity to produce its own diesel. In times of conflict, when naval blockades and A2/AD operations would prevent large fuel carrying ships from reaching our shores, our warfighting capability would be drastically reduced to just a few short weeks.

Wouldn't it be great to provide a contingency for the warfighter by utilising a liquid fuel that Australia leads the world in producing – liquefied natural gas, (otherwise known as LNG)? My proposed modular LNG tank system solution would make fueling up your combat vehicle on the battlefield as easy as changing the gas bottle on your backyard BBQ!

LNG is already a major transport fuel in many parts of the world, distributed via Virtual Pipeline techniques. Having a fuel source right in our own backyard also keeps 19,000 Australians employed if conflict were to come to our shores, as LNG production will grind to a halt if the LNG ships can't leave port and storage tanks reach capacity. My proposal would redirect this export fuel to the ADF and extend our warfighting capabilities indefinitely, and therefore help to KEEP AUSTRALIA IN THE FIGHT!

Existing LNG Production Infrastructure

The volume of natural gas in vapor form shrinks 600 times when liquefied. Australia has an existing cryogenic liquid storage capacity in excess of 3,168,000 nominal cubic meters, spread out across the continent at strategic locations (equating to almost 2 billion cubic meters of gas). These locations are:

- Darwin: 488,000 nm3
- Gladstone: 880,000 nm3
- Barrow Is W.A.: 360,000 nm3
- Karratha: 1,140,000 nm3
- Onslow: 300,000 nm3
- West Kimberly: 70,000 nm3
- Kwinana: 4000 nm3
- Dandenong: 5000 nm3
- Adelaide (TBA)
- Wollongong (TBA)

In 2021, Australia produced 81 million tonnes of LNG. Given that one cubic meter of Liquefied Natural Gas weighs 493 kilograms, which equates to a staggering 97 billion cubic meters of natural gas per year! Therefore, an Army possessing a combat and logistics fleet that was capable of using both diesel and natural gas would have an almost LIMITLESS supply of fuel.

The LNG industry currently employs 19,000 workers. Hostile A2/AD actions in the sea lanes approaching Australia would prevent LNG carriers from leaving port, and LNG production would have to stop as storage tanks reached their maximum limits. Re-directing the LNG to the war fighter would enable these industries to continue operating and maintain economic continuity.

Current LNG Engine Technology – Gas Turbines

LNG fueled engines are a Commercial off the Shelf (COTS) technology, in widespread use throughout the world in road, rail and marine applications. In fact, as far back as 1985, Textron Lycoming successfully tested the AGT 1500 gas turbine burning natural gas (methane) as a fuel, with significant reductions in nitrous oxides (NOx) and carbon dioxide when compared to traditional DF-2 fuel. U.S. President Joe Biden's announcement on April 26, 2022 that all U.S. military vehicles will be climate friendly provides a further pathway for LNG to be used in the 6,600 M1A2s in the U.S. Army inventory. Honeywell Aerospace, the manufacturer of the AGT 1500, is currently investigating this proposal. Dual fuel gas turbines are commonplace in industry, both in mechanical drive and power generation applications.

Current LNG Engine Technology – Reciprocating Diesel Engines

MAN, the parent company that manufacturers the LAND 121 vehicles (HX-77/81), is a world leader in dual fuel marine engines. Caterpillar Engine Co, which provides the 3126 engine for the Bushmaster vehicle, is currently testing LNG powered mine trucks in the Bowen Basin coalfields of Queensland, as is Cummins Engine Co.

Supply Chain – the 'Virtual Pipeline'

Virtual pipeline is an alternative method of transporting natural gas to places where there are no pipeline networks available. It is based on a modular system of compression or liquefaction, transport and decompression and/or regasification of natural gas, which communities, industries, gas stations and others can use. By using pre-filled, forward deployed modular LNG tanks, refueling a combat vehicle on the battlefield can be as easy as changing out your BBQ gas bottle at home.

Mobile filling stations, supplied by line haul road vehicles, rail road or littoral shipping vessels would carry out the purging and refilling of the modular, low pressure tanks behind the lines and load them for deployment to the battle front. By simply changing the 500kg tanks and connecting the fuel supply hose, the vehicle would be ready-to-go. Both gas turbines and reciprocating diesels could seamlessly switch between methane and diesel on the run, allowing flexible battlefield operations. Countries with an existing, mature LNG supply chain include USA, Germany, China, Brazil, India, Spain and Nigeria.

Reutilisation of Waste Energy

LNG usually needs to undergo a phase change to be used as a fuel, and its conversion to the gaseous phase creates waste cold energy. This waste energy could be utilised to mitigate the well-known issue of M1A2 crew hull comfort when operating in tropical climates by providing an exchange medium for the air

conditioning system. Additional waste cooling energy could also be applied to the AGT 1500 exhaust system in order to lower its thermal signature, thus providing a level of anti-detection & anti-targeting technology that protects the military assets and critical infrastructure against EO/IR weapon systems.

Diesel Fuel Insecurity

Finally, our dire diesel fuel security situation needs to be highlighted. With only two hydrocarbon refineries left in operation in Australia, the majority of our diesel is refined and imported from Singapore and other parts of Asia. Australia has reserved one million barrels of crude oil in the Strategic Oil Reserve of the United States. However, as pointed out in 2017 by the Australian Maritime Officer's Union:

• Australia does not have immediate access to a liquid fuel product tanker.

- Australian mariners with tanker endorsements are currently not working on tankers and without sea-time on tankers their endorsements will lapse in around 4 years (2021)

Without the ability to import this crude oil, Australia would be reliant on other nations to provide this service, which, in times of regional conflict, cannot be guaranteed.

Conclusion

Using a liquid fuel (that we lead the world in producing) in conjunction with readily available COTS technology would greatly enhance the Australian Defence Force's ability to defend this great country that we live in, whilst also enabling our economy to continue operating.

TRANSFORMING LAND POWER: ONE STORY AT A TIME

Annie North

I met a representative of our future land power just last month. She served me at the checkout at my local Woolworths. Glancing at her name tag, I asked her what she had planned for the weekend. She proceeded to tell me, with immense energy, about the steps she was taking to ensure that she would be joining the Australian Army at the end of the year when she finished high school. She described in vibrant detail, with no further prompt from me, how she was going to crew Army's next-generation armoured vehicle, that, or be a combat engineer demolitions expert. She assured me 'this' was her calling, that Anzac Day gives her goosebumps, and she feels empowered as a young woman to serve her country – I had goosebumps of my own listening to her tell her story.

The Australian Army's concept of land power is people centric: 'The ability to project force in and from land in peace, crisis and war to achieve strategic and operational objectives',[1] requires people. The 'human dimension'[2] of land power is fundamental to its utility, because individuals in 'cohesive teams with high morale… form the core of the land force'.[3] The lethality of our core asset – the soldier – is dependent upon strong interpersonal relationships between Army members, built on trust and a sense of belonging. This is reinforced by the philosophy *our people are our Army*, which is woven throughout

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1   Department of Defence, *Land Doctrine 1 The Fundamentals of Land Power*, Commonwealth of Australia (2014), https://researchcentre.army.gov.au/library/other/land-warfare-doctrine-1-fundamentals-land-power.p.11

2   Department of Defence, *Land Doctrine 1 The Fundamentals of Land Power*, p.26

3   Department of Defence, *Land Doctrine 1 The Fundamentals of Land Power*, p.27

land doctrine and underpins Army's strategic narrative.[4] Through this lens, Army's unique aspect – its people centred approach – is exposed: without our people there is no Army, no force, no land power.

In recent years, Army has faced an unprecedented, wicked problem. The separation rate is outstripping recruitment, workforce targets have not been met since 2015/16,[5] and significant people capability growth is required before the year 2040.[6] This problem necessitates action – an Army-wide reinvestment in personal relationships – to addresses the loss of human connection[7] and the loss of commitment that is haunting the force.

The humble story, it seems, could be what Army needs to connect its people to its strategic vision.[8] The simple act of telling and listening to one another's stories has the power to strengthen interpersonal trust, build morale and reinvigorate the strong sense of belonging that Army has previously enjoyed. Stories can transform the human dimension of land power and generate a more cohesive and resilient fighting force.

To *transform* means to take something that already exists and evolve it so that it is characterised by a marked change.[9] Undoubtedly, transforming land power demands continuous scrutiny of

4   Rick Burr, Army In Motion, Army's Contribution to Defence Strategy, (Commonwealth of Australia, 2020); Rick Burr, Army In Motion, National Institution Statement (Commonwealth of Australia, 2020); Rick Burr, Army In Motion, Command Statement, (Commonwealth of Australia, 2020)

5   Andrew Brown, "PM outines largest peacetime ADF boost," *The Canberra Times* (Canberra, ACT Australia), 10 March 2022 2022, https://www.canberratimes.com.au/story/7652352/pm-outlines-largest-peacetime-adf-boost/.

6   Hon Peter Dutton MP and Hon Scott Morrison PM, "Defence worforce to grow above 100,000," news release, 10 March 2022, 2022, https://www.minister.defence.gov.au/minister/peter-dutton/media-releases/defence-workforce-grow-above-100000.

7   Brian Passon, "The Power of Storytelling for Behavior Change and Business," *Am J Health Promot* 33, no. 3 (2019), https://doi.org/10.1177/0890117119825525d.

8   Passon, "The Power of Storytelling for Behavior Change and Business."

9   Oxford English Dictionary, *in Oxford English Dictionary* (3: Simpson, Ja & Weiner, Esc., 1989); Dictionary.

considerations such as 'globalisation, urbanisation, technological change, the non-contiguous battle space, integration and domestic security'.[10] However, as an increasingly diverse workforce, the Army is also 'responsible for making [itself] sensitive to the diverse needs of different groups of people'[11] who will make up the future workforce. This requires everyone, at every level of Army, to transform the human dimension of land power: deliberately build trust-based relationships one person at a time using the power of stories – because stories 'define who we are, why we are here and what we value'.[12]

Storytelling has been used for centuries as a means for people to make sense of 'the world, themselves and the individuals around them'.[13] 'Stories have immense power on our emotions and our brains',[14] with the power to inspire and motivate people, as well as build trust between people.[15] As an extremely powerful tool,[16] sharing stories has the capacity to transform the human dimension of land power.

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10 Department of Defence, *Land Doctrine 1 The Fundamentals of Land Power*.p.39.

11 Randolph T. Barker and Kim Gower, "Strategic application of storytelling in organizations: Toward effective communication in a diverse world," *The Journal of business communication (1973)* 47, no. 3 (2010), https://doi.org/10.1177/0021943610 369782.p.297.

12 Cathy Driscoll and Margaret McKee, "Restorying a Culture of Ethical and Spiritual Values: A Role for Leader Storytelling," *Journal of business ethics* 73, no. 2 (2007), https://doi.org/10.1007/s10551-006-9191-5.p.206

13 Naser Khdour, Ra'ed Masa'deh, and Atef Al-Raoush, "The impact of organizational storytelling on organizational performance within Jordanian telecommunication sector," *The journal of workplace learning* 32, no. 5 (2020), https://doi.org/10.1108/ JWL-06-2019-0083.p.481

14 Passon, "The Power of Storytelling for Behavior Change and Business."p.475

15 Tommi Auvinen, Iiris Aaltio, and Kirsimarja Blomqvist, "Constructing leadership by storytelling - the meaning of trust and narratives," *Leadership & organization development journal* 34, no. 6 (2013), https://doi.org/10.1108/LODJ-10-2011-0102; Michael L. Kent, "The power of storytelling in public relations: Introducing the 20 master plots," *Public relations review* 41, no. 4 (2015), https://doi.org/10.1016/j. pubrev.2015.05.011.

16 Barker and Gower, "Strategic application of storytelling in organizations: Toward effective communication in a diverse world."

Stories enliven the centrality of close relationships in teams, and create an environment where psychological needs are met, a sense of belonging is strong, and trust is experienced across the force.

There is an untapped power in the relationships of serving members who share common values and their stories.[17] Storytelling and listening not only enables members to share information. It also empowers them to communicate emotion, discuss real-life issues without being affronted, and engender compassion for one another.[18] In this way, 'stories provide access to a common humanity'[19] and create a sense of belonging. Storytellers experience a 'fulfilment of higher levels of psychological needs' [20] and story-listeners feel more connected having found 'common ground with their fellow listeners'.[21] This is fundamentally important for Army because the effective use of stories between team members has the potential to positively influence organisational culture, increase team cohesiveness and generate higher quality relationships between members and their leaders.[22]

In an organisation where hierarchical relationships dominate, commanders can see the world through the eyes of members (a view often distinctly different to their own) by assuming the role of story-listener.[23] Consequently, leaders can be freed from the constraints of their own experiences and empowered to integrate

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17 Barker and Gower, "Strategic application of storytelling in organizations: Toward effective communication in a diverse world."

18 Passon, "The Power of Storytelling for Behavior Change and Business."; Shawn McCann, Jody Barto, and Nancy Goldman, "Learning Through Story Listening," *Am J Health Promot* 33, no. 3 (2019), https://doi.org/10.1177/0890117119825525e.

19 McCann, Barto, and Goldman, "Learning Through Story Listening."p.477

20 McCann, Barto, and Goldman, "Learning Through Story Listening."p.477

21 Barker and Gower, "Strategic application of storytelling in organizations: Toward effective communication in a diverse world."p.305-306

22 Barker and Gower, "Strategic application of storytelling in organizations: Toward effective communication in a diverse world."

23 Irene Petrick, "The Power of Storytelling," *Research technology management* 57, no. 2 (2014), https://doi.org/10.5437/08956308X5702007.

empathy and compassion into their day-to-day leadership.[24] By actively listening to the stories of their subordinates, leaders can 'strengthen everyday relationships by providing the gift' of feeling heard,[25] and in doing so build the emotional and psychological resilience of the land force.

Moreover, 'influential leadership [also] involves storytelling'[26]; the creation of a shared context and sense of belonging with their followers.[27] Better still, storytelling builds trust – an essential component of the mission command that land power relies on. Researchers have found that 'authentic stories and authentic leadership, appeal to the heart and mind, to deeply held assumptions and values, and to our inner sense of being'.[28] Here, the potential for stories to empower the effectiveness of mission command is evident. Stories provide 'leaders a way to communicate their vision and values, to inspire, to bring about understanding and change, and to empower'[29] those whom they lead, and build the implicit trust required 'between and across all elements of the land force'.[30] Consequently, the sharing of stores is one way that Army can 'actively create the climate and foster behaviour that produces a mission command culture',[31] enabling a transformation of how the land force generates its power.

24 Petrick, "The Power of Storytelling."

25 McCann, Barto, and Goldman, "Learning Through Story Listening."p.480

26 Auvinen, Aaltio, and Blomqvist, "Constructing leadership by storytelling - the meaning of trust and narratives."p.499.

27 Auvinen, Aaltio, and Blomqvist, "Constructing leadership by storytelling - the meaning of trust and narratives."

28 Driscoll and McKee, "Restorying a Culture of Ethical and Spiritual Values: A Role for Leader Storytelling."p.209.

29 Driscoll and McKee, "Restorying a Culture of Ethical and Spiritual Values: A Role for Leader Storytelling."p.211.

30 Department of Defence, *Land Doctrine 1 The Fundamentals of Land Power.*p.45.

31 Department of Defence, *Land Doctrine 1 The Fundamentals of Land Power.*p.45

Storytelling has a place in the transformation of land power and 'leaders who fail to grasp the power of stories risk failure'.[32] Stories positively impact people by enhancing team cohesiveness, improving organisational culture, fuelling high morale, 'decreasing the threshold of employee retention',[33] and improving recruitment rates. 'The stories we craft, the stories we recall, and the stories we tell one another quite literately shape our worlds',[34] and because everyone is a storyteller, everyone has the power to drive transformative change.[35]

Everyone has a story waiting to be told, waiting to be heard. By sharing and listening to stories, each Army member has the power and influence to shape the Army's future. This is transforming land power one story at a time – this will define her future story.

> *As I thanked her for my groceries, using her first name, I caught her eye contact once more and said, "I think you're going to have the most wonderful career in the Army – I have served nearly 20 years and it has been the most tremendously rewarding experience, day in day out. You're going to have a blast". She looked at me in shock – quickly examining the somewhat dishevelled mother of two who seemed to be only just holding it together – I laughed – "Yes", I answered into the silence, "We all have a story – I'm an officer in the Australian Army, and I so look forward to serving alongside you".[36]*

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32 Petrick, "The Power of Storytelling."p.54

33 Khdour, Masa'deh, and Al-Raoush, "The impact of organizational storytelling on organizational performance within Jordanian telecommunication sector."p.341.

34 David Collins, *Rethinking organizational culture : redeeming culture through stories* (Milton Park, Abingdon, Oxon ; New York, NY: Milton Park, Abingdon, Oxon ; New York, NY : Routledge, 2021).Chapter 6, p.60.

35 Barker and Gower, "Strategic application of storytelling in organizations: Toward effective communication in a diverse world."

36 Based on a true encounter between the author and a Woolworths Ltd employee, April 2022.

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A SECURITY FORCE FOR THE FUTURE

John Brennan

*Domestic security operations cannot be separated from
the conduct of operations offshore. The increased reach of
enemies allows them to attack targets directly in the homeland
……and involves not only protection of militarily important
targets but also actions to deny the enemy the ability to
strike civilian targets.[1]*

23 February 2022 marked a step change in military thinking.
State-on-state conflict was back in Europe. Advanced, peer
competitors slugged it out in the forests and cities of Ukraine with tanks
and drones. The Ukrainians hurriedly sought to expand the country's
military forces, handing out assault rifles to civilian volunteers outside
police stations. An abiding image is that of a large, middle-aged
Ukrainian man, dressed in a hodge-podge of civilian clothes and
uniform, cigarette firmly clenched between his lips as he stood behind
a checkpoint constructed from coal sacks. His old World War II light
machine gun rested on its bipod, ready for action. Clearly, this was a
hurriedly recruited and equipped militiaman; probably not well trained.
But he stood his post, releasing younger and better equipped soldiers
to hunt for Russian tanks at the front line. Does this image hold any
lessons for Australia in transforming land power into the next decades?

The sudden change in the world's security outlook will have many
impacts for Army. Not least, it should focus attention on home defence.
In the recent the past, Australia took part in discretionary campaigns
of choice in which Army could largely dictate the way it deployed force
elements according to existing structures and desires. Now, we must

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1   LWD1 Fundamentals of Land Power

face what could well become an existential threat. Old ways and ideas will no longer meet future needs. Land Power doctrine suggests:

> land power… has always been related not so much to size and mass but to quality and the employment of limited military forces to achieve disproportionate strategic effects for political ends.[2]

Is this assertion relevant now? Was it ever? In World War II, surely the apogee of Australian army power, there existed nearly a hundred battalions, many of which were focussed on home defence. Perhaps it is now time to re-consider how Army might meet its renewed home defence responsibilities.

The current strength of Army is in the order of 20 understrength battalions. In times of war, at least half of these would be earmarked for expeditionary service to the north, or be preparing for such service. The remainder would be deployed to defend northern air bases and the like, or be training to bring new recruits up to deployable standard. Importantly, they would be the next force-in-being to replace and reinforce the first deployed elements. There would nevertheless remain an urgent need to deploy large numbers of security forces to protect vital assets, critical infrastructure, and population centres. Although police could assist in this task, they have little ability to deploy away from their home stations and, as recent domestic operations have shown, are largely dependent on the military for logistical sustainment.

In short, there are too many targets, and not enough security forces to protect them. Already, police and the ADF are competing for recruits. So the increased capacity needed will not be achievable by simply expanding full time establishments. Although it would be possible to increase active reserve unit establishments, the recruiting problem is similar to that challenging the full time services. Only a certain proportion of the population is eligible and willing to devote time to

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2   ibid

the current reserve forces that demand considerable commitment and effort. Experience shows that only the fit and truly dedicated will make it through the recruiting process and subsequent initial employment training.

So perhaps a different part-time solution offers at least a partial answer that is more palatable and affordable in peacetime, and more effective in wartime.

Overseas experience points to some possible options, and perhaps pose some further questions for consideration. To illustrate the scale of responses achieved elsewhere in the world, one need look no further than India. In a nation with significant security challenges and relatively abundant recruits, the Central Industrial Security Force (CISF) guards critical industry, infrastructure and government factories. The CISF has approximately 145,000 full time paramilitary police officers. In addition, there are approximately 750,000 members of other paramilitary forces.

Of more comparable sizes to Australia, there are other overseas examples of part-time security and or guard forces that operate in both peacetime and during times of conflict. For example, the UK Home Service Force (HSF) existed between 1982 and 1992, and specifically recruited ex-service personnel to provide vital asset protection. Although never exceeding more than about 5000 members, it was a very efficient and effective addition to the home defence organisation. A current iteration of this idea is the Military Provost Guard Service (MPGS) which recruits ex-service members and uses them for full-time armed security duties at nearly 100 bases in the UK. Given as little as five days of security training, they are equipped and look like any other soldier, patrolling in camouflage and carrying assault rifles and webbing. The entry requirements allow for a medically-limited deployable status and for entry up to 57 years of age.

Another relevant part time example is the Ulster Defence Regiment (UDR). Existing between 1970-1992, it recruited ab initio enlistees, gave them training of between a week and a month, and then deployed them on operations against the terrorist threat in Northern Ireland during their spare time. Although beset by allegations of sectarianism, independent reviews noted that, while such partiality affected the UDR's credibility within some sectors of the population, it did not detract from the unit's overall tactical effectiveness. Between eight and eleven battalions, consisting of up to 56 companies, were sustained for over 20 years from a population of around 1.6 million. Eventually converting around half of the soldiers to full time recruits, this is an excellent example of a part-time surge of a military force under pressure to provide security coverage of population and infrastructure.

There are other examples too. France recently recreated the Garde Nationale, a force of paid volunteers to assist with internal security. Planned to expand to nearly 80,000 members, it will provide support to military, gendarmerie and police operations. Similarly, South Africa maintained a 'Commando' system of part time local defence forces. At its peak, there were over 180 units with 50,000 members. Although there were various iterations to the system, fundamentally it relied on part-time forces to provide local security across rural South Africa at short notice. It was only disbanded in 2008 due to historical political considerations.

For Australia, the UDR or MPGS models seem a good fit. Army has recently woken up to the opportunities of 'just in time' training and there have been various thoughts about how to reduce initial training burden and expand the recruiting base. One approach has been to look at the Regional Force Surveillance List (RFSL) model as a means of expanding the eligible recruit pools. The RFSL is a very successful model that is largely focussed on our remote community soldiers.

It is not readily adaptable to the broader community of potential recruits for which the UDR model is perhaps a better fit. A UDR paradigm could use the historical Army Reserve recruit course which qualified soldiers in two weeks with 2 different weapons, basic navigation, fieldcraft, drill and first aid. A parallel method of entry could tap into the large ex-service population using the HSF or MPGS as its conceptual basis. This approach probably has additional side benefits to the members of Australia's ex-service group, many of whom wish to remain connected in some way to the military. Combined, such strategies could potentially deliver an organisation of up to 50-100 companies, grouped loosely for administrative purposes into battalions. Alternatively, the force could be structured as a joint 'SecFor' type arrangement if that would better fit the ADF's command and control frameworks. In either case, Army would be under no obligation to retain candidates deemed unsuitable in training, but it would have the opportunity to best place people according to their specific abilities and experience.

Enhancing Army's capability and flexibility to draw on a larger part-time force has great potential to help meet Australia's security requirements in both peacetime and in war. A separate guard force would free-up Army units for manoeuvre warfare, expand the recruiting pool and provide security for many vital assets and the Australian population. The establishment of such a force, however, requires a new mindset within Army about the meaning of military service. The essential and unique aspect of these schemes would be the requirement for a lower level of commitment, and a commensurate lower level of fitness and health. The model also depends on Army's ability to accept a level of diversity that would inevitably exist among such members. While there may be obstacles to achieving the vision, increasing the ADF's security force would be a small but important initiative towards transforming land power and Army.

BIOGRAPHIES

John Brennan has served in a range of regimental and instructional postings across the Army Reserve, and commanded a reserve infantry battalion in 2006-7. He has held a range of appointments as a colonel, including a senior UN role in Africa. John holds a number of post-graduate qualifications, and has worked in industry, public service and the police.

Connor Cruickshank has been a Signaller with NORFORCE for the past two years. He is born and bred in Darwin, Northern Territory and his interests include offroading, camping, fishing, and hunting.

James Eling is a Reserve Artillery Officer, having most recently served as Battery Commander 2/10 Battery. In his civilian job he runs an IT company specialising in cyber security and using agile methodologies to build software. He is also the producer of The Principles of War PME podcast.

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William Hill began work in Defence in early 2020 after joining the Maritime Surface and Shipbuilding Section subsequently working on a number of projects related to electronic warfare capabilities, anti-submarine warfare and the Anzac upgrade program. Prior to Defence, William was a graduate of the Department of Home Affairs undertaking a wide range of roles in policy, web services and intelligence. William has also worked for 2 years in the Department

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Jason Kirkham is a Royal Australian Artillery officer who has served at the School of Artillery, and 8/12 Medium Regiment. He is currently serving as a targeting officer at Headquarters 1st Division. He holds a Bachelor of Arts, majoring in History and English. He is currently completing a postgraduate Masters in War Studies.

Annie North holds a Christian worldview and is a mother of two, 'Army-wife', and current serving Logistics Officer in the Australian Army. She is a graduate of the Australian Defence Force Academy, Royal Military College - Duntroon and Australian War College with undergraduate and postgraduate qualifications awarded by the University of New South Wales and Australian National University. Annie is currently serving in Army Headquarters and is also undertaking Postgraduate Higher Degree Research into Work-life Balance in the Military. As a storyteller who has a passion for people, Annie hopes this piece will prompt others to consider the power of their own stories and how they might transform Army's future land power.

John Wellfare is a section second in command posted to D Company, 1st Military Police Battalion. He has previously served in both the infantry and armoured corps, deployed to Timor Leste in 1999 and 2002, and has a particular interest in preparing soldiers for the realities and challenges of operational service.