The Lost Operational Art: Invigorating Campaigning into the Australian Defence Force

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…even the most striking past success provides no guarantee that crisis can be indefinitely postponed.

– Thomas Kuhn, *The Structure of Scientific Revolutions*

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Acknowledgments

This paper would never have happened without the unconditional love and support of my wife Renae. I am in her debt. One day soon I will pay you back.

About the Author

Lieutenant Colonel Trent Scott is the Commanding Officer, 3rd Battalion, The Royal Australian Regiment. He has had operational service in East Timor, Solomon Islands, Iraq and Afghanistan. Lieutenant Colonel Scott is an Indonesian linguist, a distinguished graduate of the USMC Command and Staff College and the School of Advanced Warfighting, and holds a Masters of Military Studies, a Masters of Operational Studies and a Masters of International Relations.

Definitions

As a common point of departure for discussion, rather than dogma, the following definitions from ADF doctrine are noteworthy:

Operational Art: Operational art is the skilful employment of military forces to attain strategic goals through the design, organisation, sequencing and direction of campaigns and major operations. The essence of operational art lies in being able to produce the right combination of effects, in time and space, and purpose to neutralise, weaken, defeat or destroy an enemy's centre of gravity (COG). (ADDP 5.0 *Joint Planning*, p. 3-1)

Campaign: A controlled series of simultaneous or sequential operations designed to achieve an operational commander's objective, normally within a given time or space. (ADDP 3.0 *Operations*, p. 4-2)

Operation: A military action or the carrying out of a strategic, tactical, service, training or administrative military mission; the process of carrying on combat, including movement, supply, attack, defence and manoeuvres needed to gain the objectives of any battle or campaign. (ADDP 3.0 *Operations*, p. 4-2)

Operational Design: Operational design is the translation of the commander's intent and concept of operations into a series of synchronised activities that form a campaign or operation, which can target and defeat the enemy's centre of gravity (COG) leading to the achievement of the operational end state. It is the practical extension of operational art. (ADDP 5.0 *Joint Planning*, p. 3-1)

Operational Level of War/Conflict: The operational level is the link between the strategic and tactical. (ADDP 3.0 *Operations*, p. 1-8)

Operational Level of Command: The operational level headquarters plans and conducts campaigns and operations to achieve the military strategic objectives and end state. This includes establishing the operational level mission, objectives, desired effects and tasks to achieve the military strategic end state. (ADDP 3.0 *Operations*, p. 1-8)

At the operational level, Headquarters Joint Operations Command is responsible for planning, commanding and managing ADF operations. It is the primary operational level planning agency. (ADDP 5.0 *Joint Planning*, p. 2-1)

Introduction: The Lost Operational Art

> Operational art is at the centre of our thinking on the conduct of war. Operational art is the skilful employment of military forces to attain strategic goals through the design, organisation, sequencing and direction of campaigns and major operations. It translates strategy into operational and ultimately tactical action.
>
> – *Joint Operations for the 21st Century*[1]

> …our defence force is just 'muddling through' without a coherent long-term campaign plan [for Afghanistan]. 'There is no sense of urgency. We are hoping that by stalling, a solution will present itself in our favour.'
>
> – Patrick Walters[2]

There have been recent improvements in the development of the processes associated with Australian Defence Force (ADF) campaign planning, especially as Headquarters Joint Operations Command (HQJOC) matures as an organisation. Commander Joint Operations (CJOPS) has tasked his staff with developing campaign plans for Afghanistan and other ADF operations in the Middle East Area of Operations (MEAO), including ADF support to counter-piracy operations in that region. CJOPS has also tasked his staff to assess the viability of producing more holistic regional campaign plans that take a longer term view of ADF commitments to respective regions, such as the MEAO, South East Asia (primarily East Timor), and the South West Pacific (including the Solomon Islands) for example. These regional campaign plans will attempt to better link ongoing operations with regional Defence Cooperation Programs and Defence

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1   *Joint Operations for the 21st Century*, Department of Defence, Canberra, June 2007, p. 39.

2   Patrick Walters, 'War Changes are on the way in Afghanistan', *The Australian*, 22 August 2009, <http://www.theaustralian.news.com.au/story/0,,25962386-5015664,00.html> accessed 22 August 2009.

strategic objectives. Additionally, these individual theatre and regional campaign plans are to at least consider other agency participation; whether they achieve the aspiration of being truly whole-of-government is still to be seen. Certainly, HQJOC Plans staff are now routinely using such terms as 'campaign footing' to reflect this approach.

Further, Strategic Policy Division, in consultation with Military Strategic Commitments and HQJOC, have streamlined the process for issuing comprehensive strategic guidance from the Chief of Defence Force (CDF) to CJOPS in both a crisis response situation and a more deliberate response situation. It must be noted, however, that there is no dedicated plans function within Military Strategic Commitments, which inevitably means the deliberate response options tend to reflect short-term planning rather than longer term campaign-type planning. As well as the streamlined processes for issuing strategic guidance, the recently issued provisional ADDP 5.0 *Joint Planning* does a good job of codifying into doctrine the processes that link the strategic defence level of command with the operational level.

Finally, the Australian Command and Staff College (ACSC) has recently included a six-week Complex Planning and Operations elective module on operational art and campaign design and planning that aims to broaden understanding of these issues. In 2010 ACSC also included a focused one-week period of instruction on complex decision-making and critical thinking as a foundation for solving complex operational problems. These initiatives are to be applauded; however, they are far from comprehensive and only begin to address a number of significant weaknesses in the ADF's approach to operational art and campaign planning.

There is a strong argument that the lack of a robust, relevant and frequently practised operational art places the ADF in an untenable position.[3] This argument suggests in the first instance that the ADF does not have a widespread understanding of operational art relevant to Australia's contemporary geostrategic and geopolitical context. Nor does it have a culture of campaign planning. Second, any campaign planning the ADF does undertake is based on increasingly irrelevant doctrine. And third, this situation is further compounded by a less-than-comprehensive joint professional military education program that fails to adequately prepare its officers to operate in the increasingly volatile, uncertain, complex and ambiguous operating environment that characterises contemporary conflict.

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3   See Michael Evans, 'The Closing of the Australian Military Mind: The ADF and Operational Art', *Security Challenges*, Vol. 4, No. 2, Winter 2008, pp. 105–31.

The absence of a relevant operational framework and campaigning culture, it is argued, represents more than just a 'closing of the Australian military mind'.[4] Absent a widely understood and relevant operational framework that accounts for Australia's strategic realities in the twenty-first century, the ADF is arguably not well postured to support the government in the pursuit of sovereign interests. Further, there is no 'firm conceptual foundation for the development of higher command beyond the traditional Australian strategy-tactics interface'.[5] And most urgently, the ADF is institutionally not providing the optimum support to its deployed forces. This can place an undue burden on deployed force element commanders who, if there is no or poor operational level guidance, are required to independently manage the inherent tension between competing in-theatre tactical mission requirements and the often restrictive strategic pressures that inevitably arise. Consequently, deployed force element commanders attempt to reverse engineer the traditional paradigm of translating 'strategy into operational and ultimately tactical action' through tactical plans that are, hopefully, consonant with whatever ADF strategic objectives have or have not been declared.

If this is indeed the case there is a moral imperative to rectify these deficiencies. A holistic institutional approach towards enhancing understanding and practically applying relevant operational art and campaign design and planning needs to be undertaken as a matter of priority by the ADF.

The reality: Operational art, campaigning and the ADF

> Everybody likes to fight the war that he knows best; this is very obvious.
>
> — Bernard Fall[6]

Despite the significant operating and personnel costs associated with the ADF's purpose-built operational level headquarters, HQJOC, the ADF has yet to develop a

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4   Ibid.

5   Ibid., p. 114.

6   Quoted in Thomas Ricks, *Fiasco: The American Military Adventure in Iraq*, Penguin, London, 2006, p. 195.

widespread understanding of relevant operational art and campaign planning. During the seven years of ADF involvement in Afghanistan and five years in Iraq, the ADF has not produced a campaign plan that provides positive guidance to deployed forces in the MEAO with the aim of translating 'strategy into operational and ultimately tactical action'.[7] This is not to say that the ADF is deploying forces to the MEAO totally absent any guidance, direction or planning. Rather, there has not been a campaign plan designed, developed and executed that has been focused on the long term and that plainly sets forth the ways in which deployed forces may contribute to achieving campaign objectives which in turn are linked to desired strategic outcomes.

Even during the relatively successful ADF-led intervention in East Timor during 1999, actions on the ground or in support of the operation were not orchestrated in accordance with a campaign plan designed to purposefully translate strategic objectives into tactical actions. The operational level headquarters of the time, Headquarters Australian Theatre (HQAST), was marginalised in terms of command and control.[8] Day-to-day decisions, both tactical and 'operational', were mostly made in Canberra on behalf of the CDF by the Head of Strategic Command Division, and then passed to the Commander International Force East Timor (INTERFET). According to Dr Michael Evans of the Australian Defence College (ADC), the decision to by-pass HQAST as the operational headquarters and an overt focus on tactical events by the ADF leadership revealed a penchant 'for viewing the operational level and operational art in separatist and mechanical terms in a conflation of the levels of war with the levels of command'.[9]

In another ADF intervention mission, this time to the Solomon Islands in 2003/2004, there was also no campaign plan that provided operational guidance

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7   In mid-2010, HQJOC began preparing a campaign plan for the Middle East Area of Operations. In early 2008 Commander Joint Task Force 633 produced a campaign plan from within the MEAO titled 'Plan 2012'; however, this campaign plan was not actually implemented. In the same year HQJOC produced campaign plans for operations in both Timor Leste and the Solomon Islands respectively that have endured to time of writing.

8   Evans, 'The Closing of the Australian Military Mind', p. 118. As the ADF liaison officer to the Department of Foreign Affairs and Trade East Timor Task Force, the author witnessed HQAST being relegated to managing mostly routine support tasks.

9   Ibid. It is noteworthy that in a response to Evans, the CDF at the time, Admiral Chris Barrie, does not dispute any of Evans' assertions regarding the marginalisation of HQAST by HQADF. See Chris Barrie, 'Debate: The ADF and Operational Art', *Security Challenges*, Vol. 4, No. 2, Winter 2008, pp. 139–41.

to the leaders of the Regional Assistance Mission Solomon Islands (RAMSI). As one study of the RAMSI mission points out, the absence of a campaign plan, or even an overarching, multiagency operational plan, meant there was no 'script devised that set out roles and responsibilities for all agencies within the mission and what they were to do in relation to one another'. This study goes on to say that any 'knitting together of this loose federation [of multiagency stakeholders] over time occurred more by accident and good intention than coherent direction, and certainly was not the result of any formal written guidance.[10] It is doubtful whether such an approach to the intervention in the Solomon Islands would have been as successful had the threat been more significant.

Dr Russell Glenn, of the RAND Corporation, argues in a comprehensive study of RAMSI that had Australia had an operational level headquarters focused on developing campaign plans in 2003 it would have 'conceivably already written, war-gamed, resourced, and rehearsed a plan for a RAMSI-like contingency years ahead of the actual deployment'.[11] Such a plan could then, feasibly, be adapted to the specifics at hand, providing multinational militaries and other government agencies with guidance of value that would influence various organisations' actions and their synchronisation in the pursuit of common objectives. Speaking on the requirement for a long-term, overarching plan that aims to synchronise effort across multiple agencies and across multiple lines of operation or effort, Brigadier Michael Krause, who at the time was the ADF Military Advisor to the RAMSI Head of Mission, suggests the absence of such a plan tangibly affects momentum:

> I was there eight months into the operation ... There was a pregnant pause [during which] we gained stability and then the Solomon Islanders said 'What next?' And indeed there was a growing frustration during which they couldn't see things getting better. Stability is only the first bit.[12]

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10   James Bryant, *A More Lasting Peace: Reflections on Interagency Operations in the Solomons and Iraq*, Land Warfare Studies Centre, Canberra, 2007, p. 39.

11   Russell Glenn, *Counterinsurgency and Capacity Building: Lessons from Solomon Islands and the Southern Philippines*, RAND National Defense Research Institute, Santa Monica, 2008, p. 103.

12   Quoted in Ibid., p. 94.

The final important observation from the RAMSI experience is that historically few military commitments involving capacity building or counterinsurgency begin their efforts with a comprehensive campaign plan that survives contact with the operating environment or the evolving demands of the mission.[13] Nevertheless, although the lack of a timely, truly interagency synchronising plan may be the normal operating condition for counterinsurgency and capacity building initiatives worldwide, and success may be achievable without such a plan, 'that success will take longer and cost more and is less assured'.[14]

Traditionally, Evans highlights, as 'peacetime Australian strategic theory has frequently upheld the defence of geography as a foundation stone of defence policy, strategic activity in wartime and security crisis has usually been undertaken to uphold Australia's liberal democratic values and vital political interests'.[15] The result has been what Evans calls a 'tyranny of dissonance' between Australian strategic theory and its warfighting practice. In an attempt to overcome this disconnect, recent Australian governments have intentionally distinguished between the use of military force to protect Australia's national interests other than the immediate defence of the nation. This usually translates into military deployments outside of our immediate geographic region to places such as Iraq and Afghanistan, and the use of military force in response to more local crises, such as East Timor and the Solomon Islands. The former—global missions of choice—see the ADF as a contributor to international coalitions which are usually US- or UN-led, while the latter—regional missions of necessity—see the ADF as coalition leader.

The latest Defence White Paper calls on Australia to deter and defeat armed attacks 'by conducting independent military operations without relying on the combat or combat support forces of other countries'.[16] Presumably this will require some degree

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13   Iraq and Afghanistan are two recent examples; however, for a number of earlier case studies regarding other counterinsurgency efforts and the lack of an appropriately adaptive operational plan supported by an appropriate strategy, see James S Corum, *Bad Strategies: How Major Powers Fail in Counterinsurgency*, Zenith Press, Minneapolis, 2008.

14   Glenn, *Counterinsurgency and Capacity Building*, p. 103.

15   Michael Evans, *The Tyranny of Dissonance: Australia's Strategic Culture and Way of War 1901–2005,* Study Paper No. 306, Land Warfare Studies Centre, Canberra, 2005, p. ix.

16   *Defending Australia in the Asia-Pacific Century: Force 2030,* Department of Defence, Canberra, 2009, p. 48 <http://www.defence.gov.au/whitepaper/docs/defence_white_paper_2009.pdf> accessed 27 September 2009.

of operational level planning and an appropriate campaign plan to orchestrate military effort to ensure positive strategic outcomes. It should also be self-evident that when deploying force elements far from Australian shores in global missions of choice there will inevitably be logistic, basing, facilities and other operational support issues that require long-term planning to ensure success. But equally important, mission-specific combat related deployments of global missions of choice also demand comprehensive operational design, planning and execution. This is a necessity if the ADF wants to be in a position to positively shape and influence strategic outcomes, both in terms of the mission itself and in terms of Australia's strategic interests writ large.

However, a prevailing view within the ADF is that operational art and campaign plans are only necessary in the context of the ADF leading a regional 'mission of necessity', the historical precedence of no such campaign plan during both INTERFET and RAMSI notwithstanding. That is, campaign plans are not necessary when providing small contributions to coalition efforts in missions of choice because the ADF does not own the in-theatre campaign plan. This view is articulated by a member of the Canadian Defence Forces, who are facing similar challenges to the ADF with respect to developing relevant operational art:

> It could be argued that middle-powers [such as Australia] are incapable of exercising operational art, and perhaps do not require an independent operational level at all. In this case, their small, tactically focused militaries would only require an understanding of operational doctrine to the extent that permits them to integrate tactical forces into larger alliance or coalition operations, and to effectively participate in coalition headquarters (HQ)—a requirement limited to a small number of senior commanders and staff officers.[17]

Most recently, even when the ADF secures senior staff officer positions in coalition headquarters that are explicitly concerned with operational art, campaign planning and execution, such as Director of Strategic Operations in Headquarters Multi-National Forces—Iraq (MNF-I), there has been frequent occasion when senior officers on the verge of retirement deploy to these positions. The result is that any professional

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17   Richard N H Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', Unpublished paper, Command and General Staff College, Fort Leavenworth, 2004, p. 2.

operational experience gained is quickly lost institutionally when these officers leave their respective service soon after return to Australia. Additionally, officers employed on operational service in operational level planning or execution positions rarely write about their experiences or promote professional debate on the subject.[18] The consequence is plenty of debate on tactics with very little professional discourse on operational art or related issues.

Without question, supporting global missions of choice does not fall within the traditional paradigm of operational art. CJOPS admitted the difficulties in developing campaign plans for deployed ADF elements when the ADF does not own responsibility for overall tactical or operational action on the ground, such as in Iraq and Afghanistan.[19] However, the difficulties inherent in such an undertaking do not remove the imperative for deployed ADF elements to receive clear guidance on how they are to contribute to the longer term operational objectives of the ADF commitment, beyond just showing the flag. As one recently returned Afghanistan Reconstruction Task Force Commander acknowledged: '80% of my job was operational, 20% tactical; my sub-unit commanders were 20% operational and 80% tactical. Success demanded operational art. I was setting my own operational objectives to meet Australia's intent.'[20] Nor does it remove the requirement for the ADF to design and plan commitments of military force, such as those to Iraq and Afghanistan, without thinking long-term, holistically or without a view to how best shape the continuing commitment to meet longer term Australian government strategic interests.

Notably, Australia has a long history of consciously proscribing specific limits and constraints on ADF contributions to global missions of choice, while concurrently providing limited or no guidance on how these forces are to operate. This is an

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18   Major General Jim Molan is a notable exception. For his reflections on his experience in Iraq, see Jim Molan, *Running the War in Iraq*, HarperCollins Publishers, Sydney, 2008. For specific comments on operational art, see Jim Molan, 'Debate: The ADF and Operational Art', *Security Challenges*, Vol.4, No. 2, Winter 2008, pp. 133–36. Another recent example is an article on planning to solve complex operational and, mostly, tactical problems by Brett Chaloner, 'Thoughts for Australian Planners in Afghanistan', *Australian Army Journal,* Vol. VI, No. 2, Winter 2009, pp. 33–40.

19   Interview with CJOPS, Lieutenant General Mark Evans, HQJOC, 19 June 2009, and informal address by CJOPS to representatives of Department of Defence International Policy Division and Strategic Policy Division, HQJOC, 17 September 2009.

20   Interview with an Australian Army Reconstruction Task Force Commander, Canberra, 5 August 2009.

approach that cognitively frames such contributions in terms of alliance management rather than in terms of the operational realities on the ground. Writing in 1969 about our contribution to the Vietnam War, the journalist Peter Samuel concluded: 'The Australian Government would appear never to have thought in depth about the role of Australian forces or formulated a strategy for the [Australian] Task Force in particular.'[21] And, more recently, the political analyst Paul Kelly suggested in 2002:

> For half a century [since the Second World War] the Australian way of war has been obvious; it is a clever, cynical, calculated, modest series of contributions as part of US-led coalitions in which Americans bore the main burden. This technique reveals a junior partner skilled in utilising the great and powerful while imposing firm limits on its own sacrifices.[22]

As highlighted earlier, the recent deployments to Iraq and Afghanistan do not neatly fall into the paradigm of operational warfare.[23] Rather, alliance management tends to be elevated to the primary strategic objective, whether consciously or not, and the consequence is that strategic control is generally considered more important than operational design and tactical presence is as important as tactical performance. According to Evans, in this regard the most significant feature is 'that force provision is based on choice with participation being about protecting national interests within an allied campaign plan'.[24] On occasion, deploying land force element commanders have received only one piece of strategic or operational guidance: do not take casualties. In such circumstances there is potential for the strategic pressure to ensure force protection to override most other considerations for tactical mission success.[25] This is

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21   Frank Frost, *Australia's War in Vietnam*, Allen and Unwin, Sydney, 1987, p. 65.

22   Paul Kelly, 'No Lapdog, This Partner Has Clout', *The Australian*, 28 August 2002, quoted in Evans, 'The Closing of the Australian Military Mind', p. 114.

23   Milan Vego, of the US Naval War College, prefers the use of the term 'operational warfare' to holistically describe both the creative aspect of operational art and the more technical aspects of the operational level of war. See Milan Vego, NWC 1004: *Operational Warfare*, US Naval War College, Newport, 2000.

24   Evans, 'The Closing of the Australian Military Mind', p. 123.

25   The ADF is not the only military force facing strategic pressure to ensure force protection. The USMC too suffers from similar tension between tactical expediency and the centralised strategic

in contrast to an operational situation such as East Timor, a regional crisis where the ADF was the lead military nation of a coalition. In this situation the ADF was called on to actively pursue national objectives, rather than protect them.

The increasing reality is that in such situations as Afghanistan and Iraq where the ADF has deployed forces as a junior partner in a coalition, Australian Task Force commanders and even battlegroup commanders have limited opportunity to align tactical actions with strategic or operational direction. The exception tends to be by invoking a national caveat on tactical actions, which in turn inevitably leads to increased friction at the tactical and in-theatre operational levels. It also inevitably leads over time to a denuding of 'alliance credits' at the military-to-military level (in the current climate specifically between the US Army and Marine Corps and the Australian Army). This has the less tangible but equally important potential to negatively affect inter-military relationships within the coalition during future conflicts. As another Canadian officer wrestling with the same issue highlights:

> Are we so short on strategic purpose, and so long on strategic control, that tactical presence automatically meets strategic objectives? With no particular objective really at stake in terms of tactical achievement, does it matter what is deployed, or only that it is deployed?[26]

If the ADF wants to support the pursuit of national interests and better support deployed forces currently on operations there is the requirement to develop relevant operational art to include skill and experience in sound campaign design, planning and execution. This imperative is immediate given the ADF, as a junior coalition partner, is right now deployed on operations in highly complex and lethal combat situations, where winning the tactical battle is tricky enough but securing Australian political and military strategic objectives in such circumstances is even more complex. And, noting the general volatility of Australia's immediate geographic region of interest, the general lack of expertise in operational art in the ADF 'represents an unacceptable

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direction of force protection. See Michael Grice, 'Force Protection and the Death of Common Sense', *Marine Corps Gazette*, Vol. 93, No. 8, August 2009, pp. 8–12.

26   J H Vance, 'Tactics without Strategy or Why the Canadian Forces Do Not Campaign' in Allan English, *et al* (eds), *The Operational Art: Canadian Perspectives, Contexts and Concepts*, Canadian Defence Academy Press, Kingston, Ontario, 2005, p. 285.

professional deficiency in an era in which strategic uncertainty could lead to the sudden commitment of large-scale ADF forces in a major regional contingency'.[27] At an even more fundamental and potentially existential level, deterring and defeating armed attacks on Australia 'by conducting independent military operations without relying on the combat or combat support forces of other countries' will by necessity demand the skilful employment of military forces to attain strategic goals through the design, organisation, sequencing and direction of campaigns and major operations.[28]

What is to be done?

> … in war, as in life generally, all parts of the whole are interconnected and thus the effects produced, however small their cause, must influence all subsequent military operations and modify their final outcome to some degree, however slight. In the same way, every means must influence even the ultimate purpose.
>
> — Clausewitz, *On War*[29]

The central thesis of this study paper echoes Dr Michael Evans' contention that ADF operational art is conceptually weak and has been characterised by an intellectually restrictive framework.[30] Specifically, there is no widespread understanding of relevant operational art. The consequence is that there is virtually no culture of campaigning in the ADF that is based on sound doctrine relevant to the demands on the use of military force in the contemporary operating environment. This situation is compounded by a joint professional military education system that, according to one recent study on the subject, currently 'fails to achieve the high levels of excellence required. It also lacks flexibility and adaptability, and it does a very modest job of inculcating such

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27   Evans, 'Closing of the Australian Military Mind', p. 130.

28   The aspiration for self-reliance in the defence of Australia is a cornerstone of the government's latest Defence White Paper, *Defending Australia in the Asia-Pacific Century: Force 2030*, p. 48.

29   Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret, Princeton University Press, Princeton, 1976, p. 158.

30   Evans, 'The Closing of the Australian Military Mind', p. 107.

key characteristics in those sent to participate in its courses'.[31] It is as if the ADF is suffering from a fundamental problem of professional self-confidence regarding the more intellectual facets of the profession of arms.[32]

The result is the ADF is not best prepared to support the government in the pursuit of national interests. Nor does the ADF adequately prepare its leaders for the eventuality of using operational art when it might be required in a substantial regional crisis. And, of most immediate concern, the ADF does not presently provide the best level of holistic operational support to deployed forces.

Lieutenant General Sir John Kiszley of the UK Armed Forces argues that there are a number of factors which can retard the speed of learning in armed forces. First is a tendency towards anti-intellectualism. Second is an unwillingness to accommodate internal and external criticism. Third is the absence of the sustained development of concepts, ideas and doctrine from within a respected seat of learning. Fourth is the inherent conservativeness of militaries with regard to change, particularly change which affects structure or culture. Finally, militaries 'the world over are prone to confusing progress with activity, training hard but for the wrong thing'.[33]

The ADF's tactical excellence is unquestioned; however, winning tactical engagements does not guarantee victory in the war. The ADF's competence at securing operational and strategic objectives through the deliberate linking of cumulative tactical successes is questionable. If the ADF is to inculcate a campaigning culture grounded in a widely understood and relevant operational art into its officer corps then the senior leadership of the ADF must lead the drive to overcome the inhibiting factors identified above by Sir Kiszley. As prominent military historians Barry Watts and Williamson Murray compellingly argue:

> Without the emergence of bureaucratic acceptance by senior military leaders, including adequate funding for new enterprises and viable career paths to

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31   Ross Babbage, *Preparing Australia's Defence for 2020: Transformation or Reform?* Kokoda Paper No. 1, Kokoda Foundation, Canberra, 2005, p. 36.

32   Jeffery Grey, 'Professional Military Education in the ADF', *Defender*, Spring 2004, p. 30.

33   John Kiszley, 'Learning about Counterinsurgency', *RUSI* Journal, December 2006, p. 19.

attract bright officers, it is difficult, if not impossible, for new ways of fighting to take root within existing military institutions.[34]

Before anything tangible will be achieved, senior ADF leadership must recognise that there is a problem. The ADF does not have a culture of campaigning; nor does it have relevant operational art codified in doctrine or within the Joint Professional Military Educational (JPME) system that will provide a suitable foundation from which to develop operational excellence. It should.

Relevant operational art for the ADF must account for the complexity of the contemporary operating environment and fundamentally recognise the uncertainty and non-linearity inherent in war. Unfortunately, as Chapters One and Two will show, contemporary ADF operational art and our current approach to campaign planning, as codified in doctrine, is derived from a way of warfare which is growing increasingly irrelevant, does not reflect operational reality, and fails to account for the non-linear and uncertain nature of war.

Three broad fixes are recommended. These fixes are interdependent and mutually reinforcing. They are not structural; however, to be successful they will require deliberate and purposeful action by ADF senior leadership in order to provide the impetus for change. First, senior ADF leadership must inculcate a campaigning mindset into the ADF officer corps. This is the focus of Chapter Three. Developing a campaigning mindset has implications for the way the three respective Services view the battlespace and the nature of problems encountered in the battlespace. The principal medium to achieve this campaigning mindset is through the JPME system. This first fix evidently requires acknowledgment across ADFHQ and the three Services that a problem does indeed exist with the ADF's approach to operational art and campaign design, planning and execution.

The second fix, which flows from the first, is to make ADF operational art relevant. ADF operational art, as codified in doctrine and taught in the JPME system, must be relevant for it to be of any practical use. This is the responsibility of VCDF Group who are responsible for Joint Doctrine and JPME. Chapter Four highlights the essence of good operational art and provides guidance for relevance. To become relevant,

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34 Barry Watts and Williamson Murray, 'Innovation in Peacetime' in Williamson Murray and Alan R Millett (eds), *Military Innovation in the Interwar Period*, Cambridge University Press, Cambridge, 1996, p. 409.

ADF operational art and campaign planning doctrine must: emphasise the essential requirement to get the operational approach right, present a holistic understanding of war, elevate functionality over location, be human-centric and not techno-centric, and acknowledge Australia's geostrategic reality.

The third fix, which is the focus of Chapter Five, is that the ADF must embrace operational design into its approach to campaign planning and execution. Current doctrine fails miserably in its treatment of campaign design mostly because it is based on flawed foundations. Widespread understanding of operational design and the critical thinking skills which underpin design will enhance the ADF's capability to manage the complex problems the ADF is increasingly being asked by government to manage.

Undoubtedly, ADF operational art must be able to ultimately account for the defence of Australia, even if there are no coalition partners in support, regardless of how unlikely this event may be.[35] But ADF operational art must also specifically account for the way in which Australian military power is used in pursuit of national objectives in general. That is, it needs to be sufficiently orthodox to ensure 'interoperability with major alliance partners, flexible enough to cover all likely missions and reflective of middle-power geopolitical reality'.[36] However, ADF operational art must also be sufficiently mature and encompassing enough to support the most likely deployments of military force. Without a culture of campaign planning within an operational framework that consciously seeks to 'integrate two emerging ADF functions: alliance force provision based upon "global missions of choice"; and, lead nation force generation based upon regional "missions of necessity"', the ADF is unable to support the pursuit of strategic and political interests except in anything but an ad hoc fashion.[37] To paraphrase one commentator on the issue, unless the ADF abandons any pretence of national sovereignty and distinct military autonomy, and is content simply to be absorbed as a few battlegroups and staff officers into grand coalitions, a serious search of first principles is overdue.[38]

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35   See Chris Barrie and Ross Thomas, 'Debate: The ADF and Operational Art', *Security Challenges*, Vol.4, No. 2, Winter 2008, pp. 139–43.

36   Evans, 'The Closing of the Australian Military Mind', p. 124.

37   Ibid., p. 106.

38   William McAndrew, 'Operational Art and the Canadian Army's Way of War' in B J C McKercher and Michael A Hennessy (eds), *The Operational Art: Developments in the Theories of War*, Praeger, Westport, 1996, p. 98.

1 – Operational Reality

> Every age has its own kind of war, its own limiting conditions, and its own peculiar preconceptions. It follows that the events of every age must be judged in the light of its own peculiarities.
>
> — Clausewitz, *On War*[39]

The major influences and perspectives that have shaped current ADF understanding of operational art and doctrine originate principally from the United States. This American influence shaped our education and doctrine with minimal debate over its relevance. Significantly ADF operational art and campaign planning has changed little from its verbatim inception into doctrine in the late 1980s. As one observer of this process notes:

> The United States (US) Army introduced the operational level of war and the concept of operational art into its doctrine during the 1980s, largely to address a perceived disconnect between tactical action and strategic goals. This new operational level doctrine was intended to link strategy and tactics through a 'holistic and integrated view of warfare,' and thereby serve as a framework for large unit operations. Moreover, these essentially American concepts—concepts framed in the great-power context of large forces conducting high-intensity, air-land operations across extended geographic theatres—were grafted verbatim into allies' doctrines, without the benefit of the intellectual debates that had taken place in the US.[40]

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39   Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret, Princeton University Press, Princeton, 1976, p. 593.

40   Richard N H Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', Unpublished paper, Command and General Staff College, Fort Leavenworth, 2004, p. 1.

Unfortunately the influences and perspectives that shaped initial US, and therefore ADF, operational art do not today adequately account for the increasing tactical politicisation and the character of contemporary war. The result is a body of doctrine and knowledge that is becoming increasingly irrelevant in its current form.

If the ADF aims to couple military success with an enduring political outcome through relevant operational art and effective campaign design, planning and execution it will need to reconcile the current Australian way of war with the realities of the contemporary operating environment.[41] Developing relevant operational art and inculcating a campaigning culture into the ADF depends on understanding the contemporary operating environment and accounting for it in our approach to the use of military force, our doctrine and our education.

Fighting the wars we have, not the ones we want

> You will find scholars and others who try to persuade you that war is changing its nature as its many contexts alter…it is nonsense. There are no regular or irregular wars. There are only wars.
>
> — Colin Gray[42]

Unfortunately, the Cold War no longer defines the contemporary operating environment and today's operating environment is arguably more complex than ever. This environment will require military organisations to ensure the applicability of their doctrine, professional military education and professional ethos beyond that which was required in the past. As historian Dr Al Palazzo suggests,

> Military organisations equipped with ill-conceived doctrinal models will find themselves embroiled in conflicts that they are unsuited to wage. To attempt to regulate the future of war through doctrine, in the face of the vast

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41   See Daniel T Canfield, 'Winfield Scott's 1847 Mexico City Campaign as a Model for Future War', *Joint Forces Quarterly*, Issue 55, 4th Quarter, 2009, p. 96, for an excellent argument why this is equally true for the United States.

42   Colin Gray, 'Irregular Warfare: One Nature Many Characters', *Strategic Studies Quarterly*, Spring 2007, p. 40.

array of variables that confronts today's military professionals, is to commit intellectual hubris.[43]

Today, rapid advances in technology, globalisation, and the spread of information and communications technology have promoted greater interconnectivity and interdependence, resulting in modern forces being more specialised and more networked with decisions being more distributed than ever before. Alongside this, the aspirations for the use of military force to further political ends have changed.

Military forces today are being asked to solve all manner of vague and ill-defined strategic problems rather than the traditional problem of just defeating an enemy military force in order to seize strategic geographic or economic objectives. This is not to say the strategic problems of the future will not involve high intensity warfare between near-peer conventional forces. In fact, 3000 years of strategic history suggests this is highly likely.[44] However, the reality is that most often there are no neatly definable solutions to contemporary strategic problems and more often than not such problems require much more than just the application of military force. The popularity and frequency of use of labels such as 'whole-of-government', 'whole-of-nation' or 'joint interagency task forces' are illustrative of the variety of stakeholders involved. To be successful in the contemporary operating environment, it is argued, Western countries will need highly mobile, well-equipped and versatile forces 'capable of multidimensional, joint, coalition and interagency missions and mastery of persuasion, coercion, and controlled violence across a complex spectrum of conflict'.[45]

To complicate matters further, our enemies are proving to be increasingly innovative, diverse, adaptive, agile and lethal, and more difficult to defeat than hoped. This should not come as a surprise, but for many it does. The diffusion of advanced technologies has created the very real threat of ever-increasing destructive power, up to and including weapons of mass destruction, falling into the hands of both state and non-state actors. But, the huge disparity in technological weaponry, mobility, and

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43   Albert Palazzo, *Moltke to Bin Laden: The Relevance of Doctrine in the Contemporary Military Environment*, Study Paper No. 315, Land Warfare Studies Centre, Canberra, 2008, p. 57.

44   See Colin Gray, *Another Bloody Century: Future War*, Weidenfeld and Nicholson, London, 2005, for the best argument that high intensity conventional conflict will occur in the future, guaranteed.

45   Adapted from Michael Evans, 'From Kadesh to Kandahar: Military Theory and the Future of War', *Naval War College Review*, Vol. LVI, No. 3, Summer 2003, p. 146.

information collection and dissemination systems between the United States (and by inference, her allies) and her possible enemies contributes to asymmetric avoidance behaviour on the part of our enemies. Such behaviour seeks to draw any US coalition into increasingly intense, protracted and exhausting confrontation, preferably in complex terrain. At the operational and tactical level this strategy is executed through non-conventional means—insurgency featuring terrorism and guerrilla warfare, subversion, and destructive information operations—making decisive military responses problematic.

Importantly, many current and potential adversaries will have low tactical defeat thresholds—they are relatively easily beaten in combat. In contrast, their strategic threshold will be high, meaning they are relatively impervious to changes in political will, community support, or public opinion. Facing an opponent with a low tactical defeat threshold but a high strategic defeat threshold has direct implications for the way force should be applied. The use of imprecise or non-discriminatory physical force in this environment may lead to counter-productive unintended consequences and risks alienating the population who, more often than not, should be the focus of our actions.[46]

The apparent paradox inherent in the use of force in the contemporary operating environment becomes even more pronounced when one considers the increasing challenges presented by the tactical politicisation of warfare.[47] The interpenetration of war and politics on today's battlefield is much more pervasive compared with the high intensity, state versus state conventional conflict that mostly characterised the battlefields of the Second World War and was the genesis for the current operational art paradigm. Today, there is the growing realisation that military operations are now, and will continue to be, completely integrated with political, diplomatic, economic and cultural activities. The challenge, more than ever, is to conceive military operations within a political framework.[48]

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46   See Rupert Smith, *The Utility of Force: The Art of War in the Modern World*, Vintage Books, New York, 2005, for an amplification of this thesis.

47   See FM 3-24 *Counterinsurgency Field Manual*, The US Army and Marine Corps, The University of Chicago Press, Chicago, 2007, on the implications on the use of military force.

48   Michael Evans, 'Clausewitz's Chameleon: Military Theory and the Future of War', *Quadrant*, Vol. XLVI, No. 11, November 2002, p. 8, <http://www.quadrant.org.au/php/phpprint.php> accessed 26 October 2005.

At first glance this is not a new concept. Political considerations have always conditioned military operations. Clausewitz makes this a central theme of his theory of war, repeatedly stressing the subordination of war to politics, asserting that 'war should never be thought of as something autonomous, but always as an instrument of policy'.[49] And, although policy exerts a subordinating influence over war to realise its purpose, its influence runs up against, and is in turn influenced by, the forces of violence and chance that are inherent in military operations as well as the force of basic hostility.[50] The result is that policy may have to change or reduce its aims as war ebbs and flows. Policy can influence military operations only to the extent that war's violent nature will allow, and military commanders are entitled to require that 'policy shall not be inconsistent with [war's] means'.[51] Policy's influence over war is therefore not absolute, but it is substantial.

The difference between today's conflicts and yesterday's wars, however, is that in the past, policy and politics were mainly a factor at the strategic level, where statecraft was required to guide the application of military power.[52] In a conventional war, for which our current understanding of operational art was developed, individuals at the tactical level can afford to devote themselves largely to purely military tactical issues. A competent conventional campaign design will ensure that tactical actions are linked to operational goals, which in turn are linked to campaign goals. Campaign goals, at least in theory, contribute to the attainment of strategic goals, which represent the nexus between the application of military power and the achievement of policy goals. However, in the 'hybrid wars' of today, politics pervades all levels of war, especially when the application of purely military measures may not by itself secure victory. This is because the solution to winning the conflict will lie in the political realm rather than purely in the military realm. The effect on the application of force is significant: tactical commanders now require at least a broad understanding of campaign goals, and the education and experience to comprehend possible immediate and potential effects of their tactical actions at the operational and strategic levels of war. Or, as a minimum,

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49   Clausewitz, *On War*, p. 88.

50   Antulio Echevarria, *Clausewitz and Contemporary War*, Oxford University Press, Oxford, 2007, p. 95.

51   Ibid., p. 88; Clausewitz, *On War*, pp. 87, 607.

52   Evans, 'Clausewitz's Chameleon', p. 8.

tactical commanders need to be able to recognise when their tactical actions are likely to be discordant with the operational and strategic goals of the war.

The appropriate use of force becomes even more problematic for Western defence forces because, like their respective domestic societies, these defence forces tend to be characterised by an aspiration to achieve quick results.[53] Coupled with a predilection for technology that arguably 'encourages the search for the quick, convenient solution, often at the expense of the less obvious, but ultimately more enduring one', such an approach to warfare creates a presumption of near-immediate solution. This presumption, in turn, inevitably manifests itself in devoting considerable effort to the uncompromising destruction of the enemy's forces 'rather than a more finely tuned harnessing of military effect to serve political intent—a distinction in the institutional understanding of military purpose'.[54]

The desire for quick victory through decisive battle can be an impediment to the design and execution of a relevant and effective campaign on today's battlefield.[55] This may not always be the case; however, rapid victory through decisive battle would appear to be the exception rather than the norm. Instead, military professionals must learn to embrace the challenges of proportion, coercion, and dissuasion as well as the older tradition of battlefield destruction.[56] These approaches to the use of force—proportion, coercion and dissuasion—need to be woven throughout any campaign design or operational approach. More than ever isolated tactical actions can have

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53   See Robert M Cassidy, 'Why Great Powers Fight Small Wars Badly', *Military Review*, September-October 2000, who argues that great powers embrace a 'big-war paradigm' founded on the concept of decisive battle which is ill-suited to winning small wars. See also Gil Merom, *How Democracies Lose Small Wars,* Cambridge University Press, Cambridge, 2003, who argues that a democratic nation's domestic political structure and institutional composition do not support a protracted war.

54   N R F Aylwin-Foster, 'Operation Iraqi Freedom Phase 4: The Watershed the US Army Still Needs to Recognise?', Unpublished paper, Royal College of Defence Studies, 2005 course, copy in author's possession, p. 22.

55   As John Nagl points out in a recent comparison of British and American institutional approaches to conducting counterinsurgency operations it was 'this mind-set, the idea that the US Army could defeat any enemy on any battlefield given enough firepower and the freedom to apply it indiscriminately, that precluded organizational learning on counterinsurgency during the Vietnam War' and contributed significantly to an American defeat. See John A Nagl, *Learning to Eat Soup With a Knife: Counterinsurgency Lessons From Malaya and Vietnam*, The University of Chicago Press, Chicago, 2002, p. 203.

56   Evans, 'From Kadesh to Kandahar', p. 139.

direct operational or strategic effects. Often, these effects are negative, such as the collateral death of non-combatants, which impedes our attainment of operational objectives.

In large-scale, high intensity conventional warfare, the use of force is relatively straightforward: it is normally overwhelming, synchronised, and designed to destroy, neutralise, or suppress the enemy to allow for friendly manoeuvre. In contemporary and future hybrid conflicts the motive behind using force is not, by default, material destruction.[57] The reason is that in the highly politicised and publicised conflicts of today restraint and legitimacy are key ingredients for success. The use of force is not an end in itself. Each time force is used, even if it is discriminating and apparently justified, it can undermine popular support, change perceptions, and alienate the local population. Moreover, if an enduring peace is the strategic end-state, then the legitimacy of the incumbent government in the eyes of the people is essential. In the struggle to gain control of the population and their perceptions, or at least passive acceptance by the population of the adversary's cause, the legitimacy and rectitude of the incumbent governing power becomes a primary target as far as our adversaries are concerned.[58]

Note, however, that the requirement for rectitude through the discriminatory use of force does not, nor ever will, remove the enduring requirement to be successful at close combat. As Lenin succinctly argued, 'one man with a gun can control 100 without one.'[59] This is because close combat provides the means for an armed force to achieve proximity to the very people it will have to control and influence if it is to be successful. Indeed, as the American strategist Admiral J C Wylie pointed out in the late 1960s, the 'ultimate determinant in war is the man on the scene with the gun. This man is the ultimate power in war. He is control. He determines who wins.'[60] And

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57 *Small Wars Manual: United States Marine Corps 1940*, Sunflower University Press, Kansas, 1988, p. 1-10-18.

58 Max G Manwaring, *Internal Wars: Rethinking Problem and Response*, Strategic Studies Institute, Carlisle, 2001, p. 19. In addition, for the central role of legitimacy in psychologically dislocating insurgents, see Thompson, *Defeating Communist Insurgency*, p. 52.

59 Quote attributed to Lenin in Justin Kelly, 'How to win in Afghanistan', *Quadrant Online*, <http://www.quadrant.org.au/magazine/issue/2009/4/how-to-win-in-afghanistan> accessed 19 April 2010.

60 J C Wylie, *Strategy: A General Theory of Power Control*, Naval Institute Press, Annapolis, 1967, p. 72.

obviously it would be better for us if that man on the scene with the gun was one of ours and not the enemy's.[61] Without security there can be no progress, and it is the ability to win at close combat that ultimately enables security.

Today, an increasingly pervasive media accelerating the dissemination of any negative action combined with the interpenetration of politics through each of the levels of war adds significant complexity to the operating environment. In a world of instant images, any inappropriate use of force is immediately leveraged against coalition and government security forces, which creates greater challenges for the attainment of operational and strategic objectives. The pervasive presence of the media on the battlefield ensures there are multiple connections between the tactical encounter and the wider world, which allows populations remote from the event to arrive at conclusions on the tactical means applied and the costs being borne by the local population. Today, the people and systems 'engaged in a minor tactical encounter are as globalised as the Internet. This is why the "strategic corporal" is strategic'.[62]

To be decisive in the highly complex, politicised, and interconnected contemporary and future battlefield, the aim must be to ensure that the application of force 'can be modulated and shaped by professional militaries to accommodate rapidly shifting politics and flexible operational and strategic objectives'.[63] Defaulting to the use of lethal force to solve problems—normally the expected course of action in conventional warfare and certainly the expected course of action that underscored the development of operational art—can be overwhelmingly counterproductive with negative second and third order effects eroding the political legitimacy of the operation. This adds an unprecedented degree of complexity to warfare that is not adequately accounted for in the ADF's doctrine and practice of operational art.

Certainly, war has always been complex. Even a casual reading of Thucydides highlights that war is a social phenomenon that occurs within an intricate and interconnected web of politics, economics, societal dynamics, culture, religion, ideology, geography and the international relations between states. Clausewitz, too, understood fundamentally the inherent complexity in war, which is evident in his emphasis on interaction, friction and chance. As Alan Beyerchen points out,

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61   Kelly, 'How to win in Afghanistan'.

62   Justin Kelly and Mike Brennan, 'OODA versus ASDA: Metaphors at War', *Australian Army Journal*, Vol. 6, No. 3, Summer 2009, p. 45.

63   Evans, 'From Kadesh to Kandahar', p. 143.

On War 'is suffused with the understanding that every war is inherently a nonlinear phenomenon, the conduct of which changes its character in ways that cannot be analytically predicted'.[64] But there is now widespread growing realisation that due to increasing complexity our traditional approaches to solving problems through the use of military force, grounded in Newtonian logic and linear determinism, do not work.[65] This growing realisation has come about through practical experience most recently in Iraq and Afghanistan and through an increased awareness of advances in the science of complex systems.

A system is complex in the sense that there are a great many independent agents interacting with each other in a great many ways.[66] Not only do these independent agents interact with each other, but they individually and collectively interact with their environment. As one complex systems scientist argues:

> …the essence of complexity is related to the amount of variety within the system, as well as how interdependent the different components are. Interdependence means that changes in the system generate many circular ripple effects, while variety means that there are many possible alternative states of the system and its parts…complexity is fundamentally a dynamic characteristic of the system.[67]

Human society is a complex system, made up of many, many complex systems. The ADF, too, is a complex system made up of many other complex systems. A key property of a complex system is it will tend towards nonlinear behaviour. This means that changes in system output are not necessarily proportional to changes in system input as they would be for a linear system. Small causes of change do not necessarily

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64   Alan Beyerchen, 'Clausewitz, Nonlinearity, and the Unpredictability of War', *International Security*, Vol. 17, No. 3, Winter 1992–93, p. 61.

65   This is a popular theme. A good start point is: James K Greer, 'Operational Art for the Objective Force', *Military Review*, Vol. 82, No. 5, September–October 2002, p. 22.

66   M Mitchell Waldrop, *Complexity: The Emerging Science at the Edge of Chaos*, Simon and Schuster, New York, 1992, p. 11.

67   Alex Ryan, 'The Foundation for an Adaptive Approach: Insights from the Science of Complex Systems', *Australian Army Journal*, Vol. 6, No. 3, Summer 2009, p. 70.

result in small effects.[68] The so called 'strategic corporal' effect is an example, as is Clausewitz's assertion that success 'is not due simply to general causes. Particular factors can often be decisive—details only known to those who were on the spot … while issues can be decided by chances and incidents so minute as to figure in histories simply as anecdotes.'[69] Additionally, nonlinear systems can not be broken into smaller pieces, analysed, and then put back together with the expectation that the sum of the analyses will satisfactorily explain the whole. This requires a holistic view of the system, not a reductionist view. As one notable convert to complexity science suggests: 'Where merely complicated systems require mostly deduction and analysis (formal logic of breaking into parts), complexity requires inductive and abductive reasoning for diagnostics and synthesis (the formal logic of making new wholes of parts).'[70] Unfortunately, the Joint Military Appreciation Process (JMAP) is firmly grounded on deduction (IPB, Mission Analysis) and analysis (COA selection) rather than any explicit synthesis.

Two other properties of complex systems worth noting are emergence and adaptation. Emergence essentially describes the condition where the whole is different to the sum of its parts.[71] That is, emergence is 'the arising of novel and coherent structures, patterns, and properties during the process of self-organisation in complex systems'.[72] A simple example is that humans, attempting to satisfy their material needs by buying, selling and trading with one another create an emergent structure known as a market. According to complex systems science, the key to even beginning to understand emergence lies in the connections between the 'nodes' or parts of the systems, rather than just focusing on the nodes themselves.[73]

The second property of note in complex systems, and one intimately connected to emergence, is adaptation. All living organisms are complex adaptive systems.

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68   Beyerchen, 'Clausewitz, Nonlinearity, and the Unpredictability of War', p. 62.

69   Clausewitz, *On War*, p. 595.

70   Huba Wass de Czege, 'Systemic Operational Design: Learning and Adapting in Complex Missions', *Military Review*, Vol. 88, No. 1, January–February 2009, p. 2.

71   For a layman's explanation of emergence see Steven Johnson, *Emergence*, Scribner, New York, 2001.

72   Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity*, Columbia University Press, New York, 2009, p. 174.

73   Waldrop, *Complexity: The Emerging Science at the Edge of Chaos*, pp. 288–92.

Such systems are self-organising because they have the capacity to 'learn' from their interaction with their environment; over time, there is a trend toward increasing sophistication, complexity and functionality.[74] In essence, complex adaptive systems are continually adapting to improve their fit to the environment based on their 'perceptions' of the environment. Army's Future Land Operational Concept, *Adaptive Campaigning*, recognises this when it describes warfare as a competitive learning environment between multiple complex adaptive systems, requiring emphasis on consistent context appropriate behaviour if these systems are to be influenced in our favour.[75]

Complex human systems produce ill-structured, or 'wicked' problems. Wicked problems were first defined by two US city planners, Horst Rittel and Melvin Webber, in the 1970s. Rittel and Weber were motivated by the understanding that the 'professionalised cognitive and occupational styles that were refined in the first half of this century, based in Newtonian mechanistic physics, are not readily adapted to contemporary conceptions of interacting systems and to contemporary concerns with equity'.[76] There are ten distinguishing properties of wicked problems but, most important for armed forces facing wicked problems, is the realisation that there is no definitive formulation of a wicked problem. This means that the information needed to understand the problem depends on one's idea for solving it: the problem cannot be defined until the solution has been found.[77] This in turn means that both the nature

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74   Ibid., p. 296.

75   *Adaptive Campaigning*: *The Land Force Response to Complex Warfighting*, Version 4.18, Department of Defence, Canberra, 24 November 2006.

76   Horst W J Rittel and Melvin M Webber, 'Dilemmas in a General Theory of Planning', *Policy Sciences*, Vol. 4, 1973, p. 156.

77   The other nine distinguishing features of wicked problems are: Wicked problems have no stopping rule; solutions to wicked problems are not true-or-false, but good-or-bad; there is no immediate and no ultimate test of a solution to a wicked solution; every solution to a wicked problem is a 'one-shot operation' because there is no opportunity to learn by trial-and-error, every attempt counts significantly; wicked problems do not have an enumerable (or exhaustively describable) set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan; every wicked problem is essentially unique; every wicked problem can be considered to be a symptom of another problem; the existence of a discrepancy representing a wicked problem can be explained in numerous ways and the choice of explanation determines the nature of the problem; and, the planner has no right to be wrong. Rittel and Weber, 'Dilemmas in a General Theory of Planning', pp. 161–67.

of the problem and the appropriate response are unique and fluid.[78] In the face of a wicked problem, defining the true nature of the problem becomes both essential and problematic. Often the true nature of the problem doesn't emerge until we create change in the system, and even after change is created the true problem doesn't emerge until an indeterminable period of time has passed. How we frame the problem is therefore fundamental to success—we solve the problems we frame.[79]

Typically, though, there is a tendency to not even recognise the relevance of the complexity and 'wickedness' inherent in many of the problems the military is called upon to solve and to leap straight into what we know and attempt to 'tame it'. As Gary Klein argues in his popular book, *Sources of Power*, decision-makers usually look for the first workable option they can find, not necessarily the best solution. The emphasis is more on being poised to act rather than being paralysed until all the evaluations have been completed.[80] Our own culture exacerbates this 'can-do' attitude. The JMAP does so as well with its up-front analysis of a mission which is generally provided to us by our higher headquarters and by default accepted as the problem that must be solved. In his excellent book *The Fifth Discipline*, Peter Senge points out that,

> … from a very early age, we are taught to break apart problems, to fragment the world. This apparently makes complex tasks and subjects more manageable, but we pay a hidden, enormous price. We can no longer see the consequences of our actions; we lose our sense of connection to a larger whole.[81]

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78   Richard M Swain, 'Commander's Business: Learning to Practice Operational Design', *Joint Forces Quarterly*, Issue 53, 2nd Quarter, 2009, p. 62.

79   According to Martin Rein and Donald Schön: A frame is a perspective from which an amorphous, ill-defined problematic situation can be made sense of and acted upon. Framing is a way of selecting, organising, interpolating, and making sense of a complex reality so as to provide guideposts for knowing, analysing, persuading and acting. Martin Rein and Donald A Schön, 'Frame-reflective policy discourse' in Peter Wagner, Carol H Weiss, Bjorn Wittrock and Hellmut Wollman (eds), *Social Sciences, Modern States, National Experiences and Theoretical Crossroads*, Cambridge University Press, Cambridge, 1991, p. 263.

80   Gary Klein, *Sources of Power: How People Make Decisions*, MIT Press, Cambridge, 1998, p. 30.

81   Peter Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization*, Doubleday, New York, 1990, p. 3.

A striking example of an attempt to tame a wicked problem is offered by Keith Grint in an analysis of leadership, command and management during D-Day. Grint highlights the 1942 raid on Dieppe by the Canadians. He suggests the planners were so confident and so dismissive of complexity that they demanded that no Canadian unit commander use his initiative since this itself might undermine the guarantee of success. The Canadian Commanding General of the raid, Major General J H Roberts, was quite optimistic about the whole affair, for 'the plan is good, the men are keen and they know what to do'. This just before landing 5100 soldiers only to see 3648 fail to return.[82]

Effective action in an environment where problems tend to be ill-structured and are the result of multiple complex adaptive systems competing with each other requires significant insight into the relationships defining the wider system.[83] A systems perspective acknowledges there are multiple levels of explanation in any complex situation and looks at the situation holistically, avoiding the temptation to break the perceived problem down into manageable chunks. As one recent commentary on problem solving from a complex systems perspective argues, the most marked feature of a complex systems approach is a departure from the idea that 'our world can be reduced to simple models, that the real dynamics of the world make prediction nearly impossible and demand a different way of thinking'.[84]

A predilection of the military, however, is to focus on 'events'. This in turn leads to 'event' explanations—who did what to whom (Incident Reports for example). While such explanations may be true for the particular incident captured at a certain point in time and from a certain perspective—our own—they 'distract us from seeing the longer term patterns of change that lie behind the events and from understanding the causes of those patterns'.[85] Typically we ignore the deeper, more fundamental questions associated with the structure of the system or systems we are interacting with. That is, we fail to ask and answer: 'What causes the patterns of behaviour?'

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82   Keith Grint, *Leadership, Management and Command: Rethinking D-Day*, Palgrave Macmillan, Hampshire, 2008, p. 36.

83   Swain, 'Commander's Business: Learning to Practice Operational Design', p. 62.

84   Joshua Cooper Ramo, *The Age of the Unthinkable: Why the New World Disorder Constantly Surprises Us and What We Can Do About It*, Little, Brown and Company, New York, 2009, p. 17.

85   Ibid., p. 21.

Connected to this is the typical response, when faced with a failing course of action, of finding someone to blame or assigning responsibility to one individual to oversee 'the system', to coordinate and control what is happening. Ironically, the 'system' includes how we work together; putting somebody in charge by its very nature makes things worse because no one person can understand 'the system' and its multiple interactions well enough to be responsible.[86] A collaborative approach to problem solving that deliberately and with focus includes a variety of perspectives is therefore essential.

War is fundamentally uncertain and unpredictable, arguably more so than any other type of human social phenomenon. For a training and education regime to effectively prepare leaders for war today it must recognise and prepare for the inherent presence of ambiguity, chaos, chance and friction. A central thread woven throughout Clausewitz's *On War* is that war is comprised of countless and continuous interactions occurring in an unstable environment, and generating innumerable possibilities that defy prediction.[87] To compound matters, 'no other human activity is so continuously or universally bound up with chance', meaning that 'guesswork and luck come to play a great part in war'.[88] Additionally, the difficulties of war 'accumulate and end by producing a kind of friction that is inconceivable unless one has experienced war', so that in effect 'everything in war is very simple, but the simplest thing is difficult'.[89] War, regardless of advances in technology and in spite of our desire otherwise, will continue to be characterised by the unforeseeable effects generated by the nonlinearity of interaction, and therefore 'facing up to the intrinsic presence of chance, complexity, and ambiguity in war is imperative'.[90]

Any attempt to predict or control warfare will only disguise the true complexity of the situation rather than actually reduce or remove it. The danger of oversimplifying a complex situation is that:

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86   Yaneer Bar-Yam, *Making Complex Things Work: Solving Complex Problems in a Complex World*, NECSI Knowledge Press, 2004, p. 14.

87   H R McMaster, *Crack in the Foundation: Defense Transformation and the Underlying Assumption of Dominant Knowledge in Future War*, US Army War College Strategy Research Project, US Army War College, Carlisle Barracks, 2003, p. 15.

88   Clausewitz, *On War*, p. 85.

89   Ibid., p. 119.

90   Beyerchen, 'Clausewitz, Nonlinearity, and the Unpredictability of War', p. 70.

… actions have unintended consequences that undermine the best of intentions and efforts. In spite of the understandable urge to impose order on chaos, an understanding of complex systems suggests that we would be better served by focusing on exploiting the transformative potential of sources of uncertainty and surprise, to view irreducible uncertainty as an opportunity to disorient the adversary rather than a risk to mitigate.[91]

The entire melting pot of technology, increasing politicisation and interdependence, ill-defined strategic problems, multiple actors, and an asymmetric enemy who often avoid easy definition, have together created an extremely complex environment that consistently defies prediction and makes problem solving through military action both challenging and problematic. This environment has significant implications for operational art and the way we design, plan and execute campaigns. Unfortunately, our current approach to campaign design, planning and execution is founded on concepts that are inherently flawed and fail to adequately account for the complexity and unpredictability of war on today's battlefield.

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91   Ryan, 'The Foundations for an Adaptive Approach', p. 76.

2 – Flawed Foundations

> Specificity, inflexibility, slowness to adapt, corps provincialism, and a tendency to descend into dogma are among the enduring liabilities of doctrine.
>
> – Albert Palazzo[92]

Current approaches to campaign planning, codified in ADF doctrine, fail to explicitly recognise the nonlinearity of war. Typically, current doctrinal approaches to campaign planning and the exercise of operational art, including central concepts such as Centre of Gravity (COG), Network Centric Warfare (NCW) and an Effects-Based Approach to Operations (EBA or EBO), depend on scientific methods for problem solving which are proving to be increasingly less capable of managing the problems our military is consistently being tasked to solve. This is important. Whether one recognises nonlinearity and 'accepts certainty or uncertainty as the dominant condition of war is important because the type of force one designs, the training that force conducts, the education of officers, and military culture will differ greatly based on that fundamental belief'.[93]

But our own understanding and practical application of operational art and campaign planning, underscored by our doctrine and our JPME system, fails to account for the variety of challenges presented by the complexity of or the inherent ambiguity in the contemporary operating environment. Collectively, our understanding of operational art and campaigning rests on flawed foundations. ADF doctrine continues to focus on linear, Newtonian concepts such as COG and EBA. Both of these concepts reflect an intent, even if only implicitly, to attain certainty and predictability in a human endeavour which is clearly not certain or predictable. ADF JPME does not provide

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92   Albert Palazzo, *Moltke to Bin Laden: The Relevance of Doctrine in the Contemporary Military Environment*, Study Paper No. 315, Land Warfare Studies Centre, Canberra, 2008, p. 52.

93   H R McMaster, *Crack in the Foundation: Defense Transformation and the Underlying Assumption of Dominant Knowledge in Future War*, US Army War College Strategy Research Project, US Army War College, Carlisle Barracks, 2003, p. 15.

emphasis on critical thinking or educate for uncertainty and ambiguity; nor does it inculcate a campaigning culture in the minds of its students.

Finally, the current understanding of operational art, manifested in ADF doctrine, owes its origins to conditions and influences which are mostly outdated and consequently reflect an approach to warfighting that is losing relevance in the contemporary operating environment. The understanding of ADF operational art and its practical application through doctrine and education is becoming increasingly irrelevant in the face of operational reality.

The origins of ADF operational art

> Our doctrine, education and training systems are central to developing professional mastery as they promote the individual's analytical and intuitive skills, create trust and build teams.
>
> – *Joint Operations for the 21st Century*[94]

Like Britain and Canada, the ADF in the 1980s and early 1990s followed the United States in incorporating operational art and the operational level of war into doctrine and its professional military education curriculum. According to a former director of the US Army's School of Advanced Military Studies (SAMS), Colonel James Greer, the logic and necessity for operational art was so compelling that the US joint community incorporated virtually intact the US Army's doctrine on operational art and the operational level of war.[95] In the spirit of interoperability, this joint doctrine quickly found its way into Australian, British and Canadian doctrine. Despite some minor amplifications, the current ADF doctrinal definition of operational art has remained virtually unchanged since its inception and is a slavish copy of the US Army's early definition of operational art published in the mid-1980s.[96]

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94 *Joint Operations for the 21st Century*, Department of Defence, Canberra, June 2007, p. 19.

95 James K Greer, 'Operational Art for the Objective Force', *Military Review*, Vol. 82, No. 5, September–October 2002, p. 22.

96 Compare the definition of operational art on p. iv of this study paper with the following definition of operational art from the US Army's 1986 FM100-5, commonly known as AirLand Battle: Operational art is 'the employment of military forces to attain strategic goals in a theatre of war or theatre of

However, the origins and the history of the development of US operational art, which are to be found in the 'accounts of campaigns and the independent actions of large units within a theatre of operation or a theatre of war', are not necessarily consistent with the tasks required of the armed forces today.[97] While the US Army and Joint Forces Command have recognised this and are embarking on a deliberate and focused effort to evolve operational art and campaigning doctrine to ensure continuing relevancy, the ADF has not yet proven to be as adaptive.

The United States developed its contemporary concept of operational art through an amalgam of inter-World War Soviet deep operations theory and a unique interpretation of the German army's way of battle. According to US historian Michael D Krause, the Germans are traditionally credited with delineating the three levels of warfare.[98] The operational level of war, situated conceptually between war (the strategic level) and battle (the tactical level) was, according to Krause, first conceptualised by von Moltke, although it was not given this name by the German general. The conceptualisation of something between the tactical and strategic was in large part due to the recognition that war was rapidly expanding and evolving to create new conditions. These new conditions prompted the requirement to group tactical actions into 'operations', and to subsequently group 'operations' into 'campaigns'. The result was that strategy was faced with problems of added complexity. Rather than war planning involving the design of a single campaign focused on creating the opportunity for a single decisive battle in which to destroy your adversary, it now would need to plan several campaigns. Each of these campaigns were a cluster of discrete operations intended to achieve intermediate objectives combining to form the objective of the campaign as a whole. The collective attainment of the objectives of each of the campaigns, in turn,

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operations, through the design, organisation and conduct of campaigns and major operations…. Its essence is the identification of the enemy's operational centre of gravity…' quoted in Richard M Swain, 'Filling the Void: The Operational Art and the US Army' in B J C McKercher and Michael A Hennessy (eds), *The Operational Art: Developments in the Theories of War*, Praeger, Westport, 1996, p. 165.

97   Richard M Swain, 'The Written History of Operational Art', *Military Review*, Vol. 70, 1990, pp. 100–05.

98   Michael D Krause, 'Moltke and the Origins of the Operational Level of War' in Michael D Krause and R Cody Phillips (eds), *Historical Perspectives of the Operational Art*, Center of Military History, United States Army, Washington DC, 2007, p. 114.

represented the objectives of the war.[99] Von Moltke established campaign planning, or 'the imagination of future war', as a military speciality in its own right.[100]

Von Moltke's practical application of operational art comprised three main elements: a clearly defined goal or objective for the campaign; a selection of goals to which his operations would be directed; and, an understanding of the mechanics of operations. That is, how to move large bodies of troops efficiently along roads and deploy them in fighting formation for example.[101]

Towards the end of the nineteenth century, German thinking on war had moved purposefully away from the concept of an all-encompassing decisive battle. Instead of occurring in a single place with the mass of forces of both sides engaged, war would instead become 'distributed into a number of subordinate battles across a sometimes expanding front'.[102] Clearly, the battlefield had grown larger and become deadlier. Battles and engagements had lost their distinctiveness which had been a defining characteristic of the Napaoleonic era. Rather, battles would now blend into an all-encompassing *Gesamtschlacht* (overall battle) that might extend across the entire width and depth of the theatre of war.[103]

In due course, depending on your interpretation of history, von Moltke's way of war evolved into the popularist interpretation of the German way of war epitomised by *Blitzkrieg* and so-called 'manoeuvre warfare'. As Justin Kelly and Mike Brennan argue, however, the Germans did not, as far as can be determined, recognise the term 'operational art'. Rather,

> The independence that commanders enjoyed under *freie operationen* to sequence tactical actions in pursuit of higher-level objectives meant that the role that we currently ascribe to operational art existed in the broad fabric

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99   Justin Kelly and Michael Brennan, 'The Leavenworth Heresy and the Perversion of Operational Art', *Joint Forces Quarterly*, Issue 56, 1st Quarter, 2010, p. 111.

100   Michael D Krause, 'Moltke and the Origins of the Operational Level of War', p. 136.

101   Bradley J Meyer, 'The Operational Art: The Elder Moltke's Campaign Plan for the Franco-Prussian War' in B J C McKercher and Michael A Hennessy (eds), *The Operational Art: Developments in the Theories of War*, Praeger, Westport, 1996, p. 29.

102   Kelly and Brennan, 'The Leavenworth Heresy', p. 111.

103   Antulio Echevarria II, *After Clausewitz: German Military Thinkers Before the Great War*, University of Kansas Press, Lawrence, 2000, p. 212.

of the German understanding of war and consequently in their preparation of leaders and training of staffs. World War II German operational art was therefore seen in praxis rather than in doctrine. Advanced combined arms tactics applied by aggressive leaders sometimes exercising considerable personal initiative to create and develop deep penetrations, followed by wide envelopments to encircle, isolate, and destroy large enemy groupings, was the German way of war.[104]

Instead, it was the Soviets who gave the Western world the term 'operational art'. Between the wars, a group of outstanding Soviet military theorists—including M N Tukhachevsky, Alexsandr Svechin, N E Varfolomeev, G S Isserson and V K Triandaffilov—codified the theoretical basis for the development of the operational level of war and the concept of the operational art, both of which sought to redefine the purpose of battle in the post-First World War environment.[105] Operational art, as a distinct field of study, emerged in the 1920s and evolved over the next two decades as Soviet military theorists pondered the nature of modern war and solutions to the dilemma of the First World War. The most important question of the day was how to restore mobility and manoeuvre to a stagnant battlefield and to harness those means to achieve strategic aims.[106] According to Shimon Naveh, the development of the post-1917 Soviet school of operational warfare is 'the most creative theoretical adventure in the military history of the twentieth century'.[107]

The Soviets, like the Germans before them, recognised the conditions of warfare were changing and that industrial warfare signalled the demise of the decisive battle. For Mikhail Tukhachevsky,

104   Justin Kelly and Mike Brennan, *Alien: How Operational Art Devoured Strategy*, Strategic Studies Institute, Carlisle, September 2009, p. 34.

105   Michael Evans, *The Continental School of Strategy: The Past, Present and Future of Land Power*, Study Paper No. 305, Land Warfare Studies Centre, June 2004, p. 49.

106   David M Glantz, 'The Intellectual Dimension of Soviet (Russian) Operational Art' in B J C McKercher and Michael A Hennessy (eds), *The Operational Art: Developments in the Theories of War*, Praeger, Westport, 1996, p. 128.

107   Quoted in Evans, *The Continental School of Strategy*, p. 49. See also Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*, Frank Cass, London, 1997, p. xvii.

> The nature of modern weapons and modern battle is such that it is impossible to destroy the enemy's manpower by one blow in a one-day battle. Battle in modern operations stretches out into a series of battles not only along the front but also in depth … In that regard, modern tactics of a theatre are made tremendously more complex than those of Napoleon.[108]

The inherent interconnectedness between forces and actions throughout the breadth and depth of the theatre meant that tactical actions were not self-contained. Victory in engagements and battles did not necessarily add up to achieving the overall strategic aim.[109] The key to unlocking this problem lay in an intermediate connecting activity. In 1926, Aleksandr Svechin coined the term 'operational art' to define a new relationship between tactics, operations and strategy. In modern warfare successive operations were required to control a battlefield in time, space and scale, and to link all tactical actions to a strategic objective. Svechin argued that, in industrial conditions, the dual dimensions of tactics and strategy had to be intellectually connected by an 'intermediate member'—or operational level of war.[110] Operational art was to be the means by which the commander 'transformed a series of tactical successes into operational "bounds" linked together by the commander's intent and plan'.[111] Only at the operational level could combat actions be forged to provide the creative tactical material for extensive operations united by strategy:

> All branches of the art of war are closely interrelated: tactics takes the steps that make up an operational leap, and strategy points the way.[112]

Building on Svechin's leaps, a colleague, N E Varfolomeev, argued the future of war lay in the grouping of battles. The essence of the matter was the integration of successive and distributed operations over a wide front. Varfolomeev defined operations as:

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108   Quote attributed to Tukhachevsky in Naveh, *In Pursuit of Military Excellence*, p. 10.

109   Richard N H Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', Unpublished paper, Command and General Staff College, Fort Leavenworth, 2004, p. 19.

110   Evans, *The Continental School of Strategy*, p. 50.

111   Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', p. 19.

112   Evans, *The Continental School of Strategy*, p. 50.

> … the totality of manoeuvres and battles in a given sector of a theatre of military actions which are directed toward the achievement of a common objective, which has been set as final in a given period of the campaign. The conduct of an operation is not a matter of tactics. It has become the lot of operational art.[113]

This in turn led to the development of the framework for 'deep strategy', in which successive operations would be employed to transform a series of tactical battles into operational break-outs using shock and manoeuvre. According to Kelly and Brennan, this relied on linking battles to achieve penetrations of increasing depth until the enemy defensive zone, including deep reserves, had been pierced and the conditions for mobile warfare restored. This would then create the conditions for the encirclement and subsequent annihilation of large enemy groups.[114] The deep operation became the key to linking sequential tactical actions under a unified campaign plan designed to achieve strategic success.[115] In the Soviet concept of warfare there was a clear hierarchy of responsibilities:

> Strategy frames the campaign; that is, it defines the theatre, sets objectives, and allocates resources while the campaign commander, working within this framework, decides the successive operations necessary to achieve campaign objectives.[116]

For the Americans, the contemporary (re)discovery of operational art—the creative activity at the operational level—was a by-product of trying to understand the American loss in Vietnam.[117] Emerging from the ashes of the Vietnam War, the US

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113   Jacob Kipp, 'Two Views of Warsaw: The Russian Civil War and Soviet Operational Art, 1920–1932' in B J C McKercher and Michael A Hennessy (eds), *The Operational Art: Developments in the Theories of War*, Praeger, Westport, 1996, p. 71.

114   Kelly and Brennan, 'The Leavenworth Heresy', p. 112.

115   Evans, *The Continental School of Strategy*, p. 119; Naveh, *In Pursuit of Military Excellence*, p. 191.

116   Kelly and Brennan, 'The Leavenworth Heresy', p. 113.

117   Richard M Swain, 'Filling the Void: The Operational Art and the US Army' in B J C McKercher and Michael A Hennessy (eds), *The Operational Art: Developments in the Theories of War*, Praeger, Westport, 1996, p. 162.

Army in the 1970s embarked on an ambitious program of transformation designed to overhaul its training standards, professional military education and doctrine. The purpose behind the transformation was to provide direction for the new all-volunteer force as it struggled to deal with the conundrum of fighting to win against the Warsaw Pact under the shadow of nuclear release. As one historian of this era puts it:

> If the central frustration of the collective memory of Vietnam was recollection of a conflict in which all the battles were won and the war was lost, the collective answer seemed to be found with the adoption of the concept of operational art.... An army that, heretofore, had occupied itself almost exclusively in the preparation for fighting battles now turned its attention to the creative articulation of the battles in the ensemble.[118]

According to Dr Michael Evans, between 1976 and 1986 the US Army gradually began a transition away from a linear, attrition doctrine grounded in Second World War ideas towards an approach that emphasised the reality of a deep, and increasingly electronic, battlefield. American operational concepts evolved through the Integrated Battle, the Extended Battle and finally the AirLand Battle. Consistent throughout was a theme of synchronising firepower with manoeuvre and of viewing the deep, close and rear battles as inseparable and complementary elements of modern combat.[119]

The terms 'operational level of war' and 'operational art' were first officially introduced into the Anglophile defence community in the US Army's FM100-5 *Operations* of 1982 and 1986 respectively.[120] The 1986 version of this publication became known as AirLand Battle. The ADF's current doctrine and understanding of operational art and campaigning is heavily influenced by operational art as defined in this doctrine.

At its core, AirLand Battle provided the logic for the familiar 'Close, Deep and Rear' organising framework which prompted leaders at all levels to frame simultaneous

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118   Ibid., p. 148.

119   Evans, *The Continental School of Strategy*, p. 58.

120   The primary author of the 1982 version of FM 100-5 and a contributing author of the subsequent 1986 version, Huba Wass de Czege, tells the story of the development of this doctrine in 'Lessons from the Past: Getting the Army's Doctrine "Right Enough" Today' in Scott Hopkins (ed), *Chief of Army's Exercise Proceedings 2006*, Land Warfare Studies Centre, Canberra, 2007.

solutions posed by distinct enemy formations. It explicitly called for operational art, defined by the 'integration of temporally and spatially distributed operations into one coherent whole'.[121] The essence of operational art was linking strategic intent and tactical action through operations; the arrangement of operations sequentially and in depth; and defeat through systemic disruption (operational shock). These actions are in turn dependent on three supporting concepts: the operation (as distinct from battle); depth (rather than a central or decisive point); and the system (rather than just mass).[122] The doctrine also promoted what the United States calls 'mission orders'—what the ADF calls mission command—as the command and control paradigm necessary for survival and robust performance. Additionally, the doctrine also addressed important issues in the psychological and leadership dimensions, which led to a more systemic approach to thinking about combined arms and the integration of joint assets. Finally, the doctrine introduced the operational level of war.[123] According to its (slightly hubristic) author:

> In one holistic embrace, [AirLand Battle] outlined the physical, moral and intellectual logic of modern engagements, battles, major operations, and campaigns. It raised the focus of the doctrine from fighting engagements and battles to the conduct of major operations and campaigns. Further, it introduced some of the fundamental ideas of operational art.[124]

Recently, Justin Kelly and Mike Brennan have condemned AirLand Battle as responsible for dislocating the practical application of strategy in the US security apparatus. Kelly and Brennan argue the doctrine has in effect perverted the original purpose of operational art which is to facilitate the dialogue between tactics and strategy. A practical outcome of AirLand Battle was the creation of a discrete and influential intermediate level of command—the operational level of command—which actually weakens and muddles the strategic-tactical interface. Specifically,

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121 James Schneider, 'The Loose Marble – and the Origins of Operational Art', *Parameters*, Vol. 19, March 1989, p. 86.

122 Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', p. 26.

123 Ibid., p. 89.

124 Ibid., p. 91.

> … the misunderstanding of the role of operational art as proselytized in FM 100-5 and the creation of an 'Operational Level of War' have led to an independent layer of command that has usurped the role of strategy and thereby resisted the role that the civilian leadership should play in campaign planning.[125]

Notwithstanding Kelly and Brennan's arguments, much has been written about the profound positive impact AirLand Battle has had on the US military way of warfare. The doctrine has been credited as a significant combat multiplier for US forces during the first Gulf War and enabled the success of Operation JUST CAUSE in Panama in 1989.[126] One post-Desert Storm study went as far as suggesting that:

> … AirLand Battle represented a way of thinking about war and a mental conditioning rather than a rigid set of rules and lists to be done in lock-step fashion. Its four tenets, initiative, agility, depth, and synchronisation, are timeless, immutable precepts for present and future wars.[127]

But, the doctrine was developed over several iterations with one purpose in mind: *orchestrating the might of the US Armed Forces to defeat the Soviet Union in conventional, high intensity warfare*. According to its primary author, AirLand Battle addressed the one central problem of the day:

> … to contain the immense, dangerous, and potentially aggressive military power of the Soviet Union and its allies world-wide. All other threats to national security paled in comparison at the time. AirLand Battle doctrine was properly optimised for this unique set of problems.[128]

In light of the specific challenges encountered in Iraq and Afghanistan, and the more generic challenges associated with the 'global war on terror' and preparing a

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125   Kelly and Brennan, *Alien: How Operational Art Devoured Strategy*, pp. 61–63.

126   Greer, 'Operational Art for the Objective Force', p. 23.

127   Quoted in Wass de Czege, 'Lessons from the Past: Getting the Army's Doctrine "Right Enough" Today', p. 80. The study quoted is *In Certain Victory: The US Army in the Gulf War*.

128   Ibid., p. 81.

relevant Quarterly Defence Review, the United States is comprehensively questioning the continuing relevance of the core concepts of AirLand Battle.[129] Mindful of our own geostrategic circumstances, and in light of the contemporary operating environment, the enduring relevance of the doctrine to the ADF must also be critically questioned.

Flawed concepts: Centres of gravity and an effects-based approach to operations

> To deal with a system as if it were a bundle of unrelated individual systems is, on the one hand, the method that saves the most cognitive energy. On the other hand, it is the method that guarantees neglect of side effects and repercussions and therefore guarantees failure.
>
> — Dietrich Doerner[130]

According to ADF doctrine and education, an effects-based approach to operations (EBA) and the concept of centre of gravity are explicitly fundamental to the ADF's way of war. A national EBA is, supposedly, 'more about a way of thinking and planning, and therefore about training our people'.[131] The centre of gravity, on the other hand, is allegedly the first tenet of manoeuvre warfare. Consequently, ADF doctrine demands that we 'focus all actions on the enemy's centre of gravity'.[132] The central premise of these concepts is that 'sufficient connectivity exists among the various parts of the enemy to form an overarching system (or structure) that acts with a certain unity'.[133] Such a premise must be questioned in light of the unpredictability and uncertainty inherent in war and what we now know about complexity. In practice, such concepts

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129   The most current doctrine comparable to AirLand Battle in purpose, FM 3-0 *Operations*, represents a significant departure from the key tenets and concepts described in the earlier doctrine and promotes Full Spectrum Operations as the replacement for AirLand Battle.

130   Dietrich Doerner, *The Logic of Failure: Recognising and Avoiding Error in Complex Situations*, Basic Books, New York, 1996, p. 88.

131   *Joint Operations for the 21st Century*, p. 12.

132   ADDP 5.0 *Joint Planning*, Department of Defence, Canberra, 2006, p. 3-10.

133   Antulio Echevarria, *Clausewitz's Center of Gravity: Changing our Warfighting Doctrine – Again!*, US Army War College Strategic Studies Institute, Carlisle, September 2002, p. 16.

tend to be elevated above the need to define holistically the true nature of the problem. This becomes problematic when attempting to design relevant operational objectives required to positively change the operating environment. The result is the ADF's doctrinal approach to campaign planning and design is mechanistic, reductionist and inadequate for an increasingly complex battlespace and array of missions.

Despite plenty of debate surrounding the centre of gravity (at least in the United States), its Clausewitzian origins and how it should manifest itself, the concept of centre of gravity is firmly embedded in ADF planning. Considerable emphasis has been placed in ADF doctrine on the consideration of the centre of gravity as a central element of campaign planning. The concept has even permeated as far as possible down the tactical chain of command with Army section commanders incorporating an interpretation of the centre of gravity into their own tactical planning approaches. Implicitly, the centre of gravity 'serves as a beacon for focusing military effort to achieve decisive results in major operations'.[134]

According to the majority consensus, the centre of gravity is a source of strength. Specifically, the ADF definition of centre of gravity, which reflects US joint doctrine, holds that it is:

> … the characteristic, capability or locality from which a military force, nation or alliance derives its freedom of action, strength or will to fight at that level of conflict. Therefore, the neutralisation or defeat of an adversary's centre of gravity is the key to achieving one's own end-state.[135]

ADF doctrine goes on to suggest that the centre of gravity is context dependent and is linked to one's own mission and tasks. There are multiple centres of gravity, as every stakeholder in the battlespace has a centre of gravity, and there is a centre of gravity for each level of war. This makes for a lot of centres of gravity. Appropriately then, analysing the centre of gravity is an important task. This is particularly true in view of the fact 'that identifying an incorrect centre of gravity may lead to the development of incorrect effects and employing them at the wrong time and place to achieve the objectives and endstate may lead to adverse second or third order

134   Rudolph M Janiczek, *A Concept at the Crossroads: Re-Thinking the Centre of Gravity*, USAWC Strategy Research Project, 30 March 2007, p. 1.

135   ADDP 5.0 *Joint Planning*, p. 4-7.

consequences'.[136] To further complicate matters, the centre of gravity 'of any force changes over time requiring the commander and staff to continually reassess the enemy's centre of gravity and ensure that the battlespace effects are targeting the current centre of gravity'.[137]

Arguably, the centre of gravity has achieved ascendancy as a tool for focusing the application of force and has brought with it a general belief in its implementation as a key to victory.[138] Certainly this is the impression gained from ADF doctrine: By ensuring all activities are focused on 'disrupting or dislocating the enemy's centre of gravity, commanders can be sure that all effort is contributing to achieving the objective and end-state whether that is tactical, operational or strategic'.[139] ADF doctrine goes as far as stating that:

> The essence of operational art lies in being able to produce the right
> combination of effects, in time and space, and purpose to neutralise, weaken,
> defeat or destroy an enemy's centre of gravity.[140]

Whether the concept actually manifests itself on such an exalted level in practice is difficult to determine. Nevertheless, in current campaign planning efforts within the ADF the centre of gravity concept holds a central position.

Academics argue that Western defence forces, led by the United States and therefore by association including the ADF, have taken the centre of gravity concept derived from Clausewitz's metaphor in *On War* either too literally or incorrectly.[141] Dr Christopher Bassford, a noted Clausewitz scholar from the US National War College, suggests that Clausewitz's intention with the metaphor was only to warn the military professional to 'focus on key considerations, rather than frittering his energy away on peripheral concerns'. But, the metaphor should not to be taken literally and to

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136   Ibid., pp. 3-10, 3-11.

137   Ibid., p. 3-11.

138   Janiczek, *A Concept at the Crossroads: Re-Thinking the Centre of Gravity*, p. 3.

139   ADDP 5.0 *Joint Planning*, p. 3-10.

140   Ibid., p. 3-1.

141   Janiczek, *A Concept at the Crossroads: Re-Thinking the Centre of Gravity*, p. 4.

seek an 'all-purpose strategic prescription' in Clausewitz's metaphor will only lead to frustration.[142]

In contrast, Dr Antulio Echevarria, of the US Army War College's Strategic Studies Institute, has published widely that the common understanding of the centre of gravity is flawed and not what was suggested by Clausewitz. Echevarria argues that the centre of gravity as described by Clausewitz should not, in fact, be considered as a source of strength but rather a factor of balance or the thing which causes adversary forces to concentrate and gives them purpose and direction.[143] That is, the centre of gravity should be defined more as a focal point which holds an adversary together; 'the centre of gravity concept applies wherever a certain "unity" and "connectivity" or "interdependence" exist with respect to an adversary's forces and the space they occupy'.[144] Additionally, because Clausewitz did not distinguish between tactical, operational or strategic centres of gravity, then the centre of gravity is therefore defined by the entire system or structure of the enemy, not by a level of war.[145] Accordingly, for Echevarria the centre of gravity is an effects-based concept rather than a capabilities based concept, and is exclusively for action against a cohesive adversary in a war to defeat the enemy totally. In a limited war against decentralised opponents the concept would hold less utility.[146]

An ADF officer studies Clausewitz only superficially during his or her formal career education courses such as Staff College. The arguments presented above and other academic arguments regarding the origins and usefulness of the centre of gravity metaphor are, therefore, quite literally, academic. And while such arguments may have merit in their own right they do not, on their own, invalidate the concept of centre of gravity and the central place it holds in ADF campaign planning doctrine. But what

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142   Ibid., p. 5; Christopher Bassford, 'Clausewitz and his Works', <http://www.clausewitz.com/readings/Bassford/Cworks/Works.htm> accessed 17 May 2009.

143   Antulio Echevarria, 'Clausewitz's Center of Gravity: It's *Not* What We Thought', *Naval War College Review*, Vol. 56, No. 1, Winter 2003.

144   Antulio Echevarria, *Clausewitz and Contemporary War*, Oxford University Press, Oxford, 2007, p. 180; Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret, Princeton University Press, Princeton, 1976, p. 486.

145   Echevarria, *Clausewitz's Center of Gravity: Changing our Warfighting Doctrine—Again!*, p. vii.

146   Janiczek, *A Concept at the Crossroads: Re-Thinking the Centre of Gravity*, p. 5; Echevarria, *Clausewitz and Contemporary War*, p. 186.

does invalidate the centre of gravity is the reductive hypothesis that underlies the practical application of the concept.

By definition, the centre of gravity becomes the single point of focus in our analysis of a particular system or organisation. This single point of focus is arrived at by reducing the system into manageable and knowable components which are linked by function. These components are labelled critical capabilities and critical vulnerabilities. The explicit design behind centre of gravity as practiced in ADF doctrine is that those critical vulnerabilities identified by the planners, once targeted in a specified way, will necessarily affect one or more of the critical capabilities of the centre of gravity. This action will, again by design, either individually or cumulatively with other supporting actions, achieve the desired effect on the centre of gravity.

The attractiveness of such an approach lies in the perception that it encompasses the entire system we are aiming to target and that it allows complex considerations to be avoided. The fact that the centre of gravity concept essentially provides an understandable, identifiable and seemingly rational explanation of how to target the enemy contributes to its popularity. Once we arrive at an appropriately rational explanation for something we become reluctant to:

> … abandon that knowledge and fall back on an unsurveyable system made up of interacting variables linked together in no immediately obvious hierarchy. Unsurveyability produces uncertainty; uncertainty produces fear. That is probably one reason people cling to reductive hypotheses.[147]

The centre of gravity concept does not, however, focus on the variables in the system which influence each other, and consequently these variables tend not to be taken into account in a holistic manner. When the adversary is viewed as an adaptive open system it no longer makes sense to find a single centre of gravity to focus our energy and attention on. For example, a decentralised insurgent network requires concurrent action across multiple lines of operation to become isolated from the population, to reduce the flow of resources and recruits, and ultimately to be defeated.

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147   Doerner, *The Logic of Failure*, p. 91.

It requires a shift from focusing on a single point of failure to transforming a dynamic system of interactions.[148]

Experience suggests we tend to become infatuated with the hypotheses we propose because we assume they give us power over things.[149] We tend to avoid exposing such hypotheses to the harsh light of real experience and we continually prefer to gather only information that supports our hypotheses. Because of its central position in the planning process, the centre of gravity often has this effect of becoming a hypothesis we become infatuated with. In extreme cases, we may 'devise elaborate and dogmatic defences to protect hypotheses that in no way reflect reality'.[150] Iraq and the uncertainty surrounding the developing situation in 2003 after 'victory' had been declared presents itself as a stark example of the problems inherent in reductive hypotheses.

Similar problems surround the concepts of NCW and EBA. At their most fundamental level, both NCW and EBA are inherently flawed. According to Evans:

> The ADF's current future joint operational concept is too narrowly focused on a polyglot of information-centric theories that revolve around 'taking down' an opponent quickly. It is an approach that is well suited to aerial stand-off strike operations, but not to the complex task of translating joint operations into meaningful strategic success in a protracted multi-service campaign in which time and space may be differentiated by complex environments defined by such factors as urbanisation and a demographic rather than a technocentric battlespace.[151]

But concepts such as network centric warfare (NCW) and a national effects-based approach (EBA) to warfare, applied through effects-based operations (EBO), heavily influence HQJOC's current approach to campaign planning and execution and are central to the ADF's capstone future joint operational concept. As the ADF's *Joint Operations for the 21st Century* argues:

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148   I am indebted to Dr Alex Ryan for this insight.

149   Doerner, *The Logic of Failure*, p. 92.

150   Ibid.

151   Evans, 'The Closing of the Australian Military Mind', p. 121.

A national effects-based approach underlies Australia's current approach to security, and will be the basis of defence operations for the foreseeable future.[152]

Unfortunately, neither NCW or EBA/EBO are sufficiently developed to account for the reality of today's complex mission requirements. According to the ADF's *NCW Roadmap 2009*, NCW in the ADF context is vaguely defined as a 'means of organising the force by using modern information technology to link sensors, decision-makers and weapons systems to help people work more effectively together to achieve the commander's intent'.[153] According to the *NCW Roadmap*, robust networking allows better sharing of timely, relevant and trusted information which will have the effect of enhancing force collaboration and synchronisation, and therefore enhancing situational awareness. Ultimately, and quite hubristically, 'NCW will allow a force to act before an adversary acts, and to reach out to the right place at the right time with the right force to achieve the right effect'.[154] The underpinning premise of NCW is that shared awareness, information superiority and collaboration result in a reduction of the fog and friction of war. Together, they create the conditions for self-synchronisation, improved speed of command, better decisions and reduced risk.[155] According to the *NCW Roadmap* a typical attribute of applied NCW is the ability to predict and identify a wide range of environmental threats and protect forces against them.[156]

However, there is an unfounded assumption that technologies emerging from the information revolution will enable NCW to somehow lift the fog of war and permit a high degree of certainty in military operations.[157] This is an illusion. Additionally, NCW is a tactical concept. NCW leads to a tacticisation of strategy.[158] New technologies are

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152   *Joint Operations for the 21st Century*, p. 11.

153   *NCW ROADMAP 2009*, Defence Publishing Service, Canberra, 2009, p. 9.

154   Ibid., p. 10.

155   Christopher R Smith, *Network Centric Warfare, Command, and the Nature of War*, Study Paper No. 318, Land Warfare Studies Centre, Canberra, February 2010, p. 58.

156   *NCW ROADMAP 2009*, p. 14.

157   See McMaster, *Crack in the Foundation*, p. 1; and Antulio J Echevarria II, *Rapid Decisive Operations: An Assumption-Based Critique*, Strategic Studies Institute, Carlisle, November 2001.

158   See Milan Vego, 'Net-Centric is Not Decisive', *Proceedings*, January 2003; and P W Singer, 'Tactical Generals: Leaders, Technology, and the Perils of Battlefield Micromanagement', *Air and Space Power Journal*, Summer 2009.

already creating an environment where the levels of war are at times so compressed as to appear virtually as a single function. The negative aspect of this compression is that it tempts the tactical general to micromanage. And, as history has shown time and again, supposed information superiority rarely mitigates against bad decision-making. Recent coalition experience in Iraq and Afghanistan suggests that networked forces appear to possess a tactical advantage over their less-networked enemies once battle is joined. However, translating this tactical advantage and tactical success into operational and ultimately strategic success appears to be no easier for contemporary commanders than it was for the great commanders of the past.[159]

EBO suffers a similar fate to that of NCW: there is very little meaningful doctrine that gives the concept practical utility; and, like NCW, EBO is based on inherently flawed suppositions. According to current ADF terminology, EBO is defined as:

> … the application of military and non-military capabilities to realise specific and desired strategic and operational outcomes in peace, tension, conflict and post-conflict situations.[160]

As one noted proponent of EBO acknowledges, EBO is not new and good military leaders and statesmen have effectively used military force to shape the behaviour of friends and enemies for centuries. However, according to most supporters of the concept, what is new is the potential application of NCW thinking and emerging technologies to such operations.[161] Allegedly, 'new information technologies are enabling us to know an adversary and his centres of gravity better than in the past'.[162] New information technologies combined with the 'way of thinking' implied within EBO allows for the optimal outcome for effects-based targeting, which is:

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159   Smith, *Network Centric Warfare, Command, and the Nature of War*, p. 68.

160   *Joint Operations in the 21st Century*, p. 12.

161   See Edward A Smith Jr., *Effects Based Operations: Applying Network Centric Warfare in Peace, Crisis, and War*, Department of Defense Command and Control Research Program, Washington DC, 2002; and Mat Butler, *Effects-Based Targeting: The Future of Targeting for the Royal Australian Air Force*, Air Power Development Centre, Canberra, 2008.

162   Australian Defence Doctrine Publication-D.2 – *FORCE 2020*, Department of Defence, Canberra, 2002, quoted in Butler, *Effects-Based Targeting*, p. 25.

… the creation of synergistic effects that are holistic in nature. This means that for each strike against a node, each physical and psychological effect causes a chain reaction that has a combined effect greater than the individual effects added together … The implication here is that a single physical attack on a selected adversary node can produce whole-of-system psychological or cognitive effects.[163]

The rationale behind EBO is that influencing an enemy's behaviour is best accomplished by applying levers or actions.[164] EBO depends on analysing the situation in sufficient depth to enable a combination of lethal and non-lethal means to be applied. EBO relies on the ability to send clear, unambiguous signals to an enemy. It also relies on the enemy's ability to understand and respond to these signals in a predictable, rational way. Fundamentally,

EBO advocates believe that an enemy is a cognitive being that can be dislocated, shocked or disrupted into submission or negotiation by a series of offensive actions whose effects and outcomes can be calculated by an attacking force.[165]

But, all operating environments are dynamic with an infinite number of variables, making it scientifically impossible to accurately predict the outcome of an action. To suggest otherwise runs contrary to historical experience and ignores the nature of war.[166] To complicate matters, analysis will rarely achieve sufficient sophistication to derive coherent and rational whole-of-government inputs into an effective EBO. In essence, 'whatever we may do, the target polity will tend to react unpredictably; and in any case, we will have great problems deciding what to do in the first place'.[167]

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163   Butler, *Effects-Based Targeting*, p. 28.

164   Justin Kelly and David Kilcullen, 'Chaos Versus Predictability: A Critique of Effects-Based Operations', *Security Challenges*, Vol. 2, No. 1, 2006, p. 65.

165   Ibid.

166   James N Mattis, 'USJFCOM Commander's Guidance for Effects-Based Operations', *Parameters*, Autumn 2008, p. 19.

167   Kelly and Kilcullin, 'Chaos Versus Predictability', p. 66.

As our coalition allies are discovering in the hard fighting of Iraq and Afghanistan, concepts such as centre of gravity and EBO are proving to be less than effective and increasingly irrelevant for successful operations in such complex operating environments. These concepts inevitably lend themselves to a reductionist and linear approach to war. Any planning construct that mechanistically attempts to provide certainty and predictability in an inherently uncertain environment, as these concepts aim to do, is fundamentally at odds with the nature of war and is unlikely to create success.

JPME?

> The ADF therefore remains one of the few technologically advanced Western defence forces that consistently undervalues intellectual attainment among its wider officer corps and its leadership.
>
> — Professor Jeffrey Grey[168]

Three thousand years of conflict add weight to Thucydides' aphorism that the 'nation that makes great distinction between its scholars and its warriors will have its thinking done by cowards and its fighting done by fools'. Despite advances in technology creating a relative technological overmatch for the ADF compared with the majority of its regional competitors—especially in areas such as intelligence, surveillance, reconnaissance, electronic warfare, precision munitions and information sharing— there remains an increasing incentive to leverage the ADF's traditionally high quality personnel skills. Indeed, the quality of defence personnel remains of steeply rising strategic significance.[169] As Professor Jeffrey Grey of the Australian Defence Force Academy illustrates:

> In a time when we are frequently admonished about the importance of the 'strategic corporal' (or even private), the critical requirement to produce men

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168   Jeffery Grey, 'Professional Military Education and the ADF', *Defender*, Spring 2004, p. 29.

169   Ross Babbage, *Preparing Australia's Defence for 2020: Transformation or Reform?* Kokoda Paper No. 1, Kokoda Foundation, Canberra, 2005, p. 33.

and women at all levels capable of complex problem solving in difficult and pressured circumstances should be self-evident.[170]

Unfortunately, there is little evidence that the ADF's approach to JPME is receiving the priority or delivering the exceptional quality that is required beyond excellence in tactics. If the first two pillars of ADF operational art—operational art's origin and its core concepts—rest on shaky foundations, then the third pillar propping up the ADF's understanding of operational art—JPME—is no more solid.

The need to create a relevant and effective continuum of learning, as distinct from a continuum of training, is well recognised as being vital for the future health of the ADF. Notwithstanding this recognition, efforts to 'create a comprehensive, sophisticated and relevant system of PME, or indeed even to articulate a coherent statement of policy have frequently floundered'.[171] A 2005 study into ADF professional military education suggested that the current model of officer education is a 'bulk food calorie' model, in which large numbers of students are fed as much moderate nutrition learning as possible rather than a system which delivers high-grade content appropriate to specific needs. The study goes on to argue that defence education programs must be of outstanding quality, there can be no compromise in this quality, and the 'recent drift towards educational mediocrity needs to be reversed rapidly'.[172] Similarly and more recently, Professor David Lovell, a distinguished and long-time academic working in the Defence education environment, suggests that 'among all but the most able Defence staff there is a "command and control" approach to educational matters and a consequent reluctance to accept the trust and "letting go" of learners that is the hall mark of a genuinely effectual education'.[173]

Specifically regarding operational art and campaign design, planning and execution, ADF JPME has failed to give proper attention to the study and development of military art and the development of operational cognition.[174] Dr Barry Watts, of the US Center for Strategic and Budgetry Assessments, argues compellingly that the cognitive

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170   Grey, 'Professional Military Education and the ADF', p. 28.

171   Ibid.

172   Babbage, *Preparing Australia's Defence for 2020*, p. 38.

173   David Lovell, 'Reflections on Defence and Education', *Australian Defence Force Journal*, No. 181, 2010, p. 31.

174   Evans, 'The Closing of the Australian Military Mind', p. 128.

skills demanded of operational artists and competent strategists appear to differ fundamentally from those underlying tactical expertise.[175] Watts is quoted prominently in the ADF's most recent doctrine on planning, and he goes on to argue that:

> … in the case of designing operations or formulating long-term strategy … skills such as a capacity for conceptual framing of the problem, for objective assessments of the strengths and weaknesses on both sides with an eye toward identifying exploitable asymmetries, and for the creation of a heuristic line of response reflecting the uniqueness of the problem at hand all appear to be more central. As a result, operational design and strategy require much greater reliance on explicit reasoning and conscious oversight of intuition…The clear message is that tactical competence does not necessarily translate into operational competence. A more substantive rationale lies in the greater complexity and ambiguity of operational problems than tactical ones.[176]

If Watts is correct, and recent operational experience suggests he is, then there is a very real need for the development of operational cognition as a central focal point in preparing officers at the Australian Command and Staff College (ACSC). In turn, as Dr Michael Evans points out, a strong foundation in operational cognition should then form the basis for operational and strategic cognition and higher campaign design at the Centre for Defence and Strategic Studies (CDSS).[177] According to the current Commandant of the Australian Defence College (ADC), Rear Admiral James Goldrick, there have been recent curriculum changes to CDSS that allow potential operational commanders to examine campaigning and higher command issues in greater depth than before.[178] However, there remains a long way to go in developing a relevant and effective continuum of education which enhances operational cognition. According

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175   Barry D Watts, 'US Combat Training, Operational Art, and Strategic Competence: Problems and Opportunities', *Strategy for the Long Haul*, Center for Strategic and Budgetary Assessments, Washington DC, 2008, p. 33.

176   Ibid., pp. 33–36. See also ADDP 5.0, *Joint Planning*, p. 3-2.

177   Evans, 'The Closing of the Australian Military Mind', p. 130.

178   James Goldrick, 'Thoughts on Joint Professional Military Education', *Australian Defence Force Journal*, No. 181, 2010, p. 12.

to Evans, there is, for example, no significant theoretical analysis of operational art at ACSC and there remains no apparent continuum between operational art, policy analysis and strategic art at CDSS. Even a cursory glance at the respective Service and ADF professional journals reinforces Evans' claim that:

> Joint military education has certainly not encouraged participation in such essential professional debates as the development and application of operational art by a middle power; the role of operational art across the levels of war; the future of the levels of conflict in the face of battlespace technology; the reconciliation of high level command with low level control; and the place of strategy in relation to policy and operations. The lack of these professional debates is symptomatic of an officer corps that has not been sufficiently exposed to the rigour of studying military art.[179]

Evans' comments regarding a lack of rigour in the study of military art reflect earlier comments by noted academic Professor Jeffrey Grey, who argued that:

> The Australian Command and Staff College course has become infected with heavy doses of managerialism, fails to live up to the claim that it deals seriously with a warfighting agenda, and despite being nominally or partially joint sends the different Service streams off to consider their own institutional navels at crucial points where a real joint approach would seem particularly called for.[180]

Emotive arguments by former alumni defending the curriculum of ACSC or CDSS aside, there is a very real requirement to use these two institutions to inculcate a campaigning mindset into the ADF officer corps. If this does not occur the ADF is in danger, if it is not already too late, of realising the eighteenth century British soldier-intellectual, Henry Lloyd's warning:

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179   Evans, 'The Closing of the Australian Military Mind', p. 129.

180   Grey, 'Professional Military Education and the ADF', p. 29.

It is universally agreed upon, that no art or science is more difficult, than that of war; yet by an unaccountable contradiction of the human mind, those who embrace this profession take little or no pains to study it. They seem to think that little knowledge of a few insignificant and useless trifles constitute a great officer.[181]

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181   Quote attributed to Henry Lloyd in Michael Evans, *From the Long Peace to the Long War: Armed Conflict and Military Education and Training in the 21st Century*, Australian Defence College Occasional Series No. 1, 2007, p. xi.

3 – Fix No.1 – Inculcating a Campaigning Mindset

> … military hierarchical structures and discipline risk inhibiting the establishment of ideal creative conditions. Therefore, it can be concluded that conscious efforts must be made by senior leaders to create the necessary environment, wherein novel ideas are freely expressed and innovation is viewed as positive and non-threatening.
>
> — Rupert Hoskin[182]

Although doctrinally the design and planning of campaigns is the concern of the operational level of war there is an increasing consensus that operational art and the skills of campaign planning are becoming increasingly relevant down to at least unit (battalion) level.[183] Recently, there appears to be increasing popular consensus among tactical (brigade and battalion) US Army commanders that as independent battlespace owners in either Iraq or Afghanistan, resourced and expected to conduct 'full spectrum operations', they are, in effect, designing, planning and executing their own campaigns.[184]

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182   Rupert Hoskin, *The Ghost in the Machine: Better Application of human Factors to Enhance the Military Appreciation Process*, Study Paper No. 316, Land Warfare Studies Centre, Canberra, 2009, p. 55.

183   *Australian Defence Force Publication 101 Glossary*, Headquarters Australian Defence Force, Canberra, 1994, p. O-3, defines the operational level of 'conflict' rather than 'war', but the two are synonymous and the term 'levels of war' is used throughout this study paper. War is defined by this author as conflict using both violent and non-violent means, between diverse actors and influences competing for control over the perceptions, behaviour and allegiances of human societies. See *Adaptive Campaigning: The Land Force Response to Complex Warfighting*, Version 4.18, Department of Defence, Canberra, 24 November 2006, p. 2.

184   See, for example, William B Ostlund, 'Tactical Leader Lessons Learned in Afghanistan: Operation Enduring Freedom VIII', *Military Review*, July–August 2009, pp. 2–9; Niel Smith and Sean McFarland, 'Anbar Awakens: The Tipping Point', *Australian Army Journal*, Vol. 5, No. 2, Winter

Whether or not such commanders are truly designing and executing campaigns to achieve operational or strategic objectives in their own right is open to debate.[185] Nevertheless, there is an imperative for a *campaigning mindset* at the tactical level. Such a mindset would view the problem holistically and from a long-term perspective. A campaigning mindset would also inherently recognise the requirement to design and conduct both concurrent and cumulative actions across multiple lines of operation, including more than just military force, within a broader operational framework to support the achievement of operational and strategic goals.[186] It should be self-evident that such a campaigning mindset is also fundamental at the operational and strategic levels as well.

The responsibility for acknowledging that there is a problem with the ADF's understanding and practice of operational art and campaigning lies with the leadership of the ADF. The most obvious and practical medium for the development of an appropriate campaigning mindset founded upon relevant operational art is through the JPME system, particularly ACSC and CDSS, which is the remit of the VCDF Group. As has been discussed earlier, JPME is falling someway short of delivering on its promise. If we are serious about developing 'operational cognition' the JPME continuum will require a significant adjustment of content. In particular, JPME will require a substantial injection of two antecedents to operational cognition—creative and critical thinking. But, before discussing the changes to JPME necessary to inculcate a campaigning mindset into the ADF, it is worth examining a complementary and equally important action. This is the requirement to move towards what Brigadier Michael Krause calls a more mature understanding of what 'jointness' really means.[187]

2008, pp. 75–90; George Packer, 'The Lesson of Tal Afar', *The New Yorker*, 10 April 2006, <http://www.newyorker.com/archive/2006/04/10/060410fa_fact2> accessed 17 May 2009.

185   See J Alex Vohr, 'Commander's Appreciation and Campaign Design: A Critique', *Marine Corps Gazette,* March 2009, pp. 13–17.

186   See Trent Scott and John Agoglia, 'Getting the Basics Right: Tactical Actions for Strategic Impact in Afghanistan', *Small Wars Journal*, 2008, <http://www.smallwarsjournal.com> accessed 20 December 2008; and Huba Wass de Czege, 'Systemic Operational Design: Learning and Adapting in Complex Missions', *Military Review*, January–February 2009, p. 2.

187   Michael G Krause, *Square Pegs for Round Holes: Current Approaches to Future Warfare and the Need to Adapt*, Working Paper No. 132, Land Warfare Studies Centre, Canberra, June 2007.

Maturing jointness

> The enemy we faced could only be defeated if we knew both his name and his
> address—and, often, the addresses of his extended family.
>
> — John Nagl[188]

A primary reason why our current understanding of operational art and campaign
design and planning needs to change is because it is fast becoming irrelevant in
response to the challenges presented by the character of complexity within the
contemporary operating environment. Unfortunately, each of the Services views
this complexity through different lenses. The way we frame a problem in most
cases defines the way we attempt to solve the problem. Because of this, despite
commitment to being joint, each of the Services approaches war and warfare from a
different perspective.

Operational reality indicates there is a unique complexity to operations on land
compared with operations in the other domains. Operational history also suggests that
it is military action on land that ultimately carries a decision. This is not to downplay
the role air and sea forces have in supporting this decision; however, in the main it is
the land force that bears the overwhelming risk for mission success.

Air and sea forces tend to deal with friction and uncertainty in complex operations
through centralised planning and control. Air and sea forces tend also predominately
to depend on technological solutions to the problems they encounter. The RAAF
predilection towards EBO is an example. Rear Admiral Goldrick, Commandant of
the ADC, highlighted the different approaches to planning between the Services in a
recent article on JPME:

> The truth is, however, that both Navy and Air Force have at the tactical level
> other planning processes developed for and more suited to the problems that
> have to be solved there than the JMAP. The latter can appear somewhat arcane
> if it is presented in the wrong way and both its theory and practice of doubtful

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188 John A Nagl, *Learning to Eat Soup With a Knife: Counterinsurgency Lessons From Malaya and
Vietnam*, The University of Chicago Press, Chicago, 2002, p. xiii.

utility to the warfare officer in the operations room or the pilot or air combat officer aloft.[189]

However, the factors that preserve uncertainty in war despite technological superiority are mainly land-based. Because people live there,

> … land is where political, social and cultural factors interact with complex geography to generate uncertainties that can alter best-laid plans. That precision strikes might be ineffective or even counterproductive because of political factors, enemy strategy, or tactical countermeasures requires [air and sea forces] to transcend personal experience and balance enthusiasm for their technological capabilities with an appreciation of limitations.[190]

If each of the Services fundamentally acknowledge the complexity and uncertainty of war, and recognise that current approaches to problem solving, particularly in the land environment, are losing effectiveness, all Services will have a greater incentive to work together. Understanding 'the limits of technology will bolster efforts to solve complex operational problems as a joint team through doctrine, organisational reform, training, tactics, and education'.[191]

Inevitably, this creates tension between the Services, both from an employment of force perspective and from a division of responsibility perspective. According to Krause, now at HQJOC, this tension will only be overcome if the ADF moves to a more mature understanding of jointness. A mature understanding of jointness does not mean 'fairness, equality or interchangeability. Nor does it mean that, just because one service is the leader in the vast majority of actions, somehow the others are unimportant.'[192] Instead, in a mature environment of jointness the key determinants have to be the demands of the mission. The mission demands force assignment, not whose turn it is

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189   James Goldrick, 'Thoughts on Joint Professional Military Education', *Australian Defence Force Journal*, No. 181, 2010, p. 9.

190   H R McMaster, *Crack in the Foundation: Defense Transformation and the Underlying Assumption of Dominant Knowledge in Future War*, US Army War College Strategy Research Project, US Army War College, Carlisle Barracks, 2003, p. 26.

191   Ibid., p. 67.

192   Krause, *Square Pegs for Round Holes*, p. 27.

next. If the problem being solved by military force is predominantly land focused then the land force has the lead and the priority. We must be 'so comfortable with our joint approach that we can support one lead service over long periods without doubting the worth of the supporting services'.[193] Ultimately, jointness is about results, not fairness or equality.

Critically thinking about JPME

> There is little time for leaders to reflect. They are locked in an endless battle in which the urgent constantly gains on the important.
>
> — Henry Kissinger[194]

The ADF JPME system needs to be adjusted to develop 'operational cognition'. Dr Michael Evans has argued compellingly for an enhanced JPME continuum that gives proper attention to the study and development of military art and command, rather than concentrating on policy and defence management issues. Evans has called the unreformed character of the ADF's JPME system 'one of the most serious problems facing the Australian profession in the new millennium'.[195] Dr Jeffrey Grey, another academic intimately involved in the JPME system, argues the 'officer PME system in Australia is in profound disarray, and is fundamentally failing the organisation of which it should be the intellectual gatekeeper and guiding beacon'.[196] Lieutenant Colonel Richard King, Staff Officer Grade One Thinking Skills Army, argues that not only is there no comprehensive and effective JPME strategy within the ADF, but that the 'vast

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193   Ibid., p. 28.

194   Attributed to Henry Kissinger in Michael Evans, *From the Long Peace to the Long War: Armed Conflict and Military Education and Training in the 21st Century*, Australian Defence College Occasional Series No. 1, 2007, p. xi.

195   Michael Evans, 'The Closing of the Australian Military Mind: The ADF and Operational Art', *Security Challenges*, Vol. 4, No. 2, Winter 2008, p. 128.

196   Jeffery Grey, 'Professional Military Education in the ADF', *Defender*, Spring 2004, p. 28.

majority of Defence members are completely ignorant of the issues surrounding the need for—and the development of—a JPME strategy'.[197]

It is not appropriate here to discuss in depth the curriculums of ACSC and CDSS. Nor is it appropriate to discuss the pros and cons of completing briefing papers on the Defence Committee system rather than conducting real world joint and interagency operational planning exercises. Or even studying beyond the superficial some of the masters of war such as Clausewitz. And decisions have already been made regarding the focus of the ADF Warfare Centre, now renamed the Joint Warfare, Doctrine and Training Centre.[198] However, the bottom line is that there is a pressing requirement to overhaul the JPME system *if the ADF wants to enhance its ability to practice relevant operational art and design, plan and execute effective campaigns.*

Without getting into re-writing curriculums, two recommendations are proposed with regard to improving JPME in order to develop operational cognition throughout the ADF officer corps. The first is the recommendation that ADC needs to revisit creating an advanced operational planning course similar to the US courses offered by institutions such as the US Army's School of Advanced Military Studies (SAMS) and the USMC's School of Advanced Warfighting (SAW). A mid-level year-long course, post ACSC, that is joint and interagency (two or three per service, AFP, AusAid and DFAT) and is focused solely on developing the creative and critical thinking and operational planning skills required to assist campaign planners should be affordable and will produce tangible results. Certainly each service of the US armed forces have reaped the benefits of such a course.[199] The Australian Army, too, has received value for money from these courses with well over 90% of graduates going on to command units and a number reaching star rank. Notably, however, very few have served in a specific joint planning billet. Nevertheless, an ADF-conducted version of one of these courses, tailored to the ADF's context, focused on real world planning problems, resourced and staffed appropriately, with students selected for their planning and complex problem solving aptitude, would enable graduates to be placed in key planning positions

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197   Richard King, 'Myth-busting the Joint Professional Military Education Strategy', *Australian Defence Force Journal*, No. 181, 2010, p. 25.

198   See Dr Aaron P Jackson, 'It's Time for an ADF Joint Warfare Studies Centre', *Australian Defence Force Journal*, No. 181, 2010, pp. 41–49.

199   See Robert H Scales, 'Return of the Jedi', *Armed Forces Journal,* October 2009, <http://www.armedforcesjournal.com/2009/10/4266625>, accessed 16 November 2009.

inside HQJOC and ADF HQ to lead operational planning efforts. The benefits would soon outstrip the initial costs associated with establishing this course. Such a course, however, would depend on a marked attitudinal change by RAAF and RAN with respect to joint education. This would, in fact, represent a maturing view of jointness.

The second specific recommendation regarding improving JPME focuses on deliberately improving the creative and critical thinking skills of our officers. Superior creative and critical thinking skills are an absolute prerequisite to complex problem solving and are therefore vital to campaign planning in the face of operational reality. Unfortunately, the JPME system does not, yet, incorporate creative and critical thinking into its continuum in a deliberate and focused manner. By way of example, ACSC has included a week of critical thinking into its curriculum last year. However, this 'module' was completed at the beginning of the year, was optional for staff members to attend, and once 'ticked off' was rarely referred to again. But, our profession requires its leaders, and planners, to be not only creative but also critical thinkers.[200]

For military professionals there will always be tension between training and education, and the key is being able to deliver the right mix. Training is focused on learning through technical and procedural abilities. Training ensures that people can apply standard solutions to predictable circumstances. That is, to deal with familiar problems in a familiar context. Education, on the other hand, transfers theoretical knowledge to the learner and develops cognitive skills such as critical and creative thinking, problem-solving and communication. Through education, individuals can find reasoned and viable solutions to complex and unanticipated situations; that is they can deal with complex problems in unfamiliar contexts.[201] Developing 'operational cognition' quite obviously depends on learning through education.

There is general consensus among the varied critics of the ADF JPME system that the officer corps would benefit significantly from better education, vice better training. The ADF tends to do very well in training; however, is not so proactive in permitting or promoting its officers to enhance their personal knowledge base. There is little appetite for officers to be sponsored by the ADF for higher level degrees. It would

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200   Charles D Allen and Stephen J Gerras, 'Developing Creative and Critical Thinkers', *Military Review*, November–December 2009, p. 78.

201   W P Monfries, 'Education and Training Challenges for Security/Land Forces in the 21st Century', Unpublished paper, copy in author's possession, 31 October 2007, p. 8.

appear we are simply too busy. However, without smarter personnel, critical thinking will inevitably become a process rather than a solution.[202]

Providing the officer corps with the fundamentals of how to think about challenges at the operational (and strategic) level is vital because of the unpredictability of both the internal and external environment in which we operate.[203] Both our leadership and our planners must be skilled in developing and applying creative design and strategies to circumstances about which we have limited current knowledge or understanding. Creativity is critical for adaptation. When things change and new information appears it may be no longer possible to solve current problems with yesterday's solutions.[204] Creative thinking is therefore a key element of 'operational cognition' and is necessary for successful campaign planning and the exercise of operational art. In essence, creative thinking is a:

> … cognitive process that supports divergent and convergent aspects of problem solving and decision making. Thinking creatively provides a means to identify that a problem exists and, therefore, helps with problem definition. It also gives rise to the generation of multiple alternatives and a range of options … Through the application of critical thinking, alternatives are analyzed and judged for effectiveness and appropriateness in solving the problem. The convergence on the problem solution results in a decision for implementation.[205]

Unfortunately, our general predilection for quick and painless solutions tends to inhibit the process of divergent and convergent thinking. Typically, creativity is also generally conditioned out of us by our system of education and our social and work cultures.

Creativity is complemented by critical thinking. Critical thinking is:

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202   I am indebted to Dr Al Palazzo for this insight.

203   Allen and Gerras, 'Developing Creative and Critical Thinkers', p. 78.

204   Richard King, 'How Stupid Are We?', *Australian Army Journal*, Vol. VI, No. 3, Summer 2009, p. 186.

205   Allen and Gerras, 'Developing Creative and Critical Thinkers', p. 78.

… the use of those cognitive skills or strategies that increase the probability of a desirable outcome. It is used to describe thinking that is purposeful, reasoned, and goal directed.[206]

Everyone thinks. But much of our thinking, left to itself, is 'biased, distorted, partial, uninformed or down-right prejudiced'.[207] Critical thinking is about using techniques and processes to evaluate and select information to improve judgment and make decisions. A well cultivated critical thinker tends to: raise vital questions and problems, formulating them clearly and precisely; assess relevant information and interpret abstract ideas effectively; arrive at well-reasoned conclusions and solutions; think open-mindedly; and, collaborate and communicate effectively with others in solving complex problems.[208]

The current JPME system does relatively little to enhance skills in both creative and critical thinking. The reason for this is a combination of ignorance, structure and culture. An example is the JMAP, which is the only joint decision-making framework in the ADF. It is based on the rational decision-making model but is applied more as a planning tool than a decision-making framework.[209] Followed correctly it should lead to an effective decision given the degree of uncertainty and complexity of the situation. However, there is a significant challenge in using the process as there are a wide range of opportunities for failure in critical thinking and a bad decision can accompany each step of the JMAP.[210] Additionally, a significant problem is that the majority of the people using the JMAP lack a deeper knowledge and understanding of how 'thinking' occurs in the first place.[211] They are unaware of the limitations we all have when attempting to make sense of the environment, such as confirmation biases or inappropriate framing. Equally, they are unaware of the problems associated with making decisions. Because they lack self-awareness,

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206   Quote attributed to Diane Halpern in Allen and Gerras, 'Developing Creative and Critical Thinkers', p. 78.

207   Richard Paul and Linda Elder, *The Miniature Guide to Critical Thinking: Concepts and Tools*, Fourth edition, The Foundation for Critical Thinking, <http://www.criticalthinking.org> p. 1.

208   Ibid.

209   Develops a line of reasoning detailed in King, 'How Stupid Are We?', p. 186.

210   Allen and Gerras, 'Developing Creative and Critical Thinkers', p. 79.

211   King, 'How Stupid Are We?', p. 189.

… they are therefore compelled to apply the [J]MAP as a linear process, without fully understanding the implications of our limited ability to think. Even those who are experienced in the use of the [J]MAP may simply be applying the process in a more efficient way by varying the application of the doctrine to suit different situations. They are working the 'process' smarter, but not necessarily making smarter decisions.[212]

The JMAP is a very effective tool; however, it does not create ideas. It is only as good as the ideas fed into it. Even though following the JMAP can ensure 'coherence, synchronisation, common intent and group situational awareness in any plan, the difference between a mediocre plan and a high quality plan (regardless of packaging) is the effective harnessing of the creative abilities of the staff'.[213]

In the majority of cases ADF officers are the product of a training system that focuses on competence and action to the loss of learning and reflection. The training system is generically designed to produce order and compliance, not innovation or creativity. Unfortunately, as Peter Senge points out, our culture does not create the intellectual capital the ADF requires:

School trains us never to admit that we do not know the answer, and most organisations reinforce the lesson by rewarding people who excel in advocating their views, not inquiring into complex issues … Even if we feel uncertain or ignorant, we learn to protect ourselves from the pain of appearing uncertain or ignorant. That very process blocks out any new understanding which might threaten us. The consequence is what [is called] 'skilled incompetence'—teams full of people who are incredibly proficient at keeping themselves from learning.[214]

The operational reality dictates that to design, plan and execute operations in the contemporary operating environment requires planners who have sophisticated cognitive skills. They must learn quickly, adapt when required, anticipate the

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212   Ibid.

213   Hoskin, *Ghost in the Machine*, p. 47.

214   Peter Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization*, Doubleday, New York, 1990, p. 25.

future, be mentally agile and versatile, and examine issues in the correct context.[215] Unfortunately, the ADF JPME system is not preparing operational planners with the necessary skills to be as effective planners as possible in the current operating environment. Injecting focused and deliberate programs into the JPME system to enhance creative and critical thinking skills will not only improve operational planning skills, but will also significantly contribute to inculcating a campaigning mindset into the ADF officer corps.

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215   Allen and Gerras, 'Developing Creative and Critical Thinkers', p. 78.

4 – Fix No. 2 – Ensuring Relevance

> Tactical excellence is quality wasted if it is not employed purposefully to
> advance political goals.
>
> – Colin Gray[216]

If the ADF is to develop a mature, professional, widespread and, above all, relevant understanding of operational art and campaigning, it needs to be guided by the following five considerations: understanding the necessity of getting the operational approach right, developing a holistic understanding of war, elevating function over location, being human centric and not techno-centric, and acknowledging Australia's geostrategic reality.

To develop relevant operational art the ADF needs to invest intellectual effort in developing a holistic approach to operational art that accurately captures the contemporary dynamic relationship between strategic ends and tactical means. War must be understood comprehensively and the tendency to dissect war and warfare into levels or component parts must be avoided. Consequently, relevant operational art must account for the supposed merging of the levels of war and mitigate against the 'tacticisation' of strategy.

Relevant ADF operational art also needs to emphasise function over location. Operational art is not the exclusive prerogative of HQJOC, and there needs to be a willingness by HQJOC to facilitate the iterative evolution of a campaign plan based upon insights and initiatives originating from within the theatre of operations. Indeed, in order to account for the dynamic nature of war and its environment campaign design, planning and execution needs to be the product of a robust discourse between those at the tactical level and those at the strategic, with the operational level facilitating this continual discourse.

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216   Colin Gray, *Irregular Enemies and the Essence of Strategy: Can the American Way of War Adapt*, Strategic Studies Institute, Carlisle, March 2006, p. 13.

ADF operational art must also consciously emphasise the human dimension and avoid the lure of techno-centric explanations of war. ADF operational art must also reflect Australia's geostrategic reality. That is, it must be sufficiently comprehensive to account for both contributions to coalition warfare where the ADF does not own the in-theatre campaign plan as well as account for those missions where the ADF is the lead. ADF operational art must also be sufficiently encompassing to account for the full spectrum of conflict, to include conflict termination. Finally, but underpinning all other considerations, relevant operational art depends on recognising the fundamental importance of getting the operational approach right enough. Before examining these characteristics of relevant operational art, however, there is value in defining exactly what constitutes good operational art.

What is good operational art?

> War is a question not of winning battles, but of winning campaigns.
>
> — Bernard Brodie[217]

According to most contemporary Western military doctrine on the subject, operational art translates strategic objectives into tactical actions which must be coherently arranged in time, space and, most importantly, purpose to be effective. The sequencing of tactical actions is achieved by grouping like-purpose actions into an operation. An operation is, in essence, a sequence of tactical actions connected by a unifying idea; it has its own logic or purpose and is resourced to achieve this purpose. It is this that distinguishes an operation from tactics, of which it is composed, and the campaign, in which it is combined with other operations.[218]

When more than one operation is required to achieve strategic goals a campaign plan provides coherency across multiple operations. The campaign plan sets objectives

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217 Quoted in John Gooch (ed), *Decisive Campaigns of the Second World War*, Frank Cass, London, 1990, p. 2.

218 Richard N H Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', Unpublished paper, Command and General Staff College, Fort Leavenworth, 2004, p. 27. See also Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*, Frank Cass, London, 1997, pp. 9–14

for each operation, which cumulatively achieve or support the achievement of the campaign goal. The intermediate operational objectives, which define each operation, are a critical element of operational design, since these objectives determine not only what each operation must achieve, but also how they will combine to achieve strategic success.[219] Intermediate operational objectives are used to align tactical effort across multiple operations in order to achieve, or contribute to achieving, the overall campaign goal. Defining the campaign goal is a critical decision: if the campaign goal 'does not achieve the political objective for which the war is being fought, or at least contribute to that end, then the campaign will be a waste of effort'.[220] The campaign plan also defines the operational approach, which provides the framework for and purpose of tactics. The right operational approach is therefore fundamental for strategic success.

In practice, operational art involves fusing the incompatible domains of strategy and tactics, of ends with means. It entails transforming abstract, nonlinear, end-focused 'strategic goals into discrete, linear, process-driven, tactical action, and then reintegrating the various tactical acts and outcomes into a coherent whole in order to achieve the strategic purpose'.[221] In the familiar ends, ways, means paradigm, the '*ways* of operational art link tactical *means* to strategic *ends*'.[222]

Typically then, good operational art uses innovation and creativity to contribute directly to the attainment of strategic objectives or, as a minimum, set the conditions where the attainment of strategic objectives is much more likely. Additionally, good operational art designs and executes tactical actions to maximise the strategic returns available from a given amount of tactical effort or minimise the amount of tactical effort

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219   Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', p. 27.

220   Bradley J Meyer, 'The Operational Art: The Elder Moltke's Campaign Plan for the Franco-Prussian War' in B J C McKercher and Michael A Hennessy (eds), *The Operational Art: Developments in the Theories of War*, Praeger, Westport, 1996, p. 30.

221   Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', p. 27. The tension inherent between strategy and tactics is examined in detail by Shimon Naveh who suggests the difficulty in transforming strategic intent into practical action lies in the basic incompatibility of the tactical means with the strategic ends. It is a dichotomous relationship that both creates and demands a cognitive tension between the 'abstract and mechanical extremes' of strategy and tactics. See Naveh, *In Pursuit of Military Excellence*, p. 7.

222   David A Fastabend, 'Transformation and Operational Art' in Anthony D McIvor (ed), *Rethinking the Principles of War*, Naval Institute Press, Annapolis, 2005, p. 156.

needed to attain a given strategic objective. Good operational art also ensures that the natural tendency of tactical elements to focus on the fight does not draw them away from directly contributing to the attainment of strategic ends.[223] Good operational art facilitates a continuous two-way conversation between strategy and tactics to ensure strategy includes a tactical view. Without a holistic view of the war that must include tactics, strategy may seek objectives which are practically unachievable or it may miscalculate the costs and benefits likely to emerge from a conflict.[224] Finally, good operational art is inherently adaptive to account for objectives that inevitably emerge or change in response to changing conditions on the battlefield.

The most obvious, but by no means exclusive, way in which good operational art is manifested is through a campaign plan which sets and achieves realistic and appropriate objectives, synchronises effort across multiple lines of operation and across multiple militaries and other government agencies as appropriate, and defines an inherently adaptive operational approach which promotes context appropriate tactics. The design and planning of campaigns tends doctrinally to be the purview of the operational level of war—HQJOC in the ADF's case—however, the operational level of war and operational art are not synonymous.[225] The operational level of war connects the strategic with the tactical levels of war through the campaign plan. Operational art, in contrast, is the cognitive function of this integration and is not necessarily exclusive to the operational level of war. Operational art is 'a way of intuitive thinking, a facility to discern patterns in diversity, a continuing process rather than a finite end'.[226] Explicitly, operational art and campaigning demand a way

223   Justin Kelly, 'War as a Whole: Operational Shock and Operational Art', *Australian Defence Force Journal*, No. 162, September–October 2003, p. 19.

224   See Justin Kelly and Mike Brennan, *Alien: How Operational Art Devoured Strategy*, Strategic Studies Institute, Carlisle, September 2009, pp. 5–7, for an amplification of the strategy–tactics relationship.

225   Kelly and Brennan make a persuasive case that campaign planning should be the responsibility of the strategic leadership of the country rather than the exclusive domain of the operational level of command. See Kelly and Brennan, *Alien: How Operational Art Devoured Strategy*.

226   William McAndrew, 'Operational Art and the Canadian Army's Way of War' in B J C McKercher and Michael A Hennessy (eds), *The Operational Art: Developments in the Theories of War*, Praeger, Westport, 1996, p. 87.

of thinking that differs fundamentally from the cognitive skills that underlie tactical excellence.[227]

Experience dictates campaign design and planning should be underpinned by a number of guiding principles. First, there must be a long term view about both the underlying causes and symptoms of the conflict. Second, there must be a focus on strategic and operational outcomes as well as the conditions required to realise them, rather than a focus just on tactical outcomes. Third, there needs to be deliberate synchronisation of effort with other instruments of national power where practicable. Fourth, there is an imperative for collaborative engagement with those multiple agencies sharing the intent to improve the situation. Fifth, consideration of the problem must be holistic and recognise that war is complex, adaptive, nonlinear and unpredictable. And, finally, there must be continuous analysis, assessment and iterative evolution of the campaign design and plan to deepen understanding of changing environments and to promote learning and adaptation throughout the force.[228]

Getting the operational approach good enough[229]

The military leadership … did not do a good job of conceptualizing the campaign [in Iraq] as an integrated political–military effort, sometimes failing to put tactical military operations in the broader political context.

– Andrew Rathmell[230]

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227 Barry D Watts, 'US Combat Training, Operational Art, and Strategic Competence: Problems and Opportunities', *Strategy for the Long Haul*, Center for Strategic and Budgetary Assessments, Washington DC, 2008.

228 United Kingdom Ministry of Defence, *Campaigning*, Joint Doctrine Publication 01, 2nd Edition, The Development, Concepts and Doctrine Centre, Shrivenham, December 2008, p. 3d4.

229 Part of the following section is adapted from an article by the author titled 'Adapt or Die: Operational Design and Adaptation', *Australian Army Journal*, Vol. VI, No. 3, Summer 2009, pp. 107–32.

230 Andrew Rathmell, 'Planning Post-Conflict Reconstruction in Iraq: What Can We Learn?', *International Affairs*, Vol. 81, No. 5, 2005, p. 1031.

Designing an operational approach that translates strategic objectives into tactical actions that are coherently arranged in time, space and purpose is the essence of operational art. The operational approach undertaken within a theatre of war, such as Iraq or Afghanistan, East Timor or the Solomon Islands, provides the framework for and purpose of our tactics. Simplified, the operational approach underpins the entire campaign or operation plan and is a conceptualisation of the broad general actions that will, over time, achieve the campaign objectives and create the desired 'end-state' conditions. Transforming formless strategic intent into a well-defined construct or framework is achieved through operational design. The operational approach undertaken is the product of operational design, which effectively establishes the 'box' within which the problem is bounded. Operational design also assigns the intermediate operational objectives and divides the problem into manageable chunks, bounded in space, time and purpose: operations.[231] In essence, the operational approach is essentially the golden thread of logic that links multiple operations through their respective objectives across time and space and that provides the reasoning behind the use of particular tactics. It is also the framework which permits and promotes operational and tactical adaptation. If the operational approach is not appropriate, no matter how good your tactics you will not be successful. The right operational approach reflects the fundamental difference in *doing the right things* vice just *doing things right*.

History is replete with examples of how the wrong or inappropriate operational approach contributed to strategic failure. The British in the early years in Malaya, for example, were convinced large battalion-plus sized sweeps designed to 'break insurgent concentrations and bring them to battle before they are ready' was the necessary operational approach to end the Malayan insurgency rapidly.[232] As one historian of the Malayan Emergency explains:

> The predilection of some army officers for major operations seems incurable
> … On arrival in Malaya, they would address themselves with chinagraphs to
> a map almost wholly green except for one red pin: 'Easy,' they would say.

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231   Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', p. 27.

232   John A Nagl, *Learning to Eat Soup With a Knife: Counterinsurgency Lessons From Malaya and Vietnam*, The University of Chicago Press, Chicago, 2002, p. 67.

'Battalion on the left, battalion on the right, battalion blocking the end, and then a fourth battalion to drive through. Can't miss, old boy.'[233]

The British did not start having success until the Briggs Plan was operationalised in 1950. This plan not only restructured the British command and control apparatus in Malaya, but also placed a priority on winning the support of the population to separate the insurgents from their support bases rather than just attempting to defeat the insurgents by force of arms.[234] Small patrols, acting on precise intelligence, supporting or supported by British and indigenous police forces, became the order of the day. The Briggs Plan was subsequently adapted the following and successive years by Sir Gerald Templer as the situation began to change in favour of the British. In the end it became the operational framework on which British success depended.

Not surprisingly, Vietnam provides an excellent case study of the inherent dangers of a non-existent or inappropriate operational approach failing to provide the right context for tactics. Consequently, tactical actions were not aligned to achieve operational and subsequently strategic objectives. This is no better illustrated than the reported conversation between US Army Colonel Harry Summers and a North Vietnamese counterpart in Hanoi in 1975: 'You know, you never defeated us on the battlefield,' said the American colonel. The North Vietnamese colonel pondered this remark a moment. 'That may be so,' he replied, 'but it is also irrelevant.'[235]

In the ADF's case, at least one former Australian Task Force Vietnam Commander felt that the government's failure to develop a detailed concept for a specific function for the Task Force had been a substantial problem: '… we weren't given a task, an aim … It's the first war we've gone into without a political aim that's expressed as an aim.' The result was the Task Force was committed to operations in South Vietnam in a complex environment of revolutionary warfare about which it initially knew very little. It did not have 'the assistance of many members of the most experienced body of Australian military men in Vietnam, the Australian Army Training Team Vietnam (AATTV). The Task Force was committed to Phuoc Tuy with a generalised rather than a

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233 Richard Clutterbuck, *The Long, Long War: The Emergency in Malaya 1948–1960*, Cassell, London, 1966, p. 51.

234 Nagl, *Learning to Eat Soup With a Knife*, p. 72.

235 Harry G Summers, Jr. *On Strategy: A Critical Analysis of the Vietnam War*, Presidio Press, Novato, 1982, p. 1.

specific directive or mission …'[236] The resultant confusion surrounding an appropriate operational approach that would meet Australia's strategic objectives, whatever they may have been, is suitably highlighted in early 1967 by a dispirited Lieutenant Colonel John Warr, commanding officer of the 5th Battalion, who:

> … wondered what the hell they were doing in Vietnam, and asked his intelligence officer, Bob O'Neill, to propose an answer: was it to kill Viet Cong, bring the enemy to battle, separate the people from the enemy, offer civic aid, restore Saigon's control or cut the Viet Cong supply lines.[237]

An ongoing study on the negative impact of an inappropriate and failing operational approach, with striking parallels to Vietnam, is Iraq. The Secretary of Defense, Donald Rumsfeld, and the Commander Central Command (CENTCOM) General Tommy Franks' unwillingness to plan beyond the defeat of the Iraqi Army has been well-documented.[238] As one of the lead campaign planners at CENTCOM during the invasion of Iraq in 2003 stated: 'You had a lot of energy focused on the tactical piece … There wasn't a whole lot of intellectual energy being focused on Phase IV [Transition or Post-Conflict Phase of the campaign].'[239]

But, even as events unfolded on the ground and the campaign evolved 'the American war plan was never adjusted on high'.[240] According to retired US Army Major General Robert Scales, after focusing too much on the operational level in its invasion plan the Army focused too little on it during the subsequent occupation: 'The operational level of war in Iraq was dealing with Iraqis, with non-governmental organisations, with the media, with the rest of the world. The centre of gravity was the will of the people.'[241] However, the operational approach adopted once the initial

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236   Frank Frost, *Australia's War in Vietnam*, Allen and Unwin, Sydney, 1987, p. 69.

237   Paul Ham, *Vietnam: The Australian War*, Harper Collins Publishers, Sydney, 2007, p. 289.

238   One of the more succinct accounts is that by James Fallows, 'Blind into Baghdad', *Atlantic Monthly*, January/February 2004, <http://www.theatlantic.com/doc/200401/fallows> accessed on 15 March 2006.

239   Michael R Gordon and Bernard E Trainor, *Cobra II: The Inside Story of the Invasion and Occupation of Iraq*, Pantheon Books, New York, 2006, p. 140.

240   Ibid., p. 501.

241   Tom Ricks, *Fiasco: The American Military Adventure in Iraq*, Penguin, London, 2006, p. 225.

centre of gravity—the Iraqi Republican Guard—had been neutralised, was heavily weighted towards force protection and counter-terrorism at the expense of protecting the population. As British Brigadier Nigel Aylwin-Foster quite publicly pointed out in a *Military Review* article in 2005, US Army personnel were too inclined to consider offensive operations and destruction of the insurgent as the key to a given situation and conversely failed to understand its downside. Military destruction of the enemy was fast becoming a strategic, not even an operational, goal in its own right:

> 'There was a strong focus on raiding, cordon & search and sweep ops throughout: the one day brigade raid is the preferred tactic'. There was a 'preference for large-scale kinetic maneuver' and 'focus on killing insurgents, not protecting the population.'[242]

The absence of a unifying operational approach, codified in a relevant and adaptive campaign plan, meant that US Army Divisions 'operated like fingers without an operational hand or strategic arm to guide them'.[243] Various units did what they thought was the right thing to do, but their efforts were not coordinated by an overarching campaign that gave purpose to disparate tactical actions. As Anthony Cordesman, of the Center for Strategic and International Studies in Washington DC, highlights:

> The 'jointness' that helped the United States win the war was almost totally lacking during the conflict termination and peacemaking stage. No US commander seemed to have responsibility. Even within the army, major differences emerged in how given units performed their tasks. (The 3rd Infantry Division favoured reacting to incidents; the 4th Division aggressively patrolled.) There was no cohesion to the military effort.[244]

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242   Nigel Aylwin-Foster, 'Changing the Army for Counterinsurgency Operations', *Military Review*, November–December 2005, p. 5.

243   Ricks, *Fiasco: The American Military Adventure in Iraq*, p. 226.

244   Anthony H Cordesman, *The Iraq War: Strategy, Tactics, and Military Lessons*, Center for Strategic and International Studies, Washington DC, 2003, p. 502.

The result was that any tactical successes that did occur never became cumulative or enduring, rather they 'tended to peter out by themselves'.[245]

Later, under General Casey during 2005–07, the operational approach was adapted slightly under a revised campaign plan to emphasise fast tracking the development of Iraqi Security Forces while concurrently reducing the presence of US forces in the cities.[246] However, neither this or the earlier operational approach worked, and there was reluctance to make any significant adaptations. In effect, up until General Petraeus took command of the war and the celebrated 'surge' in Iraq during 2007–08, the operational approach undertaken by Coalition Forces in Iraq (primarily US forces) was the wrong approach.[247]

Afghanistan is another example where the operational approach has not promoted best practice tactics that are contextually appropriate. Many coalition forces do not actively and consistently patrol their areas of responsibility or, when they do patrol, they sally forth from Forward Operating Bases (FOBs) for a quick-order patrol that has very limited enduring effect due to a lack of reinforcement of 'holding' operations, and often inflames local tensions rather than creating an atmosphere of progress or stability. In too many cases, the tactical methods employed by coalition forces focus more on self-protection rather than on protecting local communities. Actions such as aggressive driving of up-armoured vehicles in built-up areas, defaulting to the use of air-delivered weapons when contacted by enemy forces rather than adopting a more proportional response of dismounted fire and manoeuvre, and a reluctance to share information or lessons learned with Afghan National Army (ANA) and Afghan National Police (ANP) partners contribute to psychologically separating the Coalition Forces from the people they should be protecting.[248] This does not represent best practice tactics within a sound operational approach. Accordingly, the

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245 Ricks, *Fiasco: The American Military Adventure in Iraq*, p. 226.

246 Ibid., pp. 149–202; and Tom Ricks, *The Gamble: General David Petraeus and the American Military Adventure in Iraq, 2006–2008*, The Penguin Press, New York, 2009, for the discussion on Casey's operational approach.

247 Ricks, *The Gamble*. Bob Woodward arrives at similar conclusions to Ricks but from a different perspective. See Bob Woodward, *The War Within: A Secret White House History, 2006–2008*, Simon and Schuster, New York, 2008.

248 Trent Scott and John Agoglia, 'Getting the Basics Right: Tactical Actions for Strategic Impact in Afghanistan', *Small Wars Journal*, 2008, <http://www.smalwarsjournal.com> accessed 20 December 2008.

recently removed Commander International Security Assistance Force (ISAF), General McChrystal, recommended changing the operational approach to one that reflects a comprehensive counterinsurgency campaign where the objective of ISAF is to secure the Afghan population rather than being inherently focused on seizing terrain or destroying insurgent forces.[249]

For all the talk of shock and awe, manoeuvre warfare, AirLand Battle and operational art, Iraq and Afghanistan to date have arguably been case studies more in a way of battle than a successful way of war.[250] Fighting should be guided by a theory of victory, otherwise the result tends to be 'a strategy of tactics'.[251] The operational approach provides this theory of victory by providing the purpose and context for tactics and describing how it is we are going to get from the current situation to the desired, improved situation.

The operational approach must be adaptive if it is to be successful. War is a struggle in the use of force to compel the enemy to do our will, is unpredictable and nonlinear and is characterised by competitive learning between opponents in the race for an asymmetric advantage over the other. 'Adapt or die' therefore has a particular tactical immediacy on today's increasingly complex, lethal, diverse and uncertain battlefield. We intuitively understand the enemy is adaptive, more than willing and readily able to change tactics, techniques and procedures in response to our actions. We also know the inability to adapt tactically will inevitably lead to failure and, on a personal level, perhaps death or serious injury. Witness the counter-IED battle in both Iraq and Afghanistan. But success at war and warfare depends on more than being adaptive to ensure we are *doing things right*. More so, success depends on us consistently and cumulatively *doing the right things*. This depends on a continuous and iterative adaptation of our operational approach to ensure its relevancy and effectiveness.

In reality, when dealing with a thinking, adaptive adversary intent on defeating our efforts, and who has the opportunity to act or react to our actions, the effectiveness of any planned action on our part is as dependent on the adversary's reaction as upon

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249   Stanley A McChrystal, 'Commander's Initial Assessment', 30 August 2009, copy in author's possession, p. 1-1.

250   See Antulio J Echevarria, II, *Toward an American Way of War*, US Army War College Strategic Studies Institute, Carlisle, March 2004.

251   Gray, *Irregular Enemies and the Essence of Strategy*, p. 5.

any intrinsic merits that action might have.[252] This is what Edward Luttwak called the 'paradoxical logic of strategy'.[253] A corollary to this is that no course of action or particular approach can persist indefinitely. The adversary, like us, learns so that over time our approach will inevitably become less effective. The Prussian General, The Elder von Moltke articulated this explicit need for an adaptive operational approach as a 'system of expedients':

> It is a fallacy, when one believes it is possible to determine a plan of campaign far in advance and carry it out to the end. The first clash with the enemy main force creates, according to its result, a new situation. Many things can not be carried out which one may have intended, many things become possible which were previously not expected. To understand the changed circumstances, on that basis, to direct what is suitable and carry it out in a determined fashion is all that the army leadership can do.[254]

The operational approach provides the framework and reasoning behind the selection of objectives for each operation and mutually reinforces the attainment of these objectives through the direction and purpose of tactical actions. Von Moltke's operational planning and decision-making, for example, depended on his operational goals, some of which were set at the outset of his campaigns while the majority emerged as each campaign progressed and operations were undertaken. According to von Moltke, 'certainly the field commander will keep his great goals [campaign objectives] constantly in view, undisturbed by changing circumstances, but the way in which he hopes to attain them can never be determined far in advance'.[255] With this in mind, and recognising the actual outcome of tactical actions in reality is largely indeterminate, subsequent operations actually required may differ greatly from those envisioned at the outset of the campaign. An implication is that:

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252 Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', p. 28.

253 Edward Luttwak, *Strategy: The Logic of War and Peace*, The Belknap Press of Harvard University Press, Cambridge, 2001, pp. 15–24.

254 Bradley J Meyer, 'The Operational Art: The Elder Moltke's Campaign Plan for the Franco-Prussian War' in B J C McKercher and Michael A Hennessy (eds), *The Operational Art: Developments in the Theories of War*, Praeger, Westport, 1996, p. 32.

255 Ibid., p. 29.

Intermediate objectives chosen solely in terms of how well they support anticipated follow-on operations, or simply as incremental, partial-steps towards the overall campaign goal can prove futile if the situation changes drastically. An alternative to this essentially linear approach is to select intermediate objectives not based on how directly they approach or support achieving the overall goal, but instead on the range of options that their attainment will confer. In other words, intermediate (operational) objectives should be selected primarily to enhance freedom of action and build depth—or deny it to the adversary—and not merely to make incremental progress.[256]

Of course, as the bridge between strategy and tactics it makes sense that the appropriate operational approach depends on an equally appropriate overarching strategy. As a retired US Special Forces veteran of Vietnam suggests:

When you're facing a counterinsurgency war, if you get the strategy right, you can get the tactics wrong, and eventually you'll get the tactics right. If you get the strategy wrong and the tactics right at the start, you can refine the tactics forever but you still lose the war. That's basically what we did in Vietnam.[257]

But a robust and dynamic relationship between strategy and tactics is not a requirement exclusive to counterinsurgencies. In any type of war, tactical action without strategic purpose is simply violence. Specifically, the strategic direction of a war needs to be cognisant of the type of warfare being conducted, or that needs to be conducted, to ensure 'both that it is making realistic demands, and that the military action remains in keeping with the wider conduct of the war'.[258]

Having a well developed holistic understanding of operational art facilitates positive discourse between the strategy makers and those charged with executing the tactics. Sound operational art depends on sound strategic art, but it also has the potential to iteratively promote sound strategic art. As a minimum, sound operational art promotes sound tactics, potentially buying time for sound strategic decision-

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256   Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', p. 29.

257   Colin S Gray, *Fighting Talk: Forty Maxims on War, Peace, and Strategy*, Praeger Security International, Westport, 2007, p. 50.

258   Kelly and Brennan, *Alien: How Operational Art Devoured Strategy*, p. 6.

making to emerge. But for this to occur one must consistently have a holistic view of war.

Holistic war

> Tactics and strategy are two activities that permeate one another in time and space but are nevertheless essentially different. Their inherent laws and mutual relationship cannot be understood without a total comprehension of both.
>
> — Clausewitz[259]

To be relevant, ADF operational art needs to explicitly consider war holistically, fundamentally understanding the distinction between war and warfare. A holistic understanding of war that explicitly promotes a continuous conversation between strategy and tactics should mitigate against the predisposition to view war through a reductive lens. This tendency to view war through the levels of war prism potentially leads to the 'tacticisation of strategy' and promotes a way of battle rather than a way of war. In fact, the operational level of war may implicitly create an excuse for tacticians to avoid thinking strategically, and for strategists to avoid considering military problems from a tactical perspective.[260]

As Clausewitz's mentor Herbert Scharnhorst reminds us: 'One must habitually consider the whole of war before its components'.[261] Clausewitz himself amplifies this perspective clearly:

> No one starts a war—or rather, no one in his sense ought to do so—without first being clear in his mind what he intends to achieve by that war and how he intends to conduct it. The former is its political purpose; the latter its

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259   Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret, Princeton University Press, Princeton, 1976, p. 132.

260   Antulio Echevarria, *Clausewitz and Contemporary War*, Oxford University Press, Oxford, 2007, p. 140.

261   Herbert Rosinski, 'Scharnhorst to Schlieffen: "The Rise and Decline of German Military Thought"', *Naval War College Review*, Summer 1976, p. 85.

operational objective. This is the governing principle which will set its course, prescribe the scale and means and effort which is required, and make its influence felt throughout down to the smallest operational detail.[262]

Clausewitz goes on to say that strategy and tactics are 'two activities that permeate one another in time and space but are nevertheless essentially different. Their inherent laws and mutual relationship cannot be understood without a total comprehension of both.'[263]

Unfortunately, in recent conflicts there has been a tendency to ignore such counsel or downplay its significance. According to Anutulio J Echevarria of the US Army War College's Strategic Studies Institute, recently there has been a consistent failure to see the political purpose for which a war is fought as part of war itself, which amounts to treating a battle or the campaign as an end in itself. This tendency for policy makers and strategic leadership to focus on the battle at the expense of the war is symptomatic of a persistent bifurcation in strategic thinking, in which 'military professionals concentrate on winning battles and campaigns, while policymakers focus on the diplomatic struggles that precede and influence, or are influenced by, the actual fighting'.[264]

For the ADF, Echevarria's argument that to overcome this bifurcation in strategic thinking 'political and military leaders must habituate themselves into thinking more thoroughly about how to turn combat successes into favourable strategic outcomes' should resonate strongly.[265] Such thinking needs to transcend the levels of war paradigm and not be constrained by self-imposed bureaucratic boundaries. Focusing on turning tactical successes into strategic successes also becomes increasingly difficult when the purpose of an ADF commitment to a war becomes blurred under the rubric of 'alliance management'.

In a more recent US Army War College Strategic Studies Institute paper titled *Alien: How Operational Art Devoured Strategy*, Justin Kelly and Mike Brennan draw on Echevarria's argument to suggest the contemporary understanding of operational art

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262   Clausewitz, *On War*, p. 579.

263   Ibid., p. 132.

264   Echevarria, *Toward an American Way of War*, p. vi.

265   Ibid., p. vi.

has 'heretically' mutated beyond its useful limits.[266] According to Kelly and Brennan, operational art—practiced as a discrete 'level of war'—has assumed responsibility for campaign planning and in so doing has moved away from its original purpose of contributing to the attainment of campaign objectives that have been laid down by strategy. The consequence is that political leadership has been reduced to the role of strategic sponsor, providing only vague 'strategic guidance' and leaving responsibility for campaign planning in the hands of the military operational level of command. The result is a widening of the gap between politics and warfare, again producing a way of battle rather than a way of war.[267]

The distinction between war and warfare matters greatly.[268] Despite the two concepts regularly being used interchangeably either through ignorance or as a matter of literary convenience, war is a total relationship between political, social, legal and military variables. It is the master organising concept that has profound implications for all manner of social and political behaviours.[269] Warfare, in contrast, is the conduct of war, principally, though not exclusively, in the military dimension.[270] Unfortunately, ignoring the not-so-subtle distinction between the two often results in neglecting the requirements of war in the interest of achieving and exploiting excellence in warfare. And because war has many dimensions—cultural, political, social, and technological to name a few—when war is reduced to fighting the economic, political, diplomatic and social-cultural contexts are easily neglected.[271]

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266   See Kelly and Brennan, *Alien: How Operational Art Devoured Strategy*.

267   Ibid., p. viii.

268   Colin S Gray, *Fighting Talk: Forty Maxims on War, Peace, and Strategy*, Greenwood Pub Group, Santa Barbara, 2007, p. 32.

269   Ibid., p. 32. See also Colin S Gray, *Irregular Enemies and the Essence of Strategy: Can the American Way of War Adapt*, Strategic Studies Institute, Carlisle, March 2006, p. 11.

270   Chinese People's Liberation Army (PLA) Colonels Qiao Liang and Wang Xiangsui argue that:

The great fusion of technologies is impelling the domains of politics, economics, the military, culture, diplomacy, and religion to overlap each other. The connection points are ready, and the trend towards the merging of the various domains is very clear. All of these things are rendering more and more obsolete the idea of confining warfare to the military domain …

See Qiao Liang and Wang Xiangsui, *Unrestricted Warfare*, People's Liberation Army Literature and Arts Publishing House, Beijing, February 1999, p. 162.

271   Gray, *Fighting Talk*, p. 33.

This is not to say that warfare is not important, or less important, than any of the other dimensions that comprise war. Indeed, without superiority in warfare it is extremely difficult to defeat an enemy. For example, Templar's famous 'hearts and minds'—good governance, law and order and physical infrastructure that meets the needs of the people combining to 'suck the oxygen out of the insurgency'—does not work without security. Security depends on superiority in warfare. Being inferior in warfare will not assist in gaining proximity to a population in order to control that population or influence their perceptions and allegiances. To amplify:

> Whatever government is in power and whatever your political leanings, unless you are confident in the ability of your government to enforce its peace then the man with a gun at your door at midnight is your master. It doesn't matter if you are happy with your electricity, content with your children's educational arrangements and satisfied with the government's agenda—you are in thrall to the threat posed to you and your family by that man with the gun. His removal resolves the competition for control and is the first step towards establishing the coercive authority of the state in that place. This is so glaringly obvious that it appears banal …[272]

The American strategist Admiral J C Wylie identified this aspect of war succinctly when he said the 'ultimate determinant in war is the man on the scene with the gun. This man is the ultimate power in war. He is control. He determines who wins.'[273] It should not be forgotten (or perhaps it needs to be relearned) that small wars and what used to be referred to as Military Operations Other Than War are still wars. Typically the labels used to describe conflict—major war, small war; regular war, irregular war; manoeuvre war, counterinsurgency operations; peacekeeping, peace enforcement—tend to create an expectation that we have correctly categorised the war in the first place in order to provide the best possible solution, when in fact we may not have done.[274] Regardless of their character and label they are still ultimately about the distribution of political power through the use of force. War is war, and all wars are

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272   Justin Kelly, 'How to Win in Afghanistan', *Quadrant*, Vol. 53, No. 4, April 2009.

273   J C Wylie, *Military Strategy: A General Theory of Power Control*, Naval Institute Press, Annapolis, 1967, p. 72.

274   Hew Strachan, 'One War, Joint Warfare', *The RUSI Journal*, Vol. 15, No. 44, August 2009, p. 20.

things of the same nature.[275] Indeed, once allowances have been made for historical differences, 'wars still resemble each other more than they resemble any other human activity. All are fought, as Clausewitz insisted, in a special element of danger and fear and confusion. In all, large bodies of men are trying to impose their will on one another by violence'.[276]

Typically, destroying the enemy in battle is the overriding focus for a military, for this is the unique skill a military provides its government. Von Moltke's call for a strategy of annihilation in the Prussian Field Service Regulations of 1869 still resonates and arguably continues to underwrite the Western way of war.

> Victory through battle is the most important moment in war. Victory alone will break the will of the enemy and will subordinate his will to ours. Neither the capture of terrain, fortress, or severance of line of communication will achieve this objective. To achieve decision, breaking the will of the enemy through the destruction of his forces, that is the operational objective. This operational aim will then serve the needs of strategy.[277]

Unfortunately, the concept of the decisive battle as a means to winning the war is mostly an illusion on today's battlefield.[278] While 'technology, firepower and the relentless quest to destroy an adversary's armed forces won the battles of the 20th Century', they are unlikely, in and of themselves, to be enough to win the wars of the twenty-first century.[279] Tactical excellence in battle does not substitute for lack of operational cognition, nor does it obviate the need for a coherent theory of operations

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275   Clausewitz, *On War*, p. 606.

276   Michael Howard, *The Causes of War and Other Essays*, 2nd Edition, Harvard University Press, Cambridge, 1983, p. 214.

277   Michael D Krause, 'Moltke and the Origins of the Operational Level of War' in Michael D Krause and R Cody Phillips (eds), *Historical Perspectives of the Operational Art*, Center of Military History, United States Army, Washington DC, 2007, p. 125.

278   Bernard Fook Weng Loo, 'Decisive Battle, Victory and the Revolution in Military Affairs', *Journal of Strategic Studies*, Vol. 32, No. 2, April 2009, pp. 189–211.

279   Daniel T Canfield, 'Winfield Scott's 1847 Mexico City Campaign as a Model for Future War', *Joint Forces Quarterly*, Issue 55, 4th Quarter, 2009, p. 96.

to provide a sound conceptual framework for tactics.[280] Certainly, strategy and tactics are best thought of as

> … handmaidens, but if one must choose, it is probably more correct to say that tactics comes first, because they [sic] dictate the limits of strategy … Strategy is paramount in determining the aims of the tactician. But strategy is limited by means. An assessment of means—the combat power available and its utility to achieve strategic objectives—starts with an adequate understanding of the tactical employment of forces in battle.[281]

But the historical record reinforces that eventual outcomes will not necessarily correlate with battlefield outcomes. Becoming more efficient at 'killing and breaking' only wins battles, it doesn't necessarily win wars.[282] This is especially so when warfare becomes a virtual end in itself.

War needs to be considered holistically, across multiple dimensions and contexts. Just as important, war needs to be considered with a mindset that views the strategic, operational and tactical interface not as three discrete entities coming together from time to time as the situation warrants, but as a completely fused entity. Clausewitz argued that in war each action needed to contribute to the political aim. When one has a warfare or battle focus there is the tendency to concentrate on subduing one's adversary more than, and often at the cost of, accomplishing one's political objectives. A war focus, in contrast, begins with the principal political objective and plans backward from it, and arranges its means accordingly.[283]

For Clausewitz, 'all strategic planning rests on tactical success alone'; meaning we must ignore the temptation to conduct discrete analyses of strategy and tactics.[284] Just as the connection between war and politics gives strategy its functionality, strategy—through the operational level of war—provides context for tactics. Tactical actions necessarily carry strategic implications, while strategy:

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280 See Naveh, *In Pursuit of Military Excellence*, pp. 126–50; and Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', p. 8.

281 Echevarria, *Clausewitz and Contemporary War*, p. 143.

282 Echevarria, *Toward an American Way of War*, p. 10.

283 Echevarria, *Clausewitz and Contemporary War*, p. 171.

284 Clausewitz, *On War*, p. 177.

… conceptualizes, creates, and applies tactical forces, as well as shaping their diplomatic, economic, demographic, and operational environments. An [Australian] soldier on a street corner in Baghdad not only personifies a strategic decision to invade Iraq, but also the entire political, social, diplomatic, cultural, and economic evolution of [Australia] … The actions of this strategic private are fraught with a broad spectrum of implications—military, Iraqi domestic political, [Australian] domestic political, and international political implications. Any attempt to conceptually separate tactics from strategy denies this connection.[285]

In wars of all kinds, warfare by definition 'occurs in the context of the whole war, and it needs to be conducted in such a way that it fits the character of the war and thereby yields useful strategic effectiveness'.[286] Battle is but a means to an end. And because war is unpredictable and inherently nonlinear, the results of battle and other tactical actions may not have the operational or strategic consequences initially being sought. As war progresses, the strategic ends of the participants will likely, rather should, evolve. Similarly, in the constant search for tactical advantage, the tactical means chosen will undergo sometimes rapid and profound change. If the ends and means change, the ways necessarily will need to change as well. This dynamism has two consequences for theory:

First, war needs to be managed as a whole—with the two-way conversation between strategy and tactics also being a continuous one. Second, any attempts to gain understanding by breaking a system into its constituent parts, in this case strategy, operations, tactics, isolate in theory what is united in praxis. As a result, such analysis generates theory that is practically and literally meaningless.[287]

The implication operationally is that each campaign needs to be designed holistically and then continuously examined in the wider strategic context of the war.

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285 Kelly and Brennan, *Alien: How Operational Art Devoured Strategy*, p. 68.

286 Gray, *Irregular Enemies and the Essence of Strategy*, p. 11.

287 Kelly and Brennan, *Alien: How Operational Art Devoured Strategy*, p. 8.

There is no such thing as purely operational war.[288] Such examination should aim to ensure the internal ends-ways-means rationale for the campaign is in accord with the higher direction of national strategy and is likely to be politically sustainable through its planned duration.[289] The campaign itself must be focused on securing a definitive political, not just military, victory. It is not enough to simply destroy or defeat the enemy's armed forces. And, a comprehensive understanding of the essence of the relationship between strategy, operations and tactics 'takes a large step toward avoiding the mistake of compartmentalising warfare, a tendency that is all too common'.[290]

Function vs location

> It is argued that the operational level applies to just one particular level of command … this is not the case. Certain levels of command…may well find themselves moving between the tactical and operational levels depending upon the nature of the battle or operation upon which they are embarked …
> It is the circumstances that count, not the numbers involved.
>
> — Brigadier A S H Irwin[291]

The concept of the three levels of war—strategic, operational, tactical—has been adopted by all US and most allied armed forces. The operational level of war links tactics with strategy and is essentially defined by its position in between strategy and tactics, along with the activities, including operational art, that must occur to integrate the two. Actions at the operational level of war are almost always joint, increasingly combined and equally increasingly interagency in character. Operational art is further defined by the process or function of this integration—the how as much as the what.[292]

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288   David Kaiser, 'Back to Clausewitz', *Journal of Strategic Studies*, Vol. 32, No. 4, August 2009, p. 67.

289   Ibid., p. 64.

290   Charles F Brower IV, 'Commentary on the Operational Art' in B J C McKercher and Michael A Hennessy (eds), *The Operational Art: Developments in the Theories of War*, Praeger, Westport, 1996, p. 195.

291   A S H Irwin, *The Levels of War, Operational Art and Campaign Planning*, Strategic and Combat Studies Institute Occasional Paper No. 5, Camberly, 1993, p. 3.

292   Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', p. 8.

The levels of war paradigm inevitably 'introduces connotations of stratified and distinct layers, in which the operational separates strategic from tactical, rather than linking or integrating them'.[293] But war 'does not lend itself to analysis by levels and to do so is both wrong and potentially dangerous'.[294] Creating a discrete operational level of war inevitably leads to the linear analysis of war when war is inherently nonlinear. Such an approach is in danger of ignoring Clausewitz's opening admonition that 'in war more than in any other subject we must begin by looking at the nature of the whole; for here more than elsewhere the part and the whole must always be thought of together'.[295]

Additionally, the hierarchical nature of these layers has resulted in the levels of war becoming conflated with levels of command. The metaphor of physical layers also suggests a functional similarity between the tactical, operational and strategic levels in which the operational level differs not in unique cognition but only in scope or scale.[296] Arguably, the creation of the operational level of war has led to an independent 'layer of command that has usurped the role of strategy and thereby resisted the role that the civilian leadership should play in campaign planning'.[297]

In the United States especially, but also in Australia, the operational level is often considered exclusive to larger unit operations with the conclusion that the history of operational art is found only in the accounts of campaigns and independent actions of large units within a theatre of war.[298] Noting operational art's roots in large wars, there is also debate over whether operational art even remains relevant in an age of small wars that are defined by non-state actors and irregular warfare.[299] Dr Martin Dunn, of the Australian Defence Science and Technology Organisation (DSTO), argues the

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293 Ibid., p. 10.

294 Kelly, 'War as a Whole: Operational Shock and Operational Art', p. 19.

295 Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', p. 10.

296 Ibid.

297 Kelly and Brennan, *Alien: How Operational Art Devoured Strategy*, p. 63.

298 See Robert M Citino, *Blitzkrieg to Desert Storm: The Evolution of Operational Warfare*, University Press of Kansas, Lawrence, Kansas, 2004, p. 8; Richard M Swain, 'Filling the Void: The Operational Art and the US Army' in B J C McKercher and Michael A Hennessy (eds), *The Operational Art: Developments in the Theories of War*, Praeger, Westport, 1996; and Richard M Swain, 'The Written History of Operational Art', *Military Review*, Vol. 70, 1990, pp. 100–05.

299 See Michael Evans, 'The Closing of the Australian Military Mind: The ADF and Operational Art', *Security Challenges*, Vol. 4, No. 2, Winter 2008, p. 109.

levels of war are nothing but a set of labels for armed forces that are relatively small or in the context of counter-revolutionary warfare. In Malaya, for example, military decision-making was impossible to separate from political decision-making at the local level, let alone at the national level.[300]

The operational level of command on the other hand, according to ADF doctrine, 'plans and conducts campaigns and operations to achieve the military strategic objectives and end state. This includes establishing the operational level mission, objectives, desired effects and tasks'.[301] Characterised by broader time and space implications than the tactical level, the operational level of command links and integrates the tactical employment of forces with strategic goals.

The ADF makes no explicit acknowledgment of the functional aspect of operational art or that operational art can transcend the levels of war. In contrast, Canadian Armed Forces have explicitly recognised that the operational level of war is not defined by the size and number of forces involved, but on the outcome of actions, and that no specific level of command is solely and exclusively concerned with operational art. For the Canadians, operational art is specifically defined as:

> … the skill of translating this strategic direction into operational and tactical action. It is not dependent on the size of the committed forces, but is that vital link between the setting of military strategic objectives and the tactical employment of forces on the battlefield through the skilful execution of command at the operational level.[302]

In the ADF the perception that emerges from the levels of war paradigm is that operational art is the exclusive domain of the operational level of command—HQJOC. By taking a hierarchical view and linking discrete responsibilities to specific levels of command we risk degrading the intimacy of the conversation among ends, ways and

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300   Martin Dunn, 'Levels of War: Just a Set of Labels', <http://www.clausewitz.com/readings/Dunn. htm> accessed 27 August 2009.

301   ADDP 3.0 *Operations*, Department of Defence, Canberra, p. 1-8.

302   Allan English, 'The Operational Art: Theory, Practice and Implications for the Future' in Allan English, Daniel Gosselin, Howard Coombs and Laurence M Hickey (eds), *The Operational Art: Canadian Perspectives, Contexts and Concepts*, Canadian Defence Academy Press, Kingston, Ontario, 2005, p. 9.

means, making it easier for strategy to make unreasonable demands, asking for something that is tactically not possible or for something that will take too long to achieve.[303] This paradigm is reinforced by a linear view of war, 'with ends, ways, and means arranged hierarchically and linked to discrete levels of command. At least implicitly, most of the conversation is one-way traffic: strategy directs and tactics obeys'.[304]

A further negative outcome of this paradigm is highlighted by a Canadian officer and represents an important warning for the ADF as HQJOC continues to mature:

> [Because of the confusion surrounding levels of war and levels of command] Canadian Forces end up consumed in issues surrounding division of responsibility, and delegation of authority—focused on the separation, rather than the integration, of the levels, and characterised by a strategic level that is either unwilling or unable to define what it can let go of [sic].[305]

Those at HQJOC risk being forced into a conceptual 'box' where they consider themselves to be the sole purveyors of operational art, effectively distancing themselves from both strategic planners and tactical executors. Equally, either because the strategic level of command refuses to define its role or it purposefully continues the strategy-tactics interface that has traditionally dominated the Australian way of war, HQJOC ends up restricted to the 'mechanical aspects of force projection, such as reception, staging, onward integration, force basing and the national (administrative) command of deployed forces'.[306] These are all essential but they do not represent the central function of operational art and should not be the main focus at the operational level.

> This emphasis on clearly delineating authority and responsibility seems to miss the key point that the operational level is not about separation, but integration. The tension that this ambiguity causes between the levels is not a problem to be eliminated, but an essential aspect of the operational level that needs to be managed in order to keep tactical action and strategic intent harmonised.[307]

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303 Kelly and Brennan, *Alien: How Operational Art Devoured Strategy*, p. 9.

304 Ibid., p. 8.

305 Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', p. 10.

306 Ibid., p. 49.

307 Ibid.

Failure to understand the operational level of war as the essential connecting function between strategy and tactics leads to a tacticisation of war that continues to promote a way of battle. According to Edward Luttwak, the American strategist who claims responsibility for popularising the term 'operational' within the American military, the absence of terminology to describe what occurs between tactics and strategy prevented Western military professionals from thinking or practicing war at the operational level. Thinking and practicing war from an operational perspective is a necessary action required to prevent warfare from deteriorating into a series of tactical battles of attrition.[308] Luttwak stressed the integrating nature of the term, arguing 'operational' bridged and combined the abstract contemplation at the strategic level of war and the mechanical action at the tactical level of war.[309]

In essence, the bridging function is achieved through the campaign plan, a manifestation of operational art. According to Dr Evans, the 'lost victories' of the 2001–2003 US-led 'first phase' campaigns in Afghanistan and Iraq respectively are a cautionary warning of reliance on strategy empowered by information-age tactics without a suitable operational approach to bridge the two.[310]

The importance of the operational level of war as a mechanism for forcibly rising above the constant tacticisation of war was recently re-injected into the British professional debate on operational art. As one British general has recently argued, 'without consideration of the operational level, it is easy to see the achievement of strategic success as merely the sum of tactical victories, and but a small step from there to believing that every successful battle fought leads to strategic success'.[311] This same general argues that, prior to the establishment of the joint Higher Command and Staff College course in 1997, much UK doctrine was inherently tactical in nature. The result was a focus on the conduct of battles, contributing to a:

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308   Edward N Luttwak, 'The Operational Level of War', *International Security*, Vol. 5. No. 3, Winter, 1980/81, p. 61. See also Edward N Luttwak, *Strategy: The Logic of War and Peace*, The Belknap Press of Harvard University Press, Cambridge, 2001, for additional development of his earlier ideas regarding the operational level of war.

309   Allan English, 'The Operational Art: Theory, Practice, and Implications for the Future', p. 10.

310   Evans, 'The Closing of the Australian Military Mind', p. 110.

311   John Kiszley, 'Thinking About the Operational Level', *RUSI Journal*, December 2005, p. 38.

… Single Service rather than a joint focus, to an attritional tendency in the attrition/manoeuvre balance, to a pedagogic approach of 'what to think' rather than 'how to think,' and to an emphasis on the personal qualities perceived by the military to be important at the tactical level, such as obedience, loyalty, conformity and discipline, often at the expense of qualities more valuable at the operational level, such as intellect, independent-mindedness, scepticism and creativity. It led some people towards the false logic that every tactical victory would lead to strategic success, and that, therefore, every opportunity to destroy the enemy should automatically be taken.[312]

Although different, the operational level of war and operational art need to be considered holistically together, as two interrelated component aspects of an overall operational framework that fuses strategy and tactics.[313] Underlying this operational framework needs to be the explicit recognition that it is the objective, not the size of the force or the level of its command, that determines whether operational art is required. The operational function is not just a division of labour between the upper and lower levels of war. It is a distinct function fulfilling the essential role of fusion and mitigating the risk of thinking tactical excellence can substitute for operational cognition.[314] This represents a challenge for not just HQJOC, but the ADF writ large.

Human centric warfare

The future will belong not necessarily to the most technologically advanced combatant but the one that understands the nature of war and can most effectively cope with and exploit it.

— Christopher Kolenda[315]

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312 Ibid., p. 42.

313 Dickson, 'Operational Art in a Middle-Power Context: A Canadian Perspective', p. 11.

314 Ibid, p. 14.

315 Christopher D Kolenda, 'Transforming How We Fight', *Naval War College Review*, Vol. LVI, No. 2, Spring 2003, p. 101.

War is a fundamentally human undertaking. ADF operational art needs to recognise this explicitly and be firmly grounded in the recognition that any attempt to treat war as a technical problem—to be solved through the application of materiel according to a scientific methodology—will fail.[316] Wars have always been, and always will be, about the distribution of political power. Political power depends on the consent of the people. Warfare, therefore, has always been, and always will be, based on avoiding strengths and exploiting vulnerabilities to manipulate the consent of the people.[317] Because war at its most fundamental is a human endeavour wherein not only do the people get a vote but the enemy gets one as well, war is inherently uncertain. It is the human and psychological dimensions of war that preserve this uncertainty, regardless of any technological advances which from time to time may provide the illusion that certainty is guaranteed.

According to the Israeli scholar, Martin Van Creveld, the history of command in war

> … consists essentially of an endless quest for certainty—certainty about the state and intentions of the enemy forces; certainty about the manifold factors that together constitute the environment in which war is fought, from the weather and the terrain to radioactivity and the presence of chemical warfare agents, and last, but definitely not least, certainty about the state, intentions, and activities of one's own forces.[318]

The information age has brought with it the seductive but illusory belief that new information systems, ever increasing bandwidth, and smaller but increasingly powerful computer systems will revolutionise warfare and finally render it predictable and controllable.[319] Such thinking reached its nadir in the so-called US-led Revolution

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316   Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity*, Columbia University Press, New York, 2009, p. 157.

317   Justin Kelly and Ben Fitzgerald, 'When a Cup of Coffee Becomes a Soy Decaf Mint Mocha Chip Frappuccino', *Small Wars Journal*, September 2009, <http://smallwarsjournal.com> accessed 14 September 2009.

318   Martin van Creveld, *Command in War*, Harvard University Press, Cambridge, 2003, p. 264.

319   Bousquet, *The Scientific Way of Warfare*, pp. 216–19. See also H R McMaster, *Crack in the Foundation: Defense Transformation and the Underlying Assumption of Dominant Knowledge in Future War*, US Army War College, Carlisle Barracks, 2003.

of Military Affairs RMA, witnessed by the proliferation of adjectives such as dominant, seamless, adapted, networked, integrated, tailorable, scalable, transparent, full-dimensional and culminating in network centric warfare and effects-based operations.[320] But even before the RMA gathered momentum the lure of technology as a panacea to battlefield friction and uncertainty was decisively strong. In 1969, General William Westmoreland of Vietnam fame had this to say:

> On the battlefield of the future, enemy forces will be located, tracked, and targeted almost instantaneously through the use of data links, computer assisted intelligence evaluation, and automated fire control. With first round kill probabilities approaching certainty, and with surveillance devices that can continually track the enemy, the need for large forces to fix the opponent becomes less important … I see battlefields on which we can destroy anything we can locate through instant communications and almost instantaneous application of highly lethal firepower … With cooperative effort, no more than 10 years should separate us from the automated battlefield.[321]

In spite of history's lessons, the belief in certainty in future war has resurrected an old, failed strategy cloaked in a new lexicon. Faith in technological superiority, particularly in information and precision, has resurrected a belief, largely discredited during the Vietnam War, but further highlighted in every conflict since, that military action can be calibrated and controlled with a great deal of precision to achieve strategic objectives.[322] Depending on your perception of the utility of technology there is a potentially dangerous attraction to disregarding the operational level of war completely in favour of enlisting tactics directly on behalf of strategy. The siren call of stand-off precision weapons, information communications technology (ICT) and global Intelligence, Surveillance and Reconnaissance (ISR) capabilities can promote the appealing concept of merging the levels of war. Tactical success on the battlefield can, presumably if done correctly, translate directly into decisive strategic results. The apparent result will be that 'in future conflict the three levels of war, as separate and

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320   McMaster, *Crack in the Foundation*, p. 7.

321   Bousquet, *The Scientific Way of Warfare*, p. 126.

322   McMaster, *Crack in the Foundation*, p. 53.

distinct loci of command and functional responsibilities, will be spaced and timed out of existence'.[323]

The proposed aspiration at the heart of network centric warfare (NCW) to speed up decision cycles, to create 'decision superiority' and in effect compress time in our favour over an extended geographic space, coupled with a 'technological *coup d'oeil*' that (allegedly) renders the extended geographic space comprehensible, could transform the entire theatre into a simultaneous battlefield.[324] An ability to strike simultaneously throughout the battlespace has, according to the Transformation and RMA proponents, made sequential operations all but obsolete. This will 'continue to blur the already tenuous distinctions among tactical, operational and strategic levels of war'.[325]

In an environment where the speed and complexity of operations have accelerated often beyond comprehension, the strategic, operational and tactical levels of war can at times be so compressed as to appear a single function.[326] The temptation for the 'tactical general' to overplay his hand and insert himself into 'resolving' tactical problems in the belief that he has a more comprehensive understanding of the bigger picture or the perceived strategic risk is significant. Having a common operating picture has the real potential to lead operational commanders to be increasingly involved in purely tactical decisions instead of focusing on the operational and strategic aspects of the situation.[327]

As well as the potential for extremes of micromanagement, new ICT and other enabling technologies have the potential to create the perception that the operational level of war, and operational art for that matter, are nothing but an impediment to quicker and more effective decisions made directly by those at the top of the traditional command pyramid. This is no better illustrated than by the following account of a

323   Douglas A McGregor, 'Future Battle: The Merging Levels of War', *Parameters*, Vol. 22, No. 4, 1992, pp. 40–45.

324   David Jablonsky, *The Owl of Minerva Flies at Twilight: Doctrinal Change and Continuity and the Revolution in Military Affairs*, Strategic Studies Institute, US Army War College, Carlisle, 1994.

325   Antulio J Echevarria, 'Dynamic Inter-Dimensionality: A Revolution in Military Theory', *Joint Force Quarterly*, Vol. 15, 1997, p. 30.

326   Richard A Chilcoat, 'The 'Fourth' Army War College: Preparing Strategic Leaders for the Next Century', *Parameters*, Winter, 1995–96, p. 7.

327   Milan Vego, 'Net-Centric is not Decisive', *Proceedings*, US Naval Institute, January 2003.

US four-star general who proudly recalled how he had spent two hours watching live video feed from a Predator unmanned aircraft system (UAS) of a suspected insurgent compound:

> [Certain the] compound was a legitimate target, and any civilians in the houses had to know that it was being used for war, what with all the armed men moving about. Having personally checked the situation, he gave the order to strike. But his role in the operation didn't end there; the general proudly tells how he even decided what size bomb his pilots should drop on the compound.[328]

Such an obsession with technology as a defining element of warfare, coupled with the desire for maximum results with minimal investment of manpower and time, were the hallmarks of the ill-fated graduated escalation, the principal strategy adopted by the United States in Vietnam between 1964 and 1969.[329] The strategy, using raids and 'tit for tat' bombing, would theoretically allow the United States to control the escalation of military effort and attain strategic objectives cheaply, effectively and without attracting undesired attention from Congress or the American people.[330] The 'Whiz Kids' who designed the graduated escalation strategy were under the assumption that starting small and increasing military pressure in a deliberate manner would work because 'the prospect of more to come' was 'at least as important psychologically as present damage', a contention derived mainly from abstract academic theorising than analysis of history.[331] Unfortunately, as has been comprehensively chronicled elsewhere, the problem in South Vietnam was fundamentally political, which the strategy of gradual escalation failed to address. Military actions were based on readily available weapon systems and other capabilities, rather than on the objectives that the application of

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328   P W Singer, 'Tactical Generals: Leaders, Technology, and the Perils of Battlefield Micromanagement', *Air and Space Power Journal*, Summer 2009.

329   See H R McMaster, 'The Human Element: When Gadgetry becomes Strategy', *World Affairs Journal*, 15 January 2009 at <http://www.iiss.org/whats-new/iiss-in-the-press/january-2009/the-human-element-when-gadgetry-becomes-strategy/> accessed 24 May 2009.

330   Ibid.

331   Mark Moyar, *Triumph Forsaken: The Vietnam War, 1954-1965*, Cambridge University Press, New York, 2006, pp. 340–43.

military force was meant to accomplish. Flawed thinking generated a tendency to equate any military activity with progress.[332] As one analysis suggests,

> Trapped in a mindset which treated the [Vietnam] war as a purely technical problem to be solved through overwhelming application of materiel according to a scientific methodology, these officials failed to grasp the sheer determination of their opponents and the extent of their political strategy. Equally misguided was the attempt to frame the behaviour of the Vietcong within abstract models of rationality such as game theory had constructed …[333]

During Operation ALLIED FORCE in Kosovo in 1999, conducted just as the RMA and its associated US-led spin-off 'Transformation' were gathering a true head of steam, information dominance and long range precision munitions were supposed to vitiate the need for ground forces and make possible a low-cost, low-casualty rapid war.[334] But Slobodan Milosevic and his fellow Serbs proved not as easy to coerce as had been assumed. The failures of Operation ALLIED FORCE were failures based on an unrealistic expectation that elevated a military capability to the level of strategy. In reality, the Kosovo experience demonstrated that:

> … even extreme technological superiority does not lead to information superiority or remove uncertainty and friction. The Serbs were no 'peer competitor.' NATO enjoyed air supremacy and faced antiquated, minimal air defences. The Serbs had no ability to disrupt NATO communications or information systems. Kosovo demonstrated that the causes of uncertainty in the conduct of war lie mainly outside technology's reach: war's political nature, its human dimension, its complexity, and interaction with the enemy. Military organizations should, of course, take all possible action to minimize uncertainty and friction, but they must be prepared to win in an uncertain environment.[335]

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332   McMaster, 'The Human Element: When Gadgetry becomes Strategy'.

333   Bousquet, *The Scientific Way of Warfare*, p. 157.

334   McMaster, *Crack in the Foundation*, pp. 31–33.

335   Ibid., p. 33.

The pay-off for lifting the fog of war would certainly be huge: 'dominant battlespace knowledge' will ensure 'comprehensive awareness of all decision-relevant elements within a defined battlespace, and the ability to predict, with a very high degree of confidence, near term enemy actions and combat outcomes'.[336] Certainly, technological innovations have ameliorated sources of uncertainty over time, and communications and information systems technologies have reduced friction and increased operational tempo and agility; however, technology does have its limits. As a recent RAND study that assumed perfect functioning of all emerging technologies in the year 2020 concluded: 'An enemy who relies on cover, concealment, deception, intermingling, and dispersion will be difficult, if not impossible, to monitor from overhead assets', and precision fires would only provide a degree of attrition at best.[337]

The flawed assumptions behind a techno-centric approach to war have been highlighted in both Afghanistan and Iraq. According to Dr Stephen Biddle of the US Army War College, during Operation ANACONDA in Afghanistan in March 2002 an intensive pre-battle reconnaissance effort that focused every available surveillance and target acquisition system on a ten-by-ten kilometre battlefield identified fewer than 50 per cent of all al-Qaeda positions.[338] Because many of the al-Qaeda fighting positions were only ultimately identified through ground contact, the battle reinforced how friction encountered after initial contact with the enemy generated even greater uncertainty.[339]

A similar occurrence has been experienced throughout the Iraq conflict: despite overwhelming technological superiority, coalition forces have not been consistently able to predict or anticipate future enemy actions. Indeed, as Biddle again highlights, the argument that overwhelming technological superiority directly contributed to lower than expected coalition casualties and a much more rapid defeat of the Saddam regime than expected is fallacious. Biddle argues that speed and standoff precision

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336   Ibid., p. 1.

337   John Matsumura, *et al*, *Exploring Advanced Technologies for the Future Combat Systems Program*, RAND, Santa Monica, 2002, p. 59.

338   Stephen Biddle, 'Iraq, Afghanistan, and American Military Transformation' in Scott Hopkins (ed), *Asymmetry and Complexity: Selected Papers from the 2005 Rowell Seminar and the 2005 Chief of Army's Conference*, Land Warfare Studies Centre, Canberra, February 2007, p. 81.

339   McMaster, *Crack in the Foundation*, p. 46. See also Sean Naylor, *Not a Good Day to Die: The Untold Story of Operation Anaconda*, Berkley Caliber Books, New York, 2005.

will work as claimed only against enemies who lack the skills necessary to evade their effects.[340] Biddle concludes his study of Iraq and Afghanistan with the following:

> Views of past wars always shape future policies, and views on the relative importance of contributing causes can have serious post-war policy implications. It makes a difference which contributors mattered most. In particular, it would be a serious mistake to overestimate technology or speed's contribution, and to underestimate the importance of the skill differential, as does much of the current debate on the war[s].[341]

As the 'lost victories of Afghanistan and Iraq' have highlighted, whether one accepts certainty or uncertainty as the dominant condition of war is fundamental to the progress of the campaign. The degree to which faith in technology influences campaign design and planning will determine the success or otherwise of operational art. Greater bias towards technology, especially a bias that leans towards enhancing our control and predictive ability, no matter how implicitly, will promote a greater chance for failure. To reiterate, war is an inherently nonlinear phenomenon. To recognise war as non-inear is to acknowledge that:

> … no single formula, equation, methodology or capability can predict outcomes or guarantee victory. Inputs can cause effects that are disproportionately large or small; they can cause 'system pertubations' and unintended consequences, responses to which can lead in turn to successive effects that change the situation fundamentally but could scarcely have been anticipated.[342]

Indeed, as Martin van Creveld declares, 'in armed conflict no success is possible—or even conceivable—which is not grounded in an ability to tolerate uncertainty, cope with it, and make use of it',[343] To be most effective operational design needs to

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340   Biddle, 'Iraq, Afghanistan, and American Military Transformation', p. 71.

341   Ibid., p. 106.

342   Kolenda, 'Transforming How We Fight', p. 107.

343   Martin van Creveld, *Technology and War: From 2000B.C to the Present*, Free Press, New York, 1989, p. 312.

fundamentally recognise the centrality of humans to war, to include recognition of the inherent unpredictability that accompanies the use of military force, and build into campaign execution tolerance for uncertainty and a capacity to profit from it. Operating with an appreciation for the uncertainty of war permits commanders to better understand a range of possibilities and contingencies and they will be better prepared to make decisions under the actual conditions of war; precise predictions are often precisely wrong.[344]

Confronting geopolitical reality

> The ADF needs to accept that both the alliance force-provision operational
> model and the lead nation force generation operational model now represent
> strands of a single, albeit, emerging, 21st century Australian way of war—a way
> that reflects the special intersection of the country's global-regional interface.
> — Michael Evans[345]

There is little point of developing an ingrained culture of campaign planning based on operational art that is either irrelevant or so 'vanilla' that it ignores contemporary reality and Australia's geopolitical or geostrategic circumstances. Operational art that is unsuited or is insufficiently adaptive for supporting ADF deployments as part of a wider coalition campaign achieves little, especially when such deployments are the deployments *du jure*. The ADF must change the existing paradigm of implicitly or even explicitly separating expeditionary warfare from continental defence and by default creating the perception that the two issues require mutually exclusive operational approaches, doctrine and education. Just as there is a pressing requirement to treat war holistically there is a concomitant need for the ADF to develop encompassing, holistic operational art that supports all manner of ADF deployments.

Evans argues persuasively that 'much of the ADF's concept development since 2002 has lacked the cognitive discrimination to address the operational realities of the

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344   McMaster, *Crack in the Foundation*, p. 62.

345   Evans, 'The Closing of the Australian Military Mind', p. 125.

global-regional nexus in Australian strategy'.[346] The same argument is relevant to the ongoing, or rather lack of, development of ADF operational art during this same period since 2002. Indeed, as has been argued earlier, there has been very little substantive change at all in either campaign planning doctrine or the JPME of operational art to account for changes in the ways ADF force elements are increasingly required to meet their political strategic objectives.

Since the end of the Second World War, with the single exception of East Timor, the ADF has not assumed responsibility for a theatre campaign. All ADF deployments, of varying size, type and effectiveness, have been largely tactical contributions from the perspective of the theatre campaign. Yet we have not developed operational art relevant to these types of deployment that is institutionally ingrained into ADF culture, that provides a foundation for lesson learned and that is iteratively improved over successive deployments. But, as highlighted earlier in this study paper, such operational art is necessary if the ADF is to best support such deployments. Again, drawing on Evans as the most recent and persuasive public critic of extant ADF operational art:

> Any realistic approach to operational art [by the ADF] must seek improved integration and linkage, if not synthesis, between the alliance and lead-nation operational models of military activity. This is a conceptual challenge that confronts the ADF with the dual need to simultaneously address its legacy of inexperience in lead-nation operational activity while seeking better operational-level linkages in more traditional alliance missions.[347]

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346   Ibid., p. 120.

347   Ibid., p. 125.

5 – Fix No. 3 – Embracing Design[348]

> Design does not replace planning, but planning is incomplete without design.
> – General James N Mattis[349]

We intuitively understand the enemy is adaptive, more than willing and readily able to change tactics, techniques and procedures in response to our actions. We also know the inability to adapt tactically will inevitably lead to failure and, on a personal level, perhaps death or serious injury. Witness the counter-IED battle in both Iraq and Afghanistan. But success at war and warfare depends on more than being adaptive to ensure we are *doing things right*. More so, success depends on us consistently and cumulatively *doing the right things*. This depends on a continuous and iterative adaptation of our operational approach to ensure its relevancy and effectiveness.

The ADF typically has been proficient at tactical adaptation. Adapting our operational approach to ensure we are doing the right things does not come as easily. Getting the operational approach consistently closer to right than wrong depends on a methodology for applying critical and creative thinking to understand, visualise and describe complex problems and developing iterative approaches to solving them.[350] This methodology is known as operational design and is currently an evolving approach to the array of complex problems the military is increasingly being called upon to manage. The ADF's doctrinal approach to 'design', like its doctrinal approach to problem solving, is mechanistic, reductionist and inadequate for an increasingly complex battlespace and array of missions.

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348   Much of this chapter is derived from an earlier article by the author. See Trent Scott, 'Adapt or Die: Operational Design and Adaptation', *Australian Army Journal*, Vol. VI, No. 3, Summer 2009, pp. 107–32.

349   James N Mattis, 'Memorandum for US Joint Forces Command – Vision for a Joint Approach to Operational Design', 6 October 2009, copy in author's possession.

350   This is the definition of design in Chapter 3, Design, of US Army FM 5-0 *The Operations Process*.

Within the US armed forces, led by the US Army, there has been significant intellectual effort expended recently towards developing a useful operational design methodology that is suitable for incorporation into doctrine and general practice. In late 2009 General Mattis, Commander US Joint Forces Command (JFCOM), issued his vision for a joint approach to operational design. In this vision, General Mattis' assessment is that the current doctrinal approach in the United States for fostering clear, careful thinking and creativity, particularly early in design and planning, is insufficient and ineffective. General Mattis applauded the US Army's work on operational design, acknowledging it had focused on 'improving commander's abilities to think deeply about the fundamental nature of a complex military problem; to design a broad approach to achieving objectives and accomplishing the mission; and to determine if, when, and how to change that approach when circumstances change'.[351] More recently, the US Army has published its latest planning doctrine, FM5-0 *The Planning Process*. Operational design features prominently.

Both the British and Canadian Armed Forces are paying close attention to the developments in operational design knowing that when the US Army adopts operational design formally into its doctrine it will only be a matter of time before they do as well. The Canadians are looking to incorporate design into their own doctrine during 2010. The recently released UK Joint Publication *Campaigning* devotes large sections to operational design consistent with the key themes of operational design as developed by the US Army; although, the British choose not to mention the word 'design'.[352]

'Design' features in ADF doctrine but at nowhere near the level of sophistication compared with the latest iterations of design in US doctrine. Typically, in ADF doctrine design is associated with campaign design; however, it is reductionist, mechanistic and too generic to provide any real utility.[353] It certainly does not support dealing with complex operational problems in any meaningful way. As has been highlighted earlier, focus on the procedural steps of the JMAP tends to obscure the importance of the underlying creative process, 'a process that focuses early on problem-setting

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351   Mattis, 'Memorandum for US Joint Forces Command'.

352   UK MOD (DCDC) *Campaigning*, Joint Doctrine Publication 01, Second Edition, The Development, Concepts and Doctrine Centre, Ministry of Defence, Shrivenham, December 2008, Chapter 2 and 3.

353   See Draft Australian Defence Doctrine Publication 5.0 *Joint Planning* (edition 2), Defence Publishing Service, Canberra, June 2009, Chapter 3.

vice problem-solving. Planning without thorough and careful thinking is incomplete, is destined to yield sub-optimal results and could focus the joint force on solving the wrong problem'.[354] The ADF needs to embrace operational design if it wants to develop relevant operational art and be able to effectively design, plan and execute campaigns in the contemporary operating environment.

A word of warning must be offered here. There is the very real danger that any design methodology will inevitably become an institutionalised dogma, dependent on checklists and templates, and will go the same way in application as previous fads such as EBO. The potential for this to occur is great given the ADF's predilection towards training vice education. The obvious mitigation in avoiding design becoming a process rather than an aid to problem identification is for better education, and more practiced and capable critical thinkers. Adopting design into doctrine as a process to be followed checklist style will consign design to the same fate as EBO and is to be consciously avoided.

Why design?

> Some problems are so complex that you have to be highly intelligent and well informed just to be undecided about them.
>
> — Laurence J Peter[355]

Much of the motivation behind the US armed forces push to develop an appropriate design methodology to support solving complex operational problems comes from three main stimuli. The first is that with the value of hindsight a number of senior US officers, principally from the US Army, have recognised the planning for both Afghanistan and Iraq was not sufficiently comprehensive and failed to adequately account for the shift in the character of both of those wars. The second stimulus is the growing recognition that warfare today is becoming increasingly complex, operational problems are more 'wicked' than in the past and that dealing with this complexity

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354   Mattis, 'Memorandum for US Joint Forces Command', p. 2.

355   Jeff Conklin, 'Wicked Problems and Social Complexity', <http://www.cognexus.org> accessed 27 June 2009.

requires a different approach to problem solving. Finally, and related to the previous two stimuli, is the widespread recognition that to be successful in an era of persistent and complex conflict, military forces need to be inherently adaptive and become a true 'learning organisation'.

According to Peter Senge, learning organisations are:

> … organisations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together.[356]

In order to prepare its leaders and operational planners for the challenges and complexities of the contemporary operating environment, a military must develop an institutionalised culture of innovation and adaptation. According to US Army Brigadier David Fastabend and Robert Simpson, 'learning organisations routinely overcome the impediment of centralised responsibility by instilling within the organisation a thirst for creativity and a hunger for challenge'.[357] This requires significant cultural change because an organisation's culture is a 'persistent, patterned way of thinking about the central tasks of and human relationships within an organisation', and typically organisations favour policies that reinforce the essence of the organisation and provide a clear roadmap to success for its members.[358] According to John Nagl, the key to organisational learning is 'getting the decision-making authority to allow such innovation, monitor its effectiveness, and then transmit new doctrine with strict requirements that it be followed throughout the organisation'.[359]

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356   Peter Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization*, Doubleday, New York, 1990, p. 36.

357   David A Fastabend and Robert H Simpson, 'Adapt or Die: The Imperative for a Culture of Innovation in the United States Army', *Army*, Vol. 54, February 2004, p. 9.

358   See Christopher P Gehler, *Agile Leaders, Agile Institutions: Educating Adaptive and Innovative Leaders for Today and Tomorrow*, Strategic Studies Institute, Carlisle, 2005, p. 4, for amplification of this theme.

359   John A Nagl, *Learning to Eat Soup With a Knife: Counterinsurgency Lessons From Malaya and Vietnam*, The University of Chicago Press, Chicago, 2002, p. 195.

History has proven that tactical competence does not necessarily translate into operational competence. Similarly, and also because complexity is a multi-scale phenomenon, adaptation and innovation cannot be confined to just one of level of war. The culture of the learning organisation must transcend the levels of war: a true learning organisation will learn at the tactical, operational and strategic levels simultaneously (although not necessarily at an even pace across the three levels). The recognition within the US armed forces was that this was not occurring in both Iraq and Afghanistan, that learning was not occurring quickly enough at the operational and strategic levels. This has led to the conclusion that the traditional methods for determining an appropriate and relevant operational approach were somehow incomplete.

First, our traditional methods for problem solving are no longer as relevant because they tend toward the linear reduction of a problem that might not even be the right problem. But we solve it, or try to, anyway. Second, doing things right is not enough; we need to ensure we are also doing the right things. Problem definition is therefore key, and problem definition only comes through understanding the context of the situation through interaction and iteratively adjusting our behaviour as appropriate. Third, this in turn depends on our ability to constantly challenge our own perceptions and understandings. We need to treat each of our mental pictures or frames of the environment and the situation as provisional. Next, we need to realise that the operational problems encountered today are too complex for one person to understand and overcome. Therefore, successful approaches to dealing with these complex problems depend on a collaborative approach based on deep and shared understanding incorporating a wide variety of views including across the levels of war. This understanding is only likely to be generated through deliberate and focused discourse that generates creative tension and allows synthesis. Fifth, a systemic response is required: not just holistic understanding but also an operational approach for systemic transformation. Finally, a learning system that is inherently adaptive is required. All of these themes are captured in the US Army's methodology for operational design.

What is operational design?

> ... if considered seriously and used responsibly, design should be the crucial anvil on which the human environment, in all its detail, is shaped and constructed for the betterment and delight of all.
>
> — John Heskitt[360]

It is surprising it has taken this long for the ADF to recognise the need for an explicit and codified methodology for design in the context of military action because design features so fundamentally in all other parts of our lives. In *Design: A Very Short Introduction*, John Heskitt suggests:

> Design is one of the basic characteristics of what it is to be human, and an essential determinant of the quality of human life. It affects everyone in every detail of every aspect of what they do throughout each day. As such, it matters profoundly. Very few aspects of the material environment are incapable of improvement in some significant way by greater attention being paid to their design.[361]

Most other professions in life see design as fundamental to their existence. According to Bryan Lawson in the excellent *How Designers Think: The Design Process Demystified*, designers suggest how the world might be, unlike scientists who describe how the world is. Designers are therefore 'all "futureologists" to some extent. The very essence of their job is to create the future, or at least some features of it.'[362] Given the ADF is all about creating a future, usually in somebody else's land and usually against stiff opposition, it makes sense to clearly articulate and codify a methodology for doing so. Typically, good commanders have always intuitively developed designs that have allowed their staffs to produce plans using the JMAP to achieve their intent. But, there is danger in assuming that this will always be the case and, as we have seen, the

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360   John Heskitt, *Design: A Very Short Introduction*, Oxford University Press, Oxford, 2002, p. 1.

361   Ibid., p. 2.

362   Bryan Lawson, *How Designers Think: The Design Process Demystified*, 4th Edition, Architectural Press, Oxford, 2006, p. 112.

complexity inherent in the operational environment today is so great that there is risk in depending on a single individual to understand the environment and then to come up with a comprehensive plan to change the environment. There is also the associated risk that comes from assuming the commander's staff will understand an implicit design. These risks multiply when problems cross boundaries and when coalition and host nation forces are involved.[363] So, codifying the methodology of design provides significant benefit to a headquarters wrestling with complex operational problems. According to retired US Army Brigadier Huba Wass de Czege, systematising collective critical and creative thinking in a headquarters through a collective design approach:

> … attains a broader, holistic, and shared understanding of the situation. It benefits from multiple perspectives introduced in a rigorous and disciplined way. The 'problem' is more likely to be a shared view within the headquarters, better defined, and more rigorously documented, making re-definition easier and faster. Planning to solve the problem is likely to proceed more effectively and more rapidly.[364]

Design in the military context is not, as is stated in ADDP 5.0 *Joint Planning* (Second Edition), 'the analytical and logical extension, which produces an operation plan. It is the science that supports the [operational] art [which is the creative process].'[365] Nor is it simply problem framing—conceptual, even abstract, hypothesising about underlying causes and dynamics that explain events in the contemporary operating environment.[366] More comprehensively, design is defined as: a methodology for applying critical and creative thinking to understand, visualise and describe complex, ill-structured problems and develop approaches to solve them.[367]

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363   *Issue Paper: Army Design Doctrine, Design* (Final Draft – Pre-Decisional), Headquarters, Department of the Army, Washington DC, 29 March 2009, p. 1-3.

364   Huba Wass de Czege, 'Systemic Operational Design: Learning and Adapting in Complex Missions', *Military Review*, Vol. 88, No. 1, January–February 2009, p. 7.

365   ADDP 5.0 *Joint Planning*, pp. 3-5, 3.14.

366   Australian Army Land Warfare Doctrine 3.0, *Operations* (Developing Doctrine), Land Warfare Development Centre, Puckapunyal, 19 September 2008, p. 2-4.

367   United States, *Field Manual 5-0, The Operations Process (Final Approved Draft),* Headquarters, Department of the Army, Washington DC, p. 3-1.

Operational design is not simply about defining the problem or generating a deeper understanding of the operating environment than Intelligence Preparation of the Battlefield; it is equally about proposing a framework within which actions can occur to create transformative systemic change in our favour, over a specified period of time, taking into account available resources. Design can occur as a prelude to planning; concurrent with planning, in the sense that design can inform follow-on actions once an immediate crisis has been resolved; and, may emerge while executing ongoing operations. It is iterative, which means it does not cease once a plan is developed, but establishes and then depends on feedback in order to regularly assess its relevancy and effectiveness in light of a continually changing environment. The output of design is a planning directive or guidance from the commander that outlines the nature of the problem as it is understood and the operational approach to resolve that problem. This enables greater shared understanding, stakeholder buy-in and facilitates more comprehensive planning.

It is not in the scope of this study paper to detail at length the methodology of operational design. In short, however, the methodology for operational design that is incorporated into the US Army's planning doctrine FM 5-0, and which is currently being taught at SAMS and other US Army professional military education institutions, focuses on three primary artefacts: an environmental frame, a problem frame and a design concept (an operational approach). These artefacts capture the shared understanding of the environment, the problem and its broad solution. The design takes place within three related cognitive spaces: the operational environment, the problem space and the solution. Because of the yin and yang relationship between problem and solution that is evident when dealing with complex and wicked problems, designers will not necessarily follow a prescribed sequence as you would when following the JMAP, but rather tend to bounce in and out of the three cognitive spaces as new ideas are presented, new information is revealed, shared understanding increases and synthesis occurs. In essence, the environmental frame, the problem frame and the design solution relate to three fundamental questions: What is the context in which the design will be implemented? What problems should be addressed and what must be acted upon? How will the design resolve or manage the problem?[368]

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368   Stefan J Banach and Alex Ryan, 'The Art of Design: A Design Methodology', *Military Review*, Vol. 89, No. 2, March–April 2009, p. 109.

In the environmental space planners focus on generating a systemic understanding of the environment, the existing conditions relative to desired conditions, and accounting for all of the actors (including, importantly, ourselves), their relationships and their tendencies, the patterns of conflict and cooperation, and the potential for change. The environmental frame sets a boundary for inquiry and aims to identify what is new or different in the emerging context that implies the current level of understanding is no longer sufficient to comprehend and explain the problem. Importantly, this includes a robust dialogue with higher headquarters in order to clarify objectives and higher guidance and to collectively refine understanding of what is required versus what is possible. Diving straight into Mission Analysis amounts to receiving higher guidance uncritically, in effect framing the problem in accordance with the higher headquarters in a way that potentially ignores relevant environmental contexts.

In the problem space designers examine the tensions in the environment, both the existing tensions and potential tensions that may emerge as patterns of resistance, opposition or support as we create change in the system. The problem frame articulates what the problem is by identifying what needs to change. In the solution space designers examine areas for intervention and exploitation remaining cognisant of time and resource issues. The design concept or operational approach is the framework for changing existing conditions articulated in the environmental frame towards the desired conditions. Unlike current doctrine—ADDP 5.0 for example—operational design does not focus all actions on 'neutralising, weakening, defeating or destroying the enemy COG'.[369] Instead, operational design focuses on the desired environmental conditions; destroying an enemy COG may be just one of many actions required to create successful systemic change.

Design is command-led, collaborative and depends on robust discourse involving multiple perspectives (including interagency perspectives) to constantly challenge existing mental models of the environment, the problem and the solution. It is best done in small groups, with wider participation encouraged at various points in the design process to broaden perspectives or continue momentum. In the ADF context, design is most likely to be a complementary action to planning conducted as a deliberate and focused activity by the commander (unit, formation or higher)

369   ADDP 5.0 *Joint Planning*, p. 3-1.

and his plans staff. It does require time and is unlikely to be of use in a crisis where immediate action is required. To be most effective, planners using operational design should be well-versed in critical thinking techniques and have well-developed effective thinking skills. The quality of the result depends on the commander's willingness to entertain and consider challenges to his or her understanding and therefore depends on a climate of trust and acceptance.[370]

Operational design promotes adaptation

> …if we were to choose one advantage over our adversaries it would certainly be this: *to be superior in the art of learning and adaptation*.
> — Brigadier David Fastabend and Robert Simpson[371]

By being explicitly iterative operational design promotes continual learning. By explicitly focusing on systemic transformation through shared holistic understanding, operational design promotes greater opportunities for organisational learning. By including ourselves firmly within the environmental and problem frames and examining the potential changes and tensions we may create through our actions, operational design creates what Peter Senge calls a 'shift of mind—from seeing ourselves separate from the world to connected to the world, from seeing problems as caused by someone or something 'out there' to seeing how our own actions create the problems we experience'.[372] And, most importantly, by explicitly acknowledging the requirement to reframe when changes in the operational environment render the operational approach no longer suitable or we can no longer adequately explain actor behaviour in the operational environment, operational design enhances our ability to adapt beyond just tactics, techniques and procedures.

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370   Wass de Czege, 'Systemic Operational Design: Learning and Adapting in Complex Missions', p. 7.

371   Fastabend and Simpson, 'Adapt or Die: The Imperative for a Culture of Innovation in the United States Army', p. 16.

372   Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization*, p. 12.

According to two of the leading proponents for operational design within the US Army PME system, reframing is the most important but most difficult part of design. Reframing is:

> … an intellectual activity to identify new opportunities and overcome obstacles to progress when interactions with the real world situation or new sources of information reveal issues with a current problem. Reframing shifts attention from trying to solve the current problem right to asking whether the right problem is being solved. It is a way for designers to pull back and reassess the operational environment, allowing them to challenge their situational understanding and review expectations of actor behaviour against the evidence.[373]

At the heart of operational design is the fundamental recognition that there will be inevitable changes to the environment resulting from our actions. These changes will be impossible to predict and many will be impossible to anticipate. Change is inevitable, and the likelihood of our operational approach changing is high. Reframing is an explicit action to shift perspectives and reset the problem in the face of changed circumstances and new knowledge. Setting reframing criteria as part of designing the operational approach is therefore essential, and the reframing criteria needs to account for successful actions on our part, not just unsuccessful ones.

Reframing is deliberate and purposeful action. To be effective reframing needs to be underpinned by sound critical thinking skills because it requires appreciating the values, perceptions and biases of ourselves, allies, adversaries and others, including those seemingly 'non-rational actors'. Critical thinking also assists in choosing between competing explanations of events, providing a holistic context, ensuring hypotheses within an existing frame are weighted in proportion to the evidence, and to assess potential longer term consequences of our actions.[374] Challenging existing beliefs and perceptions is difficult and one of the strongest impediments to overcome in executing relevant adaptation.

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373   Banach and Ryan, 'The Art of Design: A Design Methodology', p. 107.

374   Ibid., p. 108.

A cautionary tale?

> Throughout history, good commanders have recognised the complexities of armed conflict and the importance of their role in its resolution.
>
> — General James N Mattis[375]

Operational design demands a sceptical posture that continually challenges accepted beliefs and perceptions. It is important the same degree of healthy scepticism is applied to the methodology of operational design itself as it evolves, lest it go the way of Effects-Based Operations (EBO), Systems of Systems Analysis (SoSA) and Systemic Operational Design (SOD) as the latest fad that will guarantee sure-fire success on an inherently uncertain battlefield. The Israeli Defence Force's (IDF) reliance on SOD (and EBO) as the doctrine for developing their operational approach and executing actions against Hezbollah in Lebanon in 2006 is instructive. Technically, SOD formed the basis from which the current version of operational design has evolved.

According to Matt Mathews in his study *We Were Caught Unprepared: The 2006 Hezbollah-Israeli War*, Shimon Naveh's SOD, which had formed the core of recently disseminated new IDF doctrine, proved highly disruptive: 'The new language and methodology severely handicapped many commanders in the field. A large majority of IDF officers simply did not grasp the SOD-inspired doctrine. When the terminology made its way into at least one division's operation orders, the brigade commanders were at a complete loss to understand them'.[376] According to one former IDF operational planner, the new doctrine inflated the 'focus on the cognitive side of war and the media war. Instead of killing the bad guys like in the good old days, they wanted to create a "consciousness of victory" on our side and "cognitive perception of defeat" on the other side'.[377]

The current evolution of operational design has moved beyond the abstract, obscure, post-structuralist language of SOD and is receiving positive feedback

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375   Mattis, 'Memorandum for US Joint Forces Command', p. 8.

376   Matt M Matthews, *We Were Caught Unprepared: The 2006 Hezbollah-Israeli War*, The Long War Series Occasional Paper 26, US Army Combined Arms Center, Combat Studies Institute Press, Fort Leavenworth, Kansas, 2008, p. 63.

377   Ibid., p. 28.

from both students and practitioners. Nevertheless, there is the danger of its utility becoming over-inflated and it becoming an end in itself. Equally, there is the possibility of overreacting and 'dumbing down' design to the extent that it becomes a new set of buzz words without a solid educational foundation. This too must be avoided and requires an investment in intellectual capital to ensure an appropriate methodology for operational design is codified.

Implications

> … the real challenge is not to put a new idea into the military mind but to put the old one out.
>
> — Liddell Hart[378]

First, the ADF must come to the realisation that its current doctrine and professional military education does not best prepare its leaders to operate in an increasingly lethal, diverse and complex environment. Solving complex operational problems requires a different approach to traditional, linear, reductive problem solving approaches, and our soldiers and their leaders need to become even more comfortable with operating in an ambiguous, uncertain and unpredictable environment. Doctrine needs to be revised for relevance in light of experience gained from recent operations by ourselves and especially our coalition allies, who are doing more fighting and dying than we are in a complex operating environment.

Specifically, intellectual capital needs to be invested into incorporating an appropriate operational design methodology into the JMAP and our planning doctrine. Doctrinal change then needs to be supported by a robust plan to ensure the revised doctrine is taught and used in the wider ADF, including by deployed forces. It is hoped that this in turn could generate professional discussion on the merits or otherwise of design supporting complex problem solving.

By definition design depends on critical thinking to support complex decision-making. As discussed in Chapter Three, the ADF needs to re-evaluate its approach to educating critical thinking skills. Currently, short modules on creative and critical

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378   Basil Liddell Hart, *Thoughts on War*, Faber and Faber, London, 1944.

thinking are offered at various JPME institutions. However, instead of critical thinking being considered as a foundation skill it tends to be dealt with as simply one of many modules to be covered in the curriculum. The modules offered tend to only introduce critical thinking, barely skim the wave tops and then, once completed, are rarely if ever used again in a deliberate and focused manner. And it is rare for the staff to participate in these modules. Improving our critical thinking skills requires a deliberate and focused cultural change in the ADF.

Finally, the right command and leadership culture is fundamental if we are going to be successful in incorporating operational design into campaign planning in order to solve complex operational problems. Establishing a 'design team' where the commander is a central but not dominating figure, where group think is avoided and where robust, rigorous discourse is permitted to take place will be a challenge for the ADF. A mission command culture, one that relies on implicit trust between superior and subordinate, and one that promotes learning from mistakes and trial and error is exactly the type of command climate required to best leverage design.

Conclusion

> ... changing structures, systems and platform capabilities is one thing: changing the way your people think, interact and behave under extreme duress is much more difficult.
>
> — Brigadier Nigel Alwyn-Foster[379]

In a study of military failures, Eliot Cohen and John Gooch argue that there 'are three basic kinds of failure: failure to learn, failure to anticipate, and failure to adapt'.[380] By not developing a widespread understanding of relevant operational art, and by not inculcating a campaigning mindset into its officer corps, the ADF is in danger of realising Cohen and Gooch's three kinds of failure.

Absent relevant operational art and knowledge of campaign planning the ADF is in a position where it is not best prepared to support the government in the pursuit of national interests. More immediately, the ADF cannot provide the best level of holistic operational support to deployed forces over the longer term, except in a reactive sense. Over the longer term, the absence of relevant operational art means that future ADF leaders are unlikely to be adequately prepared for the eventuality of using operational art when it might be required in a substantial regional crisis.

To make good, the ADF leadership needs to recognise that in fact there is a problem. ADF operational art is conceptually weak and not widely understood. Campaign planning doctrine is based on flawed assumptions and processes which are fast losing relevance in an increasingly complex and uncertain operating environment. And ADF JPME is chronically underperforming. Rectifying this situation requires the expenditure of intellectual capital in incorporating creative and critical thinking into the JPME system; in incorporating operational design into planning doctrine; and

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379 Nigel Alwyn-Foster, 'Changing the Army for Counterinsurgency Operations', *Military Review*, November-December 2005, p. 3.

380 Eliot A Cohen and John Gooch, *Military Misfortunes: The Anatomy of Failure in War*, The Free Press, New York, 1990, p. 27.

in developing relevant operational art. It also requires leadership in inculcating a campaigning mindset throughout the ADF officer corps. Such a mindset would view the problem holistically and over the long term, and would inherently recognise the requirement to design and conduct both concurrent and cumulative actions across multiple lines of operation, including more than just military force, within a broader operational framework to support the achievement of operational and strategic goals.

None of this is as simple as it may seem on the surface. In a busy world we are confronted by multiple competing interests that are immediate or near future in character. With the majority of these competing interests being urgent but not necessarily important, it is easy to dismiss conceptually weak operational art and irrelevant doctrine as something not important. However, there will come a time when 'just muddling through' is no longer an appropriate operational approach.

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