Design and Planning of Campaigns and Operations in the Twenty-First Century

Lieutenant Colonel C.R. Smith

Land Warfare Studies Centre
Canberra
April 2011
The Australian Army established the LWSC in July 1997 through the amalgamation of several existing staffs and research elements.

The charter of the LWSC is to promote the wider understanding and appreciation of land warfare; provide an institutional focus for applied research into the use of land power by the Australian Army; and raise the level of professional and intellectual debate within the Army. The LWSC fulfils these roles through a range of internal reports and external publications; a program of conferences, seminars and debates; and contributions to a variety of professional, academic and community forums. Additional information on the centre may be found on the Internet at <http://www.defence.gov.au/army/lwsc/>.

Comment on this paper is welcome and should be forwarded in writing to:

The Director, Land Warfare Studies Centre
Ian Campbell Road, Duntroon ACT 2600
AUSTRALIA

Telephone: (02) 6265 9890
Facsimile: (02) 6265 9888
Email: <lwsc.publications@defence.gov.au>

Disclaimer
The views expressed are the author’s and not necessarily those of the Australian Army or the Department of Defence. The Commonwealth of Australia will not be legally responsible in contract, tort or otherwise for any statement made in this publication.
## Contents

<table>
<thead>
<tr>
<th>Acknowledgements</th>
<th>vii</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Section I – The Evolution of Modern Warfare, Operational Art and Strategy</td>
<td>5</td>
</tr>
<tr>
<td>War</td>
<td>5</td>
</tr>
<tr>
<td>The Emergence of Modern Warfare</td>
<td>15</td>
</tr>
<tr>
<td>The American Civil War</td>
<td>17</td>
</tr>
<tr>
<td>Recognising Operational Art</td>
<td>19</td>
</tr>
<tr>
<td>Redefining Strategy</td>
<td>24</td>
</tr>
<tr>
<td>The US Intellectual Renaissance</td>
<td>26</td>
</tr>
<tr>
<td>The Revolution in Military Affairs, Hybrid Threats and Comprehensive Approaches</td>
<td>29</td>
</tr>
<tr>
<td>Tactics Defined</td>
<td>38</td>
</tr>
<tr>
<td>Operational Art Defined</td>
<td>38</td>
</tr>
<tr>
<td>Strategy Defined</td>
<td>40</td>
</tr>
<tr>
<td>The Relationship between Operational Art and Strategy</td>
<td>44</td>
</tr>
<tr>
<td>Grand Strategy</td>
<td>48</td>
</tr>
<tr>
<td>Operational Art and Strategy for Minor Partners in Big Coalitions</td>
<td>48</td>
</tr>
<tr>
<td>Operational Art, Strategy and Military Support to Policy Objectives in Non-Warlike Contingencies</td>
<td>49</td>
</tr>
<tr>
<td>The Constraints on Operational Art and Strategy in the Australian Context</td>
<td>50</td>
</tr>
<tr>
<td>Section II – Mastering Operational Art and Strategy in the Australian Context</td>
<td>53</td>
</tr>
<tr>
<td>Professional Military Education</td>
<td>54</td>
</tr>
<tr>
<td>Campaign Design</td>
<td>58</td>
</tr>
<tr>
<td>The Elements of Design</td>
<td>66</td>
</tr>
<tr>
<td>Begin with Divergent Thinking</td>
<td>67</td>
</tr>
<tr>
<td>Remain Cognisant that Strategy is Dynamic not Static</td>
<td>70</td>
</tr>
<tr>
<td>Seek to Disprove Conjecture</td>
<td>73</td>
</tr>
</tbody>
</table>
Define Success in the Broadest Possible Terms 74
A Campaign Design is a Framework for Action, Not a Plan 75
Maintain a Candid and Open Discourse with the Statesman 77
Accept Risk to Exploit Opportunity 79
Create a System of Learning 81
Maintain an Adaptive Mental Stance 86
Conclusion 89
Selected Bibliography 91
Land Warfare Studies Centre 95
Acknowledgements

The author would like to acknowledge the support and assistance of the following people, without whom this work would not have been possible:

Doctor Alex Ryan
Doctor Thomas Bruscino Jr
Brigadier Justin Kelly (Rtd)
Doctor Anne-Marie Grisogono
Colonel Richard Parker
Colonel John Hutcheson
Lieutenant Colonel Richard King
William F Owen
Lieutenant Colonel Malcolm McGregor
Lieutenant Colonel James Roche

Most of all, my wife Marcelle.
Introduction

Strategy is a system of makeshifts. It is more than a science. It is bringing knowledge to bear on practical life, the further elaboration of an original guiding idea under constantly changing circumstances. It is the art of acting under the pressure of the most demanding conditions ... That is why general principles, rules derived from them, and systems based on these rules cannot possibly have any value for strategy.

– Prussian Chief of the General Staff, Helmuth von Moltke

Despite von Moltke's admonition that general principles, rules derived from them, and systems based on these rules cannot possibly have any value for strategy, Australian Defence Force (ADF) operational and strategic doctrine is overwhelmed with principles, rules, processes and systems. ADF doctrine does not reflect the dynamism implicit in Moltke's words. The various doctrinal illustrations of operational plans resemble project schedules and imply that military problems possess the structure that an engineering problem might. Why is this so? What are the implications for the operational artist and strategist? And how might the operational artist and strategist overcome institutional barriers? These are the questions at the core of this study paper.

The catalyst for this guide was an investigation of the latest developments in US Army thinking about the design of operations and campaigns. The purpose of the investigation was to see whether the Australian Army ought to adopt the US Army methodology within its own doctrine. As with most investigations of this kind, it revealed much more than just the relative merits of American thinking on designing operations and campaigns. In order to advance a point of view it was necessary to address questions such as: What is wrong with the current process for designing and planning operations and campaigns? Is the American methodology more suited to one or the other? What are the critical differences between operations and campaigns? What is operational art and how does it differ from strategy? Who does strategy and
who does operational art? What is the relationship between strategy, operational art and policy?

The process of addressing these questions revealed that the issue was inherently Joint and that it would be difficult to articulate the relative merits of the American design methodology based on the Australian Defence Force doctrinal interpretation of key concepts such as strategy, operations, campaigns, operational art, war and warfare. Moreover, the investigation revealed that the core problem is not whether there is value in adopting the US Army methodology to design campaigns and operations, rather that the existing tool (the more than adequate Joint Military Appreciation Process) has become a form of dogma; its prescriptions slavishly followed. The purpose of this guide, therefore, is to address the above questions in order to articulate some ideas (based on US Army work on design) that may assist Australian commanders and staffs to make better use of the Joint Military Appreciation Process to plan operations and design campaigns.

The premise of this study paper is that operational art and strategy are dynamic and contingent practices. Talent, refined by dedicated study of war and warfare, are the critical prerequisites for capable operational artists and strategists. General principles, rules derived from them, and systems based on these rules have only limited value for strategy and operational art. In fact they may even serve to undermine the practices of operational art and strategy because prescribed principles, rules and systems diminish the perceived relevance and importance of historical study, inhibit the application of judgment and innovation in the planning process, and marginalise the value of natural talent in decision-making in complex contexts.

This guide is intended for Australian students of war, strategy and operational art. It serves three purposes. It raises students’ awareness of the evolution of operational art and strategy. It also enables students to explore operational art and decision-making beyond the constraints of ADF doctrine and the competency-based learning environment. Foremost, the study paper offers some guidance to enable students to make better use of the Joint Military Appreciation Process (JMAP). The guide is not intended for the practitioner to take into battle, nor is it intended to impart any skill in operational art or strategy. On the contrary, it asserts that the study of war and warfare are the only means by which one can truly master these martial arts.

There is little agreement among professionals and academics as to the meaning of the terms ‘operational art’ and ‘strategy’. There is also little agreement on who
practises operational art and strategy and in what specific ways they are different. This study paper offers a particular point of view, but should not be seen by the student as the solution. By putting forward a coherent position it is the author’s intention to encourage the student to get beyond the synthesised principles of doctrine, question orthodoxy and explore what others have written in order to advance their own understanding.

The guide has two sections. The first section provides a summary of the evolution of modern warfare, operational art and strategy in order to expand the student’s understanding of the arts beyond the trite definitions and discussions in ADF doctrine. In light of this understanding, Section II explores ways that officers can enhance their mastery of operational art and strategy. It exhorts the student of operational art and strategy to acquire a thorough knowledge of the evolution of the two arts; to study war and warfare in depth and breadth unimpeded by a competency-based training system; and to explore the Joint Military Appreciation Process beyond its rigid prescriptions.
Section I – The Evolution of Modern Warfare, Operational Art and Strategy

The society that separates its scholars from its warriors will have its thinking done by cowards and its fighting done by fools.

— Thucydides

The first section of this guide provides a summary of the evolution of modern warfare, operational art and strategy to see how the ADF’s contemporary doctrine came about. It also serves as a stepping-off point for those seeking guidance on where to start their exploration of the subjects. It begins by taking a hard look at war and peace based on the idea that to understand strategy, operational art and dynamic approaches to solving operational problems, it is necessary to have a clear idea of what war is and what war is not. The greater part of Section I is a journey through the evolution of modern warfare, beginning with Napoleon, to understand contemporary usage of the terms ‘operational art’ and ‘strategy’ and to discern their proper meanings. The focus of this section is the period since the Second World War during which contemporary prescriptions for operational art and strategy emerged. Section I concludes by defining operational art and strategy, which enables the detailed discussion of the planning and design of operations and campaigns in Section II.

War

War is a conflict of great interests which is settled by bloodshed, and only in that is it different from others.

— Carl von Clausewitz

War is an act of force intended to compel an enemy to acquiesce to another’s will. Will is underwritten by an ‘original motive’. Therefore, policy determines the purpose and
the character of a war. Military theorist, Carl von Clausewitz, observes that ‘As policy becomes more ambitious and vigorous, so will war ... Policy is the guiding intelligence and war only the instrument, not vice versa.’ Implicit in Clausewitz’s assertion is that war is subordinate to policy, but war is more than just politics. War is politics with the admixture of violence. While politics (the interplay among political, military, social and economic institutions) affects the purpose and the conduct of the war, war itself is always about the use of violence.1

War is an act of force and subordinate to policy. While some theorists have made compelling arguments that the acme of military skill is winning battles without fighting, the destruction or threat of destruction of an enemy’s means of waging war is fundamental in all cases. After all, war is a deliberate decision by policy-makers to use force as a major (if not the foremost) means to achieve a particular objective of policy. While it might be possible in some cases to remove the cause of a war or generate a non-violent incentive for an enemy to lay down his arms, these instances are rare. Policy-makers tend to resort to war because the positions of the two hostile parties are irreconcilable, or because the statesman is unable to address the root causes or apply incentives without first coercing the enemy to the negotiating table through the force of arms.

German historian, Hans Delbruck, asserts that there are only two general choices to the strategist in war: annihilation of the enemy’s means of resistance (defeat) or exhausting him to the point of acquiescence or negotiation (the impossibility of victory).2 Delbruck’s view is, nevertheless, a gross simplification of Clausewitz. Clausewitz argues:

If a negative aim—that is, the use of every means available for pure resistance—gives an advantage in war, the advantage need only be enough to balance any superiority the opponent may possess: in the end his political object will not seem worth the effort it costs. He must then renounce his policy. It is evident


that this method, wearing down the enemy, applies to the great number of cases where the weak endeavour to resist the strong.

Frederick the Great would never have been able to defeat Austria in the Seven Years War: and had he tried to fight in the manner of Charles XII he would unfailingly have been destroyed himself. But for seven years he skilfully husbanded his strength and finally convinced the allies that far greater efforts were needed than they had foreseen. Consequently they made peace.

We can now see that many roads lead to success, and that they do not all involve the opponent’s outright defeat. They range from the destruction of the enemy’s forces, the conquest of his territory, to a temporary occupation or invasion, to projects with an immediate political purpose, and finally to passively awaiting the enemy’s attacks. Any one of these may be used to overcome the enemy’s will: the choice depends on circumstances.

… we need only to bear in mind how wide a range of political interests can lead to war, or think for a moment of the gulf that separates a war of annihilation, a struggle for political existence, from a war reluctantly declared in consequence of political pressure or of an alliance that no longer seems to reflect the state’s true interests. Between these two extremes lie numerous gradations.\(^3\)

The two extremes (and everything in between) are inherently functions of the destruction of an enemy’s means of resistance. Thus, according to Clausewitz, there is only one means in war: combat. Acceptance of defeat (annihilation) and acceptance of the impossibility of victory (exhaustion) ultimately lie in the human mind.

Wars tend to be fought to redistribute or preserve power in favour of the victor. Whether the object is territory, securing a trade route, the putting right of a grievance, or the overthrow of a government, the purpose tends to relate to the redistribution of power or the protection of power. Therefore, Clausewitz’s theory holds true regardless of whether the parties at war are nation states or non-state actors. The terms ‘policy’ and ‘politics’ are inclusive of the governing logic of all political actors, including non-state actors. Therefore, all manner of wars, including those that are

\(^3\) Clausewitz, On War, p. 94.
characterised by the use of irregular forces to redistribute or preserve power within a state, fit the model described.⁴

The interaction of two or more parties in war is akin to the dynamic interactions between wrestlers in a duel. The wrestlers are interdependent and adaptive entities. The decisions and actions of each are dependent on a range of dynamic factors and stimuli, and entirely unpredictable. Clausewitz contends that:

War is not an exercise of the will directed at inanimate matter, as is the case with the mechanical arts, or at matter which is animate but passive and yielding, as is the case with the human mind and emotions in the fine arts. In war, the will is directed at an animate object that reacts.⁵

Yet war is, of course, much more than a wrestling match. The metaphor is useful only to illustrate that war’s dynamic nature is a function of the violent competition of two or more parties. Unlike war, a wrestling match has a specified start and end. It has explicit rules agreed to prior to the match by both sides, rules that don’t change during the match. It has clear and objective criteria for victory and defeat. War is rarely a competition between two discrete parties because other entities tend to get drawn into wars for reasons of preservation of power or the opportunity to increase power. Moreover, unlike wrestling, the scale of the contest means that a war’s progression is a function of more variables than the human mind is able to fully comprehend.

These features of war cause it to escape human control over time. Clausewitz seems to have recognised that war produces what is commonly referred to today as a nonlinear system ‘driven by psychological forces and characterized by positive feedback’.⁶ Therefore, the course of a given war is more than a sequence of the intended effects

---

⁴ While violent competition between criminal organisation also fits the definition as put forward, it is probably misleading to extend the definition of war to this sort of competition.

⁵ Ibid., p. 149.

⁶ Alan Beyerchen, ‘Clausewitz, Nonlinearity, and the Unpredictability of War’, International Security, Vol. 17, No. 3, Winter, 1992–93, p. 62. Beyerchen asserts that ‘nonlinear systems are those that disobey proportionality or additivity. They may exhibit erratic behavior through disproportionately large or disproportionately small outputs, or they may involve “synergistic” interactions in which the whole is not equal to the sum of the parts. Nonlinear phenomena have always abounded in the real world. But often the equations needed to describe the behavior of nonlinear systems over time are very difficult or impossible to solve analytically. Systems with
and actions of opponents because ‘military action produces not a single reaction, but dynamic interactions and anticipations’. War produces emergent properties with no clearly identifiable cause. Because cause and effect in war is not linear, the outcome of military action is unpredictable, rendering the sum of events in war a dynamic pattern generated by ‘mutually hostile intentions and simultaneously consequential actions’.

The unceasing interplay between opponents in war produces feedback that changes the character of the war, which in turn changes the military instrument and the policy that guides the war’s conduct. Clausewitz asserted that:

> As a total phenomenon its dominant tendencies always make war a remarkable trinity—composed of primordial violence, hatred, and enmity ... of the play of chance and probability ... and of its element of subordination, as an instrument of policy.

Therefore, the relationship between ends and means is neither linear nor static. This relationship confounds the exhortations of well-meaning officers and politicians who claim that statesmen should set clear and unambiguous war objectives and then get out of the way. When this happens it inevitably leads to tactical logic usurping strategic logic. Similarly, iterative or cyclical characterisations of war based on the idea of move-countermove must also be flawed. They serve only to deny the commander the presence of mind and audacity to exploit the opportunities presented by disproportionate effects and unanticipated situations generated by nonlinearities. To this end, opponents in war are not always playing by the same rules. By changing the rules one side can create important, even decisive, advantages. War escapes human control and departs from the laws of linear mathematics.

---

7 Ibid., p. 73.
8 Ibid., p. 67.
9 Ibid., p. 68.
10 Clausewitz, *On War*, p. 89.
The use of violence under a governing political motive by two or more enemies is the necessary condition for war. Compelling one to submit to the will of another without force is not war and constitutes normal (albeit hostile) political discourse. For example, the threat of war (including demonstrations of military force) is a tool of the statesman that only becomes war at the point that the demonstration transitions to the application of violence, which is violently resisted by the other. Economic sanctions or other non-violent punitive measures applied by a state do not, of themselves, constitute war either. Tense relationships, espionage and the manipulation of wars between client states are also not, in themselves, war. The Cold War, for example, is a metaphor for the tense relationship that developed between the USSR and the United States following the Second World War. Despite the manipulation of real wars to achieve policy objectives by both parties in the Cold War, it was a war in name only. At the risk of overstating the point, the use of military force to restore law and order in anarchic territories does not constitute war either. Even though war and criminal activities tend to coalesce, addressing criminal activity in itself is not war.

The use of the military instrument to support policy aims in contingencies other than war such as arms control, peacekeeping, humanitarian assistance and law enforcement are not war and do not share war’s ‘dominant tendencies’. This is not to say that these are trivial matters. Nor is it to say that the prosecution of a war will not demand that a military force conduct some arms control, law enforcement, humanitarian assistance and the like; rather that these activities do not constitute war in themselves or in combination. The importance of labouring the distinction between war and its absence is to help discern the proper role and function of different echelons of command later in the guide and because without a clear understanding of war, the purpose of military force as an instrument of policy is confused.

War exists when a state or other armed group decides to use violence and risks shedding its own blood to achieve its policy objective and encounters another state or armed group that decides to resist with violence. Therefore, wars have beginnings and ends, whereas politics (in this instance, relations between states) precedes war and continues after war. Wars end when one side is defeated militarily (through its

---

13 It is conceivable that vastly technologically superior force could wage war against a primitive society without shedding its own blood (e.g. UAVs vs spears) and presumably this would still count as war. Many might also regard such a phenomenon as something more akin to murder or assassination rather than war.
physical destruction or when it gives up the will to fight, leaving the other to impose his will), or when a compromise is reached between the parties and they agree to pursue a political discourse absent violent coercion.

The above notwithstanding, the beginnings and ends of wars are sometimes difficult to discern without the aid of hindsight. Nonetheless, there is no ‘spectrum of conflict’.\textsuperscript{14} There is war (each one unique) and there are other phenomena known variously as conflict, unrest, insurrection, emergencies, lawlessness and crises. While the term ‘spectrum of conflict’ might provide a neat and palatable term to describe everything from war through to military aid, it runs the very real risk of glossing over the dominant tendencies of war. It also verges on Methodism, the idea that by categorising wars and conflicts it is possible to draw on previous methods that have worked in similar circumstances.

Similarly, wars do not develop along neat or recognisable paths. One only has to look at the analysis of the causes of the First World War to understand the difficulty in discerning whether contemporary events represent a path to war or will be seen in hindsight as heightened levels of diplomatic and political tension. Factors contributing to the cause of a war are sometimes matters of chance. Head of the UK Land Development, Concepts and Doctrine Centre, makes a similar observation in his paper titled \textit{Conflict on Land}:

\begin{quote}
Policy-makers, rightly, will normally seek to avoid [war] and, in particular, seek to avoid the use of military force to resolve conflict; but history demonstrates that involvement in [war], and governments’ decisions to use force, may be less ‘discretionary’ than policy-makers would wish … not only is the use of military force less discretionary than policy-makers would wish it to be, but discretionary decisions to use limited force for limited periods have a disconcerting habit of evolving into non-discretionary commitments to employ different force packages for more extended periods. This is \textit{not} an argument against the use of military power, rather it is a caution against forming flawed assumptions based on the hoped-for, but often illusive, choices surrounding their use.\textsuperscript{15}
\end{quote}

\textsuperscript{14} ADF doctrine defines \textit{spectrum of conflict} as ‘The full range of levels of violence from stable peace up to and including general war.’

\textsuperscript{15} UK Head Land DCDC, ‘Conflict on Land’, unpublished paper, p. 3.
Because wars are fought between different parties seeking competing objectives relating to an unequal redistribution or maintenance of power, victory is a valid notion in war. Whether one side is defeated militarily or a compromise is reached, military means are employed primarily against the other’s military means to either disarm him or gain a degree of military advantage over him such that any negotiation by the statesman to achieve a compromise is done from a position of strength. The use made of military victory is the art of the statesman, not the general (e.g. realising the objective of the war or the form of the peace). Victory in war tends to be determined by the loser, not the victor. While there may be occasions in which the achievement of a policy objective in war does not require an enemy to cease armed resistance, these occasions are historically few. US President George Bush’s premature announcement of victory in 2003 provides ample illustration.

While it may be the statesman’s job to make use of military victory to achieve a suitable peace, this does not mean that the general can afford to achieve military victory by any means. Victory is not a political end in itself, but a mechanism for the statesman to achieve his war aims (victory cannot be both the end and the means to the end). The manner with which the general wages the war and achieves military victory will either enable or constrain the statesman in his efforts to secure a suitable lasting peace on their side’s terms. Therefore, the way an objective is achieved or a war is fought is a critical part of the operational art and strategy. The general must not only assess the performance and effectiveness of his forces, he must constantly assess the manner with which he is conducting the war and the possible forms that victory might take in order to maximise the statesman’s leverage for securing a suitable and lasting peace.

Equally, it is not the general’s job to motivate the nation in support of the cause for which his troops fight. This is the realm of statecraft (the practice of government). The general certainly has a part to play to support the politician in his vital role of soliciting and maintaining public willingness to sacrifice for the policy aim, but this is not the general’s responsibility. These points notwithstanding, success is perhaps more important than anything else in maintaining public support for a war. Therefore, the best the general can do to assist the politician in his task of maintaining public support for a war is to succeed, and to do so in a way that reflects the public’s values. The use made of this success to motivate the public remains the job of the statesman nonetheless. Historian, Victor Davis Hanson, asserts:
It would be reassuring to think that the righteousness of a cause, or the bravery of an army, or the nobility of a sacrifice ensures public support for war. But military history shows that far more often the perception of winning is what matters. Citizens turn abruptly on any leaders deemed culpable for losing . . . Ultimately, public opinion follows the ups and downs—including the perception of the ups and downs—of the battlefield, since victory excites the most ardent pacifist and defeat silences the most zealous zealot . . . When the successful military action against Saddam Hussein ended in April 2003, over 70 percent of the American people backed it, with politicians and pundits alike elbowing each other aside to take credit for their prescient support. Four years of insurgency later, Americans oppose a now-orphaned war by the same margin . . . The American public turned on the Iraq War not because of Cindy Sheehan or Michael Moore but because it felt that the battlefield news had turned uniformly bad and that the price in American lives and treasure for ensuring Iraqi reform was too dear.16

In war, perhaps more so than most human endeavours, actions and events speak louder than words and it is close to impossible to render success and failure as anything other than themselves, particularly in light of the ubiquity of contemporary news media.

The application of all the means at a government’s disposal to bring a war to a satisfactory conclusion is normally necessary to achieve the desired policy outcome through war. Using all available means serves two purposes. The first purpose is to defeat the enemy’s armed forces, thereby ensuring these forces are no longer an impediment to setting forth the government’s policy. The second purpose is to do what is necessary to begin cementing a suitable peace in those areas the government controls as a consequence of military success. The first purpose is the domain of the general and relates to the application of military force. The second purpose is the domain of the statesman and relates to the making use of military success to realise the policy objective. The general can only deliver military victory. He cannot deliver the ‘policy’.

War is inevitably more complex than simply lining up against an enemy on the battlefield and fighting until one side is left standing. Eisenhower, in a speech to the US Army War College in 1950 illustrates the point:

When you get into command in war, into the type of command that I assume you would like to have me discuss, you can no longer think merely in terms of strictly professional factors. For example, in Algiers one night I remember the staffs sitting in a conference. Shipping was very tight. It was the critical factor in our whole program, and we felt we were in a very tenuous, not to say risky, situation. Therefore every ton on every ship was vastly important to us. Perforated plate, ammunition, tanks and everything else we needed were competing for space. But at the same time, in northern Africa, we had a great area occupied by Arabs who had been denied material goods for a number of years, the things they highly valued. The Arabs were on our lines of communication, and everybody, commanders and staff, was worried, and sensitive to the safety of our lines of communication. Finally, the problem became not to decide between perforated plate, ammunition, tanks and guns, but whether we had better sacrifice two or three thousand tons of military space to white cloth, sugar and soap for the Arabs. Unless there has been background thinking, preparation and study, how are you going to make that decision? And it might be very, very important. In that case I do remember that the decision was made in favor of the Arabs. The only thing I am trying to say is that you cannot think of problems affecting war, which are as broad as life itself, solely in terms of military equipment and military organization. Your thinking has to be pitched on a much wider plane.17

Eisenhower’s admonition notwithstanding, the complex problems of war should not be confused with war itself. Military forces are not governments, aid agencies, agricultural departments, diplomatic bureaus or trade organisations. They are first and foremost the legitimate instruments of state violence. Equally, the fact that statesmen

have called upon generals to practise statecraft on their behalf ought not to imply that the general’s primary interest is the practice of statecraft.

While war’s particular nature is transcendent, warfare (the conduct of war) evolves as societies and the instruments of war change. Professional soldiers who lose sight of the enduring nature of war risk confusing contemporary trivialities with war’s dominant tendencies, causing them to muddle their way through the next war. This study paper will now take a journey through the evolution of modern warfare (the subjective aspects) to better understand its contemporary form and how it is perceived. More importantly, this journey provides the reasoning for the definitions of operational art and strategy at the end of the section.

**The Emergence of Modern Warfare**

Many theorists argue that modern warfare came about when the single battle of annihilation became impossible. Some theorists and historians argue that this moment came about during the latter stages of the Napoleonic wars. Others contend that the American Civil War was the first truly modern war. Therefore, this study begins with Napoleon.

The French Revolution unleashed a new way of warfare often referred to as the Nation in Arms. The new political circumstances enabled France to raise massive armies of citizen soldiers and wield them in ways not possible in the preceding centuries. Sixty thousand soldiers was about the maximum a commander could employ in the eighteenth century, whereas Napoleon invaded Russia with around 600,000. The changed political conditions in Europe brought about by the French Revolution meant that the limited dynastic battles of the preceding era were replaced by massive enterprises aimed at the annihilation of an enemy’s army. The size of the

---

armies meant that movement as a single mass was no longer possible. Moreover, the
division of armies into subordinate parts brought many advantages.20

Napoleon's early campaigns typified the idea of the single battle of annihilation. His
method is often referred to as the strategy of the single point.21 Napoleon's campaigns
were characterised by seeking battle after a long approach march on multiple axes,
bringing an enemy to battle at a single point and time. The aim was to concentrate
all of one's force at this decisive time and place to bring about a decision in a single
battle.22

The meaning of campaign changed under Napoleon. Before Napoleon a campaign
referred simply to the idea of taking an army into the field. After Napoleon a campaign
and the war became synonymous: a grand military operation.23 The purpose of the
campaign was to create the opportunity to destroy an enemy in a single decisive
battle. Strategy encompassed everything prior to the battle and tactics related to the
battle. Strategy sat comfortably as the art of the general. It was not a level of war, but
something one did like surgery. Therefore, strategy and tactics were considered as a
whole, rather than discrete activities.

By 1807 firepower began to change the equation. Historian Robert Epstein argues
that the Franco-Austrian War of 1809 was the first modern war because Napoleon was
unable to achieve his war aims in a single battle of annihilation. In 1809 Napoleon
fought a series of battles coordinated across two theatres to bring about a conclusion.24
Hence, strategy had become something more than arranging forces to create an
opportunity to destroy an enemy in a single battle.

Epstein's definition of modern warfare includes the following:

20 John A Lynn, ‘Nations in Arms’ in Geoffrey Parker (ed), The Cambridge History of Warfare,
21 G S Isserson, Evoliutsia operativnogo iskusstva [The Evolution of Operational Art], excerpts
reprinted in A B Kadishev, Voprosy strategii i operativnogo iskusstva v sovetskikh voennykh
trudakh (1917–40 gg.) [Questions of Strategy and Operational Art in Soviet Military Writings
from 1917–40], Voenizdat, Moscow, 1965, p. 418.
22 John Shy, ‘Jomini’ in Peter Paret, Gordon Alexander Craig and Felix Gilbert (eds), Makers of
Modern Strategy: From Machiavelli to the Nuclear Age, Princeton University Press, Princeton,
23 Robert M Epstein, Napoleon’s Last Victory and the Emergence of Modern War, University Press of
Kansas, Lawrence, 1994, p. 4.
24 Ibid., pp. 171–78.
• A war plan that integrates multiple theatres.
• The fullest mobilisation of the resources of the state.
• Use of campaigns by both sides to achieve objectives in various theatres.
• Distributed manoeuvre, meaning multiple units comprising a balance of arms with the ability to operate independently for a period of time.
• Engagements sequenced and often simultaneous.
• Subordinate leadership of the organic groupings with the authority and ability to think and act with initiative.25

Strategy had changed. Reflecting on Napoleon’s genius, Clausewitz observed that ‘tactics teaches the use of armed forces in the engagement; strategy, the use of engagements for the object of the war’.26 He added that ‘In tactics the means are the fighting forces … the end is victory.’ Concluding that ‘The original means of strategy is victory—that is, tactical success; its ends … are those objects which will lead directly to peace.’ ‘Strategy … confers a special significance … on the engagement: it assigns a particular aim to it.’27 This classical view of the relationship between strategy and tactics persisted for many years.

The American Civil War

Some theorists disagree with Epstein. They argue that his criteria for a definition of modern warfare are wrong. They contend that war of the Napoleonic era more closely resembled classical warfare rather than modern warfare. Yet, they would probably concede that warfare was changing.28

One thing had not changed. The equilibrium between artillery, infantry and cavalry meant that the attacker continued to hold the advantage well into the nineteenth century. The invention of the rifle changed this formula and the defender increasingly

---

25 Ibid., p. 6.
26 Clausewitz, On War, p. 128.
27 Ibid., p. 143.
came to hold the advantage. As firepower increased, battle grew less decisive and battles of annihilation became almost impossible. Some argue that this makes the American Civil War the first modern war.29

The American Civil War involved massive armies and saw the first comprehensive application of the railroad, the telegraph and rapid fire rifled weapons. These technologies had a major influence on the conduct of the war. US theorist Jim Schneider argues that the American Civil War was the first truly modern war because it had the following characteristics:

- The appearance of the first quasi army group headquarters.
- An integrated design of a distributed campaign to coordinate disassociated tactical actions.
- The need for sophisticated logistics to support distributed operations in multiple theatres.
- Strategic employment of cavalry including deep strike to attack national infrastructure and the national base.
- Joint operations.
- The appearance of a continuous front.
- Battles on such a scale that they could not be observed in total by a commander.
- Field command by an officer of operational vision.30

The characteristics described by Schneider point to the appearance of something other than classical strategy.

This new phenomenon was the need to group battles and engagements under a unifying logic within a theatre among several theatres. The campaign took on a new meaning. No longer were the campaign and the war synonymous because success required multiple campaigns in multiple theatres. A campaign involved the coordination of multiple actions distributed in time and space, in line with a single unifying purpose.31

29 Ibid.
30 Ibid., p. 90.
31 Ibid., p. 88.
Recognising Operational Art

The full effects of larger armies and the emergence of new technologies such as rapid fire weapons, the steam engine, and the telegraph were not fully revealed until the First World War. These products of the industrial revolution contributed to the industrialisation of warfare, the dominant characteristics being the scale of armies and the increased efficiency with which they could kill each other. Modern armies had grown so large and possessed such a degree of redundancy and recuperation potential that it was impossible to destroy an army in a single battle. Destruction of an enemy army required repeated large-scale operations involving multiple battles and engagements, and ‘strategy now had to account for movement of forces in-theater and for their mobilization and movement to theater’.32

Given the cost and brutality of the First World War, much of the thinking in the inter-war period addressed the perceived need to solve the problem of the ‘stabilised front’ and restore movement to the battlefield in order to avoid the bloody frontal attacks and stalemate that a stabilised front produces.33 Although the term ‘operation’ was in usage from the late nineteenth century, the inter-war period saw the first use of the term ‘operational art’. The Soviet Army first coined the term in the 1920s as part of their pursuit of a solution to the stabilised front. Soviet thinkers recognised a discernible art to the coordination of multiple actions distributed in time and space in line with a single unifying purpose. Chief of the Red Army, Mikhail Tukhachevsky, observed:

Since it is impossible, with the extended fronts of modern times, to destroy the enemy’s army at a single blow, we are obligated to try to do this gradually by operations which will be more costly to the enemy than to ourselves . . . In short a series of destructive operations conducted on logical principles and linked together by an uninterrupted pursuit may take the place of the

33 Ibid., pp. 6–7.
destructive battle that was the form of engagements in the armies of the past, which fought on shorter fronts.34

The Soviet theorists defined operational art as the combination of combat actions and logistics sequenced in time and space to achieve an intermediate aim within a campaign. They did not see the campaign itself as being of the operational art.

Soviet theorist and former Imperial Russian General Staff officer, Aleksandr A Svechin expressed the idea as follows:

We call an operation that act of war in the course of which troop efforts are directed, without any interruption, to a specific region in a theatre of military operations to achieve a specific intermediate aim. An operation is a conglomerate of quite different actions: compilation of a plan of operation, material preparation, concentration of forces at the staging area, preparation of defensive structures, completion of marches, and conduct of battles resulting, either by means of an immediate envelopment or a preliminary penetration, in encirclement and destruction of hostile units, and driving back other units, and in winning or holding a specific line or geographical region. The material of operational art are tactics and administration; success in developing an operation depends on both force resolution of individual tactical problems, and on forces being supplied with all materiel necessary to conduct the operation continuously until the operation’s aim is achieved. Proceeding from the operational aim, operational art advances an entire series of tactical problems and assigns a number of missions for rear area activity.35

To the Soviet theorists, operational art mediates between the strategy and tactics, imposing a governing logic on tactics while pursuing intermediate goals on the path to victory. In 1926 Svechin captured the essence of the linkages among the new understanding of military art when he wrote, ‘Tactics makes up the steps from

which operational leaps are assembled. Strategy points out the path. According to Australian theorists Justin Kelly and Michael Brennan, the Soviets believed:

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.

The Soviet notions of tactics, operations and campaigns had a comfortable coherence.

The Soviet theorists of the 1920s and ’30s recognised that ‘as modern conflict drew increasingly on the will and resources of entire populations, notions of strategy also had to take into account linkages between fighting front and deep supporting rear’. They believed that operational art had two parts. The first part was successive operations, which was the idea of inflicting a series of successive blows on a defending force. The second was deep operations, which was the linking of these blows to allow for penetration of an enemy’s defensive zone establishing the conditions for mobile warfare. The aim of these successive and deep operations was to destroy the enemy’s force through both envelopment and the destruction of the enemy nation’s means of waging war. The enemy nation’s means of waging war was referred to as its nervous system and included everything from rear area communications through to the fundamental elements of the national base.

The Soviet theorists believed that attacking an enemy’s nervous system was only possible by pushing mobile forces beyond the main defensive zone, destroying reserves and continuing on to cause maximum destruction and paralysis. While


38 Menning, ‘Operational Art’s Origins’, p. 5.

39 Ibid., pp. 9–10.

40 Ibid., p. 10.
theoretically valid, the problem with this approach was that it proved almost entirely dependent on possessing an overwhelming superiority in forces. In the Second World War the Red Army was only able to conduct operations that remotely resembled its inter-war thinking once it had established an overwhelming numerical superiority over the Wehrmacht, which was a result of years of attrition. In fact the great battles of deep penetration and envelopment were the exception in the Second World War. Large armies falling upon one another and bludgeoning one another in frontal attacks was more characteristic.

The sophistication of joint operations grew at an exponential rate between the world wars, but particularly during the Second World War. The frequent conduct of engagements and battles at the interface between land, sea and air reinforced the notion that there was a particular art to the planning, sequencing and coordination of these engagements to achieve intermediate campaign aims. By the end of the Second World War the classical view of strategy and tactics was no longer an accurate description of warfare. Tactics still pertained to the art of the battle or the engagement, but strategy was more than the use of the engagement for the purpose of the war. US historian, Bruce Menning, argues:

The nature of operations was increasingly dictated by the thrust of higher-level preparation and planning, and operations themselves were no longer finite affairs leading to a single decisive battle. Operations, a complex of military actions and battles linked by time, place and intent, might extend for several weeks or longer. An operation’s course might witness a major regroupment of forces and require changed command, control and logistic arrangements, all within the altered limits of greatly expanded space and time. The growing realization was that the preparation for and conduct of operations had expanded beyond the limits of traditional military strategy to incorporate new content, methods and concerns. The most important issue was one of linkages, and within a conceptual framework for the conduct of operations, how to fashion linkages to contend with changes in time, timing, duration, support, scale, range and distance.41

There was an emerging realisation that there was an art to the arrangement of engagements and other actions to achieve intermediate aims within the campaign.

The Red Army referred to the arrangement of tactics to achieve intermediate aims within the campaign as operational art. Many English speaking Allied officers referred to it as grand tactics.\textsuperscript{42} There is an important difference between the Soviet notion of operational art and the term ‘grand tactics’. Whereas the Red Army saw operational art as a function of tactics and administration (essentially the design and planning of operations), grand tactics reveals a tendency for English speaking thinkers to interpret the changes to the military art as a function of scale. In this regard the term grand tactics is entirely appropriate because the tactics of the division and corps ought not to be thought of as scaled up classical tactics.\textsuperscript{43} Classical flanking attacks when applied against forces of the scale mobilised in the Second World War become frontal attacks because the flanks of big formations are protected by smaller formations occupying large geographical areas.

The tendency for English speaking thinkers to interpret the changes to the military art as a function of scale persists to this day. US historian, Robert Citino, betrays this tendency in his recent study of the evolution of ‘operational warfare’ titled \textit{Blitzkrieg to Desert Storm}. He reveals that his book:

> concentrates on that level of war between \textit{tactics} (the movement of battalions, companies, and squads on the battlefield) and \textit{strategy} (the realm of the politico-military leadership of the respective warring nations). The German army has traditionally placed emphasis on this intermediate level of war, usually called the ‘operational’ level. Involving the movement of corps and divisions, it might be described as the analysis of the campaign (rather than the battle or the war).\textsuperscript{44}

\textsuperscript{42} Ibid., p. 7.

\textsuperscript{43} In the famous words of P W Anderson, ‘more is different’. Emergent properties at one level means new concepts are needed at the next level—reductionism can’t work. P W Anderson, ‘More is Different’, \textit{Science}, Vol. 177, No. 4047, 4 August 1972, pp. 393–96, [http://www.pha.jhu.edu/courses/171_405/MoreIsDifferent.pdf].

This issue of scale is manifest in the contemporary notion of the tactical, operational and strategic levels of war.

Redefining Strategy

The global scale of the two world wars and the invention of the atomic bomb generated other dynamics that could not be explained by classical theory. The two world wars saw the complete mobilisation of the nation and its resources for the purpose of war. It had become difficult to discern at what point policy ended and strategy began. Several British theorists, among them Basil Liddell Hart, J F C Fuller and Julian Corbett, introduced the term ‘grand strategy’. Liddell Hart contended that the role of grand strategy was ‘to coordinate and direct all the resources of the nation towards the attainment of the political object of the war—the goal defined by fundamental policy’. He was, therefore, one of the first to blur the lines between policy and strategy, and began the slow erosion of the classical meaning of strategy in the Western world.

The invention of the atomic bomb during the Second World War, and the proliferation of nuclear weapons after the war, crystallised Liddell Hart’s idea and took it to the extreme. Suddenly politicians had direct control of the means to annihilate entire nations. Theoretically there was no longer any need for a military professional to mediate between the statesman and the means to wage war. This led some to argue, as French strategist Raymond Aron did, that ‘there is no difference between what was once called a policy and what is now called a strategy’. Consequently, strategy and policy became synonymous to a certain extent, and strategy began to be used to describe the potential use made of armed force, not just its use in a particular war. The discipline of Strategic Studies was born of this era. British historian, Hew Strachan observes that:

---


The advent of nuclear weapons confirmed and consolidated those trends. If used, they would ensure that war was total—at least in its destructive effects. To obviate this, theories of deterrence were developed and employed, which themselves conflated strategy and foreign policy. Deterrence itself then became the cornerstone of a new discipline, strategic studies, but strategic studies were focused not so much on what armies did in war as on how nations used the threat of war in peace. By 1960 Thomas Schelling defined strategy not as ‘concerned with the efficient application of force but with the exploitation of potential force’. Strategy itself therefore helped erode the distinction between war and peace, a trend confirmed by the high levels of military expenditure in the Cold War, and by the tendency to engage in proxy wars and guerrilla conflicts below the nuclear threshold.48

Strategy, once the unequivocal purview of the general within war, had become the purview of the bureaucrat and the statesman and included a range of activities well beyond the scope of any particular war.

To complicate matters further, the commercial sector began to use the word strategy to define aspects of business practices. The overuse of the word and the wide scope to which it was applied diluted its meaning. Over the decades following the Second World War, the terms ‘strategy’ and ‘strategic’ would come to mean a solution, a long-term plan, a process of conceiving a plan, a pattern of behaviour, something of high importance, something long-term, something nuclear, actions directed at something important, a vision, or something pertaining to the higher echelons of an organisation.49 Military professionals, once the custodians of the term ‘strategy’, began to blur its meaning too, using it in its various new guises. Perhaps the most significant change was that strategy took on a static meaning. It described a solution in the form

49 Ibid., p. 34. Hew Strachan observes that ‘The word “strategy” has acquired a universality which has robbed it of meaning, and left it only with banalities. Governments have strategies to tackle the problems of education, public health, pensions and inner-city housing. Advertising companies have strategies to sell cosmetics or clothes. Strategic studies flourish more verdantly in schools of business studies than in departments of international relations. Airport bookstalls carry serried ranks of paperbacks reworking Sun Tzu’s The Art of War . . . But strategic studies are not business studies, nor is strategy—despite the beliefs of George Bush and Jack Straw to the contrary—a synonym for policy.’
of a preconceived course of action. Strategy had lost the dynamic and active meaning reflected in Moltke’s words: ‘a system of makeshifts … bringing knowledge to bear on practical life, the further elaboration of an original guiding idea under constantly changing circumstances’.

### The US Intellectual Renaissance

After its involvement in the Vietnam War, the US Army went through a major period of introspection that resulted in the recognition of an operational level of war (1982) and the development of a comprehensive theory of operational art (1986). ‘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.’

The period spanning roughly a decade from the middle of the 1970s through to the middle of the 1980s witnessed a remarkable revolution in thought in the US military. The main features of the US intellectual renaissance were the rediscovery of operational art and the creation of dedicated schools for specially selected middle ranking officers to study operational art.

---


52 The US Army had ‘operations’ through the use of the translation of Prussian Field Marshal, Colmar Freiherr von der Goltz, which was the Leavenworth text until after WWI:

‘Military activity then tends with livelier interest towards a special object and leaves all others to one side, or subordinates them, until the former is attained. After that, a certain abatement, or perhaps a brief pause for recuperation, may be observed until a more rapid course of action is again adopted, and, in a manner, a new idea, a second objective, becomes visible.

Every such group of actions will be composed of marches, the assumption of positions, and combats, and is called an “operation”… That the different groups of occurrences…must be connected by the bond of a common leading thought, and not arbitrarily or accidentally strung together, is a matter of course, and does not remove the distinction.

Again, among certain operations a more intimate relationship will generally be brought about by the fact that they are conducted under similar circumstance, at the same time of year, against the same hostile army and are separated from the rest of the operations through conditions of time or
Both features derive from a strong German influence. The elite operational schools resembled the German approach of ‘training an elite corps of strategists and planners in the style of the German General Staff’.\(^{53}\) The tenets of the new operational doctrine, embodied in the concept known as AirLand Battle, derived from a thorough analysis of military history, in particular the successes of the German Army in the early campaigns of the Second World War and the Israeli Defence Force in 1973. Concepts such as Mission Command, Main Effort, and Culminating Point have a clear German influence. In fact the original German terms such as *Auftragstaktik* and *Schwerpunkt* were used in discussions of the time.\(^{54}\)

The US intellectual renaissance reached its high point with the production of its operations *Field Manual FM 100-5* in 1986. The document was not overly prescriptive and supported its assertions and descriptions with discussions of historical examples, thereby giving context to concepts known as the ‘elements of operational design’ (a mix of Jominian and Clausewitzian concepts such as Centre of Gravity, Line of Operation and Culminating Point). Moreover, it accepted Clausewitz’s notions of danger, uncertainty and friction as enduring features of war. The basis of the current Western and ADF orthodoxy pertaining to operational art is a product of the US intellectual renaissance.

Yet, German influence on US Army thought after the Vietnam War may have only reinforced the American (and Australian) tendency to mistake war for battle. Director of Research at the Strategic Studies Institute of the US Army War College, Antulio Echevarria, contends:

> Americans—not unlike many of their European counterparts—considered war an *alternative* to bargaining, rather than part of an ongoing bargaining process, as in the Clausewitzian view. In other words, the American concept of war rarely extended beyond the winning of battles and campaigns to the gritty work of turning military victory into strategic success. Consequently, the American way of war was ... more a way of *battle* than a way of war ...
The American way of war tends to shy away from thinking about the complicated process of turning military triumphs—whether on the scale of major campaigns or small-unit actions—into strategic successes. In part, this tendency stems from a systemic bifurcation in American strategic thinking—though by no means unique to Americans—in which military professionals prefer to concentrate on winning battles and campaigns, while policymakers elect to focus on prevailing in the diplomatic struggles that precede and influence, or are affected by, the actual fighting …

After years of self-examination in the wake of Vietnam, U.S. strategic thinking finally reached the conclusion that winning a war really amounts to accomplishing one’s strategic objectives. While this realization is taught in the higher echelons of professional military education and is subscribed to by leading defense intellectuals, recent events suggest that it is not yet a conscious part of the American way of war. The current capabilities based approach to defense planning, for example, is ultimately about the hardware needed to move, shoot, and communicate across a global battlefield; in other words, it’s about winning battles in the information age.55

In a similar vein, British historian Hew Strachan argues that the ‘so-called operational level of war is in general terms little different from what generals in 1914 called strategy’.56 He contends that the idea of an operational level of war as defined in the 1980s is attractive to military professionals because ‘it allows them to appropriate what they see as the acme of their professional competence, separate from the trammels and constraints of political and policymaking direction’.57 Strachan asserts, however, that there is a crucial difference:

In 1914, the boundary between strategy and policy, even if contested, was recognised to be an important one, and the relationship was therefore addressed. Today, the operational level of war occupies a politics-free zone. It speaks in a self-regarding vocabulary about manoeuvre, and increasingly

57 Ibid., p. 47.
'manoeuvrism', that is almost metaphysical and whose inwardness makes sense only to those initiated in its meanings. What follows, thirdly, is that the operational level of war is a covert way of reintroducing the split between policy and strategy. Yet, of course the operational level of war determines how armed forces plan and prepare in peacetime, and therefore shapes the sort of war they can fight. The American and British armies developed their enthusiasm for the operational level of war in the 1980s, for application in a corps-level battle to be fought against an invading Soviet army in northern Europe. The successes of the 1991 Gulf War created the illusion that it was an approach of universal application … Thinking about the operational level of war can diverge dangerously from the direction of foreign policy.58

The new US version of operational art was exemplified by Operation DESERT STORM in 1991. The overwhelming operational success of Operation DESERT STORM served to reinforce the split between policy and the conduct of the war. The ineptitude of the Iraqi defenders and the overwhelming superiority of the Coalition forces made Operation DESERT STORM an unconvincing case study from which to draw conclusions about new concepts and theories. Yet, this is precisely what happened.

The Revolution in Military Affairs, Hybrid Threats and Comprehensive Approaches

DESERT STORM was almost Napoleonic to the extent that the war was decided by one massive decisive land battle (a single envelopment preceded by a long and devastating bombardment). The war’s form supported thinking in its aftermath that implied operational art was everything the military professional did in war, conflating battles and campaigns. For example, the 1993 version of FM 100-5 defined operational art more broadly than its 1986 predecessor:

58 Ibid.
Operational art is the employment of military forces to attain strategic goals in a theater of war or theater of operations through the design, organization, and conduct of campaigns and major operations.

(1993) *Operational Art* is the skillful employment of military forces to attain strategic and/or operational objectives within a theater through the design, organization, integration, and conduct of theater strategies, campaigns, major operations, and battles.

A superficial analysis of the Gulf War (one which mistakes war for battle) seemed to suggest that recent developments in precision munitions and information technologies had changed the very nature of war. It seemed that the side that possessed and took full advantage of the new information systems could succeed with very little risk to the safety of its own troops. Vice chairman of the Joint Chiefs of Staff in the 1990s, Admiral William Owens, made the incredible claim that:

Technology could enable U.S. military forces in the future to lift the ‘fog of war’.... Battlefield dominant awareness—the ability to see and understand everything on the battlefield—might be possible.

When you look at areas such as information warfare, intelligence, surveillance, reconnaissance and command and control, you see a system of systems coming together that will allow us to dominate battlefield awareness for years to come .... And while some people say there will always be a ‘fog of war’, I know quite a lot about these programs.

The emerging system of systems promises the capacity to use military force without the same risks as before—it suggests we will dissipate the ‘fog of war’.  

It appeared to the theorists that the new technologies could finally deliver the promise of rapid and relatively bloodless wars.

---

From this logic (and the absence of the strong empirical foundation that characterised the intellectual ferment in the two decades preceding the Gulf War) emerged two theories of warfare in the 1990s: Effects-Based Operations (EBO) and Network Centric Warfare (NCW). Military thinkers became enamoured with hard systems-thinking, arguing that with an appropriate system of sensors and good analysis, it is possible to reduce operational problems down to their constituent parts and know precisely the mechanism through which to cause an enemy (or other actors in isolation or combination) to behave (or even think). Australian military theorists Justin Kelly and David Kilcullen assert:

The EBO construct relies on the ability to send clear, unambiguous signals to an enemy. An effects-based approach also relies on the enemy’s ability to understand and respond to these signals in a predictable, or at least rational, way. An effects-based approach assumes, in essence, that an enemy will apply conventional damage assessment and determine logically that objectives are unachievable or that the costs involved in gaining success outweigh the gains. 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.60

By mistaking war for battle, these theories perceive war as something amenable to scientific reduction. Consequently, the theories view war as an ordered problem that a technically enabled force can master in the manner that one might master a construction project.

EBO and NCW derive from air power theory, which contends the neutralisation of critical nodes or linking mechanisms within a military force (and the national infrastructure and systems that sustain and direct it) deny it the essential feedback and communication necessary for its proper function resulting in systemic collapse or paralysis.61 In accordance with this logic, military professionals began to regard enemies less as thinking and reactive entities and more like a static system of

---

61 Ibid., p. 66.
targets against which to apply ‘effects’. The theories implicitly regard enemies as complicated machines isolated from a broader context rather than open complex human systems. Effects based thinking gradually expanded beyond a military focus to a general application to all human social systems. According to historian, Milan Vego:

A system of systems analysis (SoSA) is used as the bedrock for EBO planning. It is divided into six major systems: political, military, economic, social, infrastructure, and information. Each of these systems, in turn, is broken down and reduced to two primary sets of elements: nodes (actually decisive points) and links. Nodes are tangible elements (persons, places, or physical things) within a system that can be ‘targeted.’ Links, in contrast, are the physical, functional, or behavioral relationships between nodes. SoSA identifies the relationships between nodes within individual systems and across systems. Analysts also link nodes to each other with sufficient detail and then determine key nodes—defined as those ‘related to strategic or operational effect or a center of gravity.’ Some nodes may become decisive points for military operations when acted upon. EBO proponents confuse the true meanings of effects, centers of gravity, and decisive points.

Under the logic of the new theories, Clausewitz’s transcendent properties of war (chance, friction and uncertainty) are merely problems to be solved. Analysis subsumes judgment and the vague concept of Decision Superiority subsumes audacity. Risk, the theorists argue, is diminished by technologies that strip away the fog of war.

62 Milan N Vego, ‘Systems Versus Classical Approach to Warfare’, Joint Force Quarterly, Issue 52, 1st Quarter, 2009, p. 41. Vego contends: ‘The military application of a systems approach to planning can be traced to the 1930s when U.S. Army Air Corps planners at the Air Corps Tactical School in Langley, Virginia, developed the theory of strategic bombing. U.S. airpower theorists believed that the main threads of the enemy economy could be identified and evaluated prior to the outbreak of hostilities. This so-called industrial web theory focused on those critical industries upon which significant portions of an enemy war economy relied. The intent was to use a systems approach to generate cascading effects that would lead to the collapse of the enemy’s economy. The ultimate aim was to reduce the enemy’s will to resist and force him to cease fighting. According to this view, the proper application of industrial web theory would ensure rapid and decisive victory.’

63 Ibid.

64 ADF Doctrine defines Decision Superiority as the ability to make and implement more informed and more accurate decisions at a rate faster than the adversary.
Consequently, operations plans began to resemble engineering project schedules more prescriptive than even the British battle plans of 1918 (see Fig 1).

**Figure 1.** Portrayal of a Line of Operation (ostensibly a critical path) depicting the relationship between a defined end state and several predetermined decisive points. The doctrinal example is for a ‘non-war’ activity (a non-combatant evacuation operation) for which an ordered approach is, perhaps, appropriate. This notwithstanding, the model represents the preferred method for designing and describing all campaigns and operations.

In light of the theorists’ assertions, the idea of treating operations as a system of expedients seems almost irresponsible. Napoleon’s approach of ‘jump into the fray and then figure out what to do next’ seems utterly prehistoric in comparison. Consequently Western doctrines, including ADF doctrine, prescribe ordered approaches to problem solving rather than adaptive ones (these two ideas are discussed at length later in
the document—see the note below for a short description). If the US renaissance in military thought in the 1980s had indirectly isolated military action from the dynamics of policy, contemporary theorists had delivered the decisive blow. Contemporary plans tend to be adaptive only to the extent that the staff is able to forecast the point at which important decisions will need to be made. These decisions amount to a choice between two or three predetermined branch plans, illustrating the expectation that the new theories and technical systems have a predictive quality and humans can take the ambiguity out of war and exert some control over it. Moreover, the theories seem to ignore the broader dynamic context within which the war takes place.

Not everyone has bought into the so called Revolution in Military Affairs theories. Victor Davis Hanson cautions:

In the twenty-first century, it’s easier than ever to succumb to technological determinism, the idea that science, new weaponry, and globalization have altered the very rules of war. But military history teaches us that our ability to strike a single individual from 30,000 feet up with a GPS bomb or a jihadist’s efforts to have his propaganda beamed to millions in real time do not necessarily transform the conditions that determine who wins and who loses wars.

True, instant communications may compress decision making, and generals must be skilled at news conferences that can now influence the views of millions worldwide. Yet these are really just new wrinkles on the old face of war. The improvised explosive device versus the up-armored Humvee is simply an updated take on the catapult versus the stone wall or the harquebus versus the mailed knight. The long history of war suggests no static primacy

David Snowden argues that an ordered system is one ‘in which a desired output can be determined in advance and achieved through the application of planning based on a foundation of good data capture and analysis.’ Therefore, ordered approaches to problem solving determine the end in advance, then plan backwards from the end to determine a series of optimal steps. In un-ordered or complex adaptive systems ‘no output [can] be determined in advance, in other than the most general terms but we can manage the starting conditions and may achieve unexpected and more desirable goals [than] we could have imagined in advance.’ Therefore, an adaptive approach seeks to manage starting conditions and advance toward a loosely defined end along pathways that emerge along the way. David J Snowden, ‘Multi-ontology sense making: a new simplicity in decision making’, <http://kwork.org/stars/snowden/Snowden.pdf>.
of the defensive or the offensive, or of one sort of weapon over the other, but just temporary advantages gained by particular strategies and technologies that go unanswered for a time by less adept adversaries.66

Perhaps as a push back against the technological deterministic thesis, other contemporary theorists developed an antithesis. The antithesis is a set of related theories variously known as Fourth Generation Warfare, War Amongst the People, Hybrid Warfare or Compound War. In a speech to his senior officers, Australian Chief of Army, Lieutenant General Peter Leahy expressed the growing concern at the turn of the century:

That war is complex no doubt seems self-evident. Indeed, the acceptance of the intrinsic complexity of war would seem to be beyond controversy. Unfortunately, that is not the case.

From time to time military professionals have been promised a technological panacea that will eliminate friction, chaos, and even bloodshed from warfare. We are currently living through such a period. Essentially, the debate boils down to a divide between, on one hand, the disciples of Clausewitz and, on the other, the proponents of technological silver bullets, which we are told constitute a Revolution in Military Affairs.

This syndrome grew out of the first Gulf War, but gathered pace after the North Atlantic Treaty Organisation (NATO) air campaign against Serbia. Hopefully, some of its more fanciful manifestations have latterly been chastened by reality.

To some extent the Fourth Generation Warfare theories have become the new thesis. Unfortunately, they are almost as flawed as the technological deterministic theories they countered. Fourth Generation Warfare is a very specific view of the form that contemporary and future wars will take. Fourth Generation theorists stress the trend toward wars among the people in which multiple non-state actors with divergent aims will challenge the technical supremacy of states in ambiguous wars of exhaustion. In fact, many of the theorists argue that war is no longer a useful term. They assert

that future conflicts will be less like war and more like a mix of awkward conflicts and messy humanitarian problems. Retired British General Rupert Smith asserts:

War no longer exists. Confrontation, conflict and combat undoubtedly exist all around the world—most noticeably, but not only, in Iraq, Afghanistan, the Democratic Republic of the Congo and the Palestinian Territories—and states still have armed forces which they use as a symbol of power. Nonetheless, war as cognitively known to most non-combatants, war as battle in a field between men and machinery, war as a massive deciding event in a dispute in international affairs: such war no longer exists.67

Military force, it is argued, is suboptimal for resolving the complex problems that characterise contemporary conflict. Theorists argue that contemporary conflict requires comprehensive approaches involving all the agencies at a government’s disposal (along with non-government agencies and commercial organisations) in which military force is often a lesser means.

The theory is not necessarily wrong, just narrowly focused and incomplete. Moreover, it assigns novelty to aspects of warfare that have existed since antiquity and suggests that warfare changes in a generational fashion, which does not bear out under scrutiny. The idea that contemporary ‘hybrid wars’ require the application of all the means at a government’s disposal to an extent that the Napoleonic wars did not, or the two World Wars did not, is indefensible. The implicit acceptance of the decline of the state and the prediction of a greater role in warfare for non-state actors is also a doubtful conjecture. The 2006 Hezbollah/Israel War is held up by Fourth Generation Warfare proponents as a harbinger of the future, but this logical leap assumes a general change in warfare based on a single and unique context. These factors dangerously diminish the importance and likelihood of wars between states.

Many contemporary theorists also contend that success in war is a function of the ability to persuade civil populations of the merits of one narrative over another.68 They


68 As an example of this particular line of thinking, the following paper contends: ‘In Afghanistan there is a cacophony of narratives. Historical narratives defeated great powers from Alexander
argue that war is a battle of stories in which convincing people to believe one story at the expense of someone else’s is more decisive in realising a policy objective through war than defeating those intent on armed resistance. Consequently, many military professionals have come to view war as a grand battle of influence and governance in which one side tries to ‘out govern’ or ‘out story’ the other.

The assumption that an ambivalent populace is willing to listen to and reflect upon, let alone believe, the story put forward by one or both warring parties is highly doubtful. The greater tendency is for populations to opportunistically support the side that happens to be in control of the area in which they live at any point in time, and to make sure they do not anger the side they think will ultimately win. After all, the use of force is normally the last resort of a polity that is unable to achieve its aims through non-violent means. The winner in a civil war, for example, is the side that ends up governing, not necessarily the one that governs best. Many revolutionaries have won wars only to form oppressive governments. Poor government by the winner may be the seeds of the next war (or may result in a pause before the original motive bubbles up again), but this likelihood does not invalidate the premise.

The result of the influence of contemporary theories of war is that professionals, bureaucrats and statesmen alike consider that operational art is inclusive of a wide variety of activities well outside the scope of action taken against an enemy. In the minds of many, operational art has become synonymous with solving human social problems; conflating operational art and domestic politics. Like strategy before it, operational art has come to mean everything, and as a result, now means nothing. It is probable that contemporary confusion about war and warfare is both a symptom and a cause of the growing meaningless of the terms ‘strategy’ and ‘operational art’.

69 Stathis N Kavylas, *The Logic of Violence in Civil War*, Cambridge University Press, Cambridge, 2006, p. 111. Kavylas contends: ‘A robust empirical observation is that the allocation of collaboration among belligerents [in civil war] is closely related to the distribution of control, that is, the extent to which actors are able to establish exclusive rule in a territory.’
Confusion and misunderstanding about the nature of war and its conduct are likely to contribute to flawed assessments as to the utility of force in international policy, flawed strategy to realise a better peace, and unnecessary internal friction within and between agencies prosecuting a war because they do not understand each other and their roles. Reflection on the evolution of modern warfare leads to the following useful descriptions of tactics, operational art and strategy. These descriptions set the stage for the prescriptions for mastering operational art and strategy outlined in the next section.

**Tactics Defined**

*Tactics* are proven combat methods for achieving objectives within a campaign (regardless of the scale of the participating force or the command level involved). There is a body of knowledge pertaining to tactics, which means that it is possible to describe tactics in manuals, teach tactics and, of course, apply tactics. There are tactics for the employment of a troop of tanks (e.g. minor tactics) through to the application of force by large formations (e.g. formation tactics). Tactics pertains to methods of attack, defence, advance, pursuit, penetration, infiltration, envelopment, etc.

A *tactician* has knowledge of and applies tactics. The mating of the term ‘tactics’ with the terms ‘techniques’ and ‘procedures’ in contemporary use affirms the notion that tactics relate to method and application. For that reason, tactics is *not* a level of war and tactics are *not* planned. One plans operations to conduct or apply tactics. Therefore, tactics provide the foundation for planning specific operations.

**Operational Art Defined**

*Operational art* imposes a governing logic on tactics. It sets forth a combination of actions and *logistics* sequenced in time and space to achieve an intermediate objective within a campaign. Operational art, therefore, pertains to the design, planning and execution of operations (regardless of scale or command level involved). Unlike tactics, operational art cannot be taught from a manual.
An operation is a sequence of engagements and other actions directed towards the achievement of an intermediate goal within a campaign. Operations are planned in order to apply tactics and materiel to unique situations (e.g. terrain, forces available, enemy dispositions, etc) to achieve specific ends. An operation, both historically and linguistically, is a single event, more akin to a sequenced battle than a sequenced campaign. For example, Operation OVERLORD was an enormously complex amphibious assault with all kinds of moving parts, but all with the intent of getting on the beach in a single massive battle. Cobra, Goodwood, Market-Garden, and Anvil were also ostensibly very large battles. These operations and all the other Allied operations in the European Theatre together make up the campaign.

The operations plan is a plan for an operation. It ought to direct, coordinate and logistically enable actions that lead to the achievement of the operation’s objective. An operations plan ought to have a scheme of manoeuvre and coordinating instructions. It should prescribe the tasks of the forces conducting the operation, and prescribe how the scheme is to be logistically enabled. Operations are essentially a function of planning, have no relationship to the scale of organisation conducting them or level of command prosecuting them, and do not constitute a level of war.

Operational artists impose a governing logic on tactics. Being a tactician is, therefore, a necessary condition for one to be an operational artist. Operational artists manoeuvre forces and materiel to have them in position at the right place and right time so that engagements are fought with the greatest possible advantage over an enemy. Operational art might just as easily be described as ‘applied tactics’.

The operational artist makes use of the outcomes of engagements to realise a successful conclusion to an operation. However, at the highest levels of command, it is the supreme commander, not the theatre commander, who determines how the successful attainment of an operational objective or failure in an operation will link to the next step (the next operation) as well as the broad range of possible steps thereafter. This ensures operations remain coherent with the shifting context of the war and the war policy.

Given war’s dynamic nature, each operation is contingent on the outcome of the previous and requires some anticipation of the future akin to a master chess player (keeping in one’s mind a range of possible outcomes and future directions). It would be imprudent for the strategist to prescribe a series of operations for the theatre commander as one might articulate an engineering project, because this would
diminish his capacity to recognise and exploit opportunities presented by unanticipated and disproportionate outcomes from an operation. Moreover, campaigns tend not to progress along preordained pathways. Operations fail, resulting in setbacks, and initial conjecture tends to be inaccurate. Most importantly, prescribing all the operations for the theatre commander at the outset would also diminish the role of strategy in using operations for the purpose of the policy object.

While one operation is underway the next one or two ought to be subject to planning. This planning should be dynamic and constantly adapted to the circumstances generated by the progress of the current operation and changes in the broader context. Therefore, future planning of operations demands that there be a frequent, open, candid and continuous discourse between the commander of the forces conducting operations and the supreme commander, who is setting the scope of actions within the theatre (between the operational artist and the strategist).

An operation will, more than likely, entail collaboration with allies, government agencies, local authorities and non-government agencies. However, an operation is not inter-agency in itself. An operation is a military activity directed against an enemy or enemies. Part of the operational art is keeping the engagements and other activities coherent with an ambiguous and dynamic context made more so by the disparate and often competing aims of agencies and organisations notionally on the same side.

An operational artist conducts an operation with the broad view of operation success in mind, but recognises that success has many guises. This broad view of success enables the operational artist to seize and exploit unforeseen opportunities that might realise success in a different but suitable form. The operational artist should have sufficient freedom to work within the propensity of the events as they unfold in order to make the best of current circumstances, rather than just forcing a preordained scheme of manoeuvre on unrelated events.

**Strategy Defined**

The word ‘strategy’ derives from the Greek word *strategos*, meaning the art of the general. Strategy, in the classical sense, is the use made of the engagement for the purpose of the war. Given that operations provide the governing logic for engagements, strategy is more accurately the use made of the operation for the purpose of the war.
Strategy, therefore, is an art that pertains to the conduct of war. Strategy should not be confused with statecraft, which, among other aspects of government practices, includes the use made of the war or the threat of war for the purpose of a policy objective. Statecraft is the domain of the statesman whereas strategy is the domain of the General Officer charged with the conduct of the war (the supreme commander). Strategy relates to the application of violence within war.

A war might consist of multiple campaigns or just one. A campaign is the sum of operations conducted in a specific theatre of war (a campaign is defined by geography, not by time). A campaign design is the plan for a campaign. Unlike an operations plan, a campaign design should not seek to direct or coordinate operations. It should have only the broadest of milestones and intermediate objectives if at all. It is not a roadmap or a project. A prudent campaign design is most accurately described as a framework which enables (and constrains) the theatre commander to prosecute the operations that will realise the campaign objective and provides scope for the supreme commander to leverage the opportunities created by the successful conduct of discrete operations (or mitigate the failure of operations). Therefore, the design and planning of campaigns is a function of strategy, not operational art.

The circumstances of a campaign at any given moment are a product of a chain of decisions, actions and events. Each operation opens up and closes off options for future decisions and action. Therefore, each operation is an experiment, set forth to create a new and positive circumstance that enables the next experiment. An operation is, therefore, an opportunity to learn and adapt. To this end, strategy might be seen as an exercise in the creation of opportunity. The critical choices in war such as the decision to invade Italy after success in North Africa in the Second World War, the decision to invade the Philippines rather than Formosa in the South West Pacific Theatre in 1945, or the German decision to divert forces away from Army Group Centre in 1942 are examples of strategy in practice; opening up or closing off future options and creating and exploiting opportunity. Therefore, a campaign design ought to be consistent with adaptive approaches to problem solving and serve five primary functions: defining boundaries, apportioning means, setting forth operations, exploiting and reinforcing positive outcomes, or abandoning operations that have a negative relationship to the policy objective.

---

70 This could be regarded as trying to create a positive attractor in the language of complexity science.
A campaign design defines success in the broadest of terms, it defines the theatre within which operations will take place, assigns sufficient and appropriate means to the theatre commander with which to conduct operations, and sets other constraints on the conduct of operations. Constraints might include, for example: ruling out certain alternatives, prohibiting the destruction of certain civil infrastructure, exempting certain territory from operations, limiting the use of aerial bombardment, imposing critical time limitations, and prescribing mechanisms for cooperating with allies, local authorities and other civil agencies. When the war encompasses multiple theatres and multiple campaigns, the strategist will unify the purposes and actions of the various theatre commanders within a war plan (e.g. the First and Second World Wars). Similarly, when a campaign is on such a scale as to include multiple operational commanders and the conduct of simultaneous operations within the theatre, the strategist should unify the operations to give them coherence (e.g. the Eastern Front 1941–45 or Afghanistan currently). Whereas the operational artist is focused primarily on the successful conduct of the operation, the strategist is focused on making use of the operations’ outcome for the purpose of achieving the campaign’s objective and military victory in the war in light of the broader context.

Operational art is focused on acting within constraints. Strategy is concerned with manipulating the constraints on action to improve the fit between the outcome of actions and the policy objective. Political scientist, Colin Gray, asserts:

The key to strategy, certainly to thinking strategically, is the simple and rather off-putting question, ‘So what?’ Strategists are not interested in the actual conduct of regular or irregular war. Their concern is what that conduct means for the course and consequences of a conflict. 71

This idea should not imply that strategy is an exercise in introspection and generalities. On the contrary, the strategist ought to apply a great deal of rigour to the design of campaign constraints and means because these constraints and means determine the pattern of campaign conduct and the war. In order to determine the forces and materiel sufficient and appropriate to achieve the campaign aim (to not try and do too much with too little) the campaign planners must take tactics into

account and should explore as many campaign permutations as possible. This level of anticipation requires generating schemes of manoeuvre and detailed plans, but it would be imprudent for the supreme commander to use the resulting plans to lay out a roadmap to victory or a predetermined sequence of operations for the theatre commander, lest he run the risk of pursuing a plan made irrelevant by the unpredictable course of events. He should also resist the temptation to define success too specifically. The supreme commander affects the campaign primarily by modifying the scope and context of the theatre commander’s actions; for example, expanding the theatre, opening a new theatre, redefining success, relaxing specific constraints or imposing new ones, assigning additional forces, and determining the aim of subsequent operations.

Victory in a war (the defeat and disarmament of an enemy, or compelling the enemy to come to the negotiating table) does not, in itself, constitute the achievement of the policy objective of the war. Just as the outcome of an operation opens up or closes off opportunities for subsequent operations, the manner with which a campaign is conducted and concluded enables or constrains the statesman’s ability to make use of the campaign to realise his war objective (to conclude the war and establish a better peace). Therefore, strategy is the point of political/military interface.

Strategy connects the conduct of war with the intent of politics. Because war is an extension of policy the statesman ought not abrogate responsibility for its prosecution to the supreme military commander. The statesman ought to remain engaged in the conduct and progress of campaigns, and ought to influence their course by direct intervention in the design and conduct of operations when it is prudent to do so (e.g. as the great statesmen such as Bismarck, Lincoln, Churchill and Thatcher did). Canadian Colonel Pierre Lessard asserts that:

Strategy formulation is also intellectually perplexing, as attested by Eisenhower’s wartime admission that ‘the struggle to secure the adoption by all concerned of a common concept of strategical objectives is wearing me down.’ One of these difficulties is how purely political reasons can drive strategy itself, as opposed to merely stipulating the higher purpose. To continue the World War II example, US strategic planners were opposed to a landing in North Africa in 1942, but Roosevelt ‘considered it very important to morale, to give [the United States] a feeling that they are at war, to give the
Germans the reverse effect, to have American troops somewhere in active fighting across the Atlantic.’ Military officers could be tempted to see such political influences as something sinister, but in fact they merely reflect the nature of politics. Roosevelt was simply the best judge of how to maintain the public support necessary to the prosecution of a cataclysmic war like World War II. In this case, it meant forsaking possibly sounder shorter-term strategy for longer-term prospects of victory.72

The campaign design’s ‘framework-like’ form accepts this reality, enabling appropriate and timely interventions in operations by both the statesman and his war chief.

Similarly, the supreme commander ought to be consulted (along with other policy advisors and policy-makers in and out of uniform) in the creation and revision of war policy. He ought to communicate his judgment as it relates to the feasibility, suitability and acceptability of policy, and the chance and risk associated with the statesman’s proposed war objectives. To these ends, the supreme commander and the statesman should maintain an open, candid and constant discourse that reflects the dynamic relationship between the ebb and flow of the war and the war policy.

The Relationship between Operational Art and Strategy

The relationship between operational art and strategy is brilliantly illustrated in the following letter from Commanding General of the United States Army, Lieutenant General Ulysses S Grant, to Head of the Military Division of the Mississippi, Lieutenant General William T Sherman in 1864:


April 4, 1864

General: It is my design, if the enemy keep quiet and allow me to take the initiative in the spring campaign, to work all parts of the army together, and somewhat toward a common centre. For your information I now write you my programme, as at present determined upon.

I have sent orders to Banks, by private messenger, to finish up his present expedition against Shreveport with all dispatch; to turn over the defense of Red River to General Steele and the navy, and to return your troops to you, and his own to New Orleans; to abandon all of Texas, except the Rio Grande, and to hold that with not to exceed four thousand men; to reduce the number of troops on the Mississippi to the lowest number necessary to hold it, and to collect from his command not less than twenty-five thousand men. To this I will add five thousand from Missouri. With this force he is to commence operations against Mobile as soon as he can. It will be impossible for him to commence too early.

Gillmore joins Butler with ten thousand men, and the two operate against Richmond from the south side of James River. This will give Butler thirty-three thousand men to operate with, W. F. Smith commanding the right wing of his forces, and Gillmore the left wing. I will stay with the Army of the Potomac, increased by Burnside’s corps of not less than twenty-five thousand effective men, and operate directly against Lee’s army, wherever it may be found.

Sigel collects all his available force in two columns, one, under Ord and Averill, to start from Beverly, Virginia, and the other, under Crook, to start from Charleston, on the Kanawha, to move against the Virginia & Tennessee Railroad.

Crook will have all cavalry, and will endeavor to get in about Saltville, and move east from there to join Ord. His force will be all cavalry, while Ord will have from ten to twelve thousand men of all arms.
You I propose to move against Johnston's army, to break it up, and to get into the interior of the enemy's country as far as you can, inflicting all the damage you can against their war resources.

I do not propose to lay down for you a plan of campaign, but simply to lay down the work it is desirable to have done, and leave you free to execute it in your own way. Submit to me, however, as early as you can, your plan of operations.

As stated, Banks is ordered to commence operations as soon as he can. Gillmore is ordered to report at Fortress Monroe by the 18th inst., or as soon thereafter as practicable. Sigel is concentrating now. None will move from their places of rendezvous until I direct, except Banks. I want to be ready to move by the 25th inst., if possible; but all I can now direct is that you get ready as soon as possible. I know you will have difficulties to encounter in getting through the mountains to where supplies are abundant, but I believe you will accomplish it.

From the expedition from the Department of West Virginia I do not calculate on very great results; but it is the only way I can take troops from there. With the long line of railroad Sigel has to protect, he can spare no troops, except to move directly to his front. In this way he must get through to inflict great damage on the enemy, or the enemy must detach from one of his armies a large force to prevent it. In other words, if Sigel can't skin himself, he can hold a leg while some one else skins.

I am, General, very respectfully, your obedient servant,

U.S. Grant, Lieutenant-General.

In the letter, Grant (President Abraham Lincoln's supreme commander, the strategist) expresses his design for the remainder of the war. He recognises the war's contingent nature and avoids prescribing anything more than the purpose of the various campaigns of his theatre commanders and the objectives of their next operations. Grant provides a unifying logic to the various campaigns and provides the campaign frameworks (the scope of the campaigns) for each of the theatre commanders (explicitly refraining from providing a detailed plan for the conduct of
Sherman’s campaign). He sets the minimum of essential constraints and apportions the right mix of forces to the respective theatres. He accepts the contingency imposed on events by a reactive and thinking enemy and defines success in the broadest of possible terms.

The problems facing the operational artist and strategist are unique and dynamic. Therefore, original and innovative thought are instrumental in the conduct of successful operations and campaigns. US military historian, Robert Citino asserts that:

> there is no ‘one size fits all’ prescription for decisive victory on the operational level. It is appropriate to recall the German admonition, *Kein Schema*, here. Indeed, there is ‘no formula’ for success. Buzzwords and fads come and go, such as the U.S. Army’s current obsessions with systems analysis, the ‘information society,’ and ‘asymmetric warfare,’ but the true military intellectual should know enough by now to disdain them. Rather than seek an overarching theory of war, military planners should steep themselves in a ‘relentless empiricism,’ in the words of two contemporary scholars.73

Operational art and strategy are problem solving in the pure sense. The operational artist and strategist must view each problem in terms of purpose, context, forces and materiel. They are armed only with their understanding of the enduring nature of war, tactics, logistics, the characteristics and capabilities of the forces at their disposal, human behaviour in war (the effects of death, fear, fatigue, surprise, shock, defeat, victory and leadership), and a mental catalogue of fragments of experience and historical examples. It follows that the better the artist understands these variables the better his performance will be. Buzzwords, fads, and ill-formed theories serve only to obfuscate the purity of the operational art and strategy expressed herein.

Before concluding this section of the guide, it is important to address a couple of outlying issues that complicate the discussion: the concept of grand strategy, the applicability of operational art and strategy for small military contributions to large coalitions, and the application of military means to achieve policy objectives in contingencies other than war.

---

73 Citino, *Blitzkrieg to Desert Storm*, p. 301.
Grand Strategy

Michael Howard defines grand strategy as ‘the mobilisation and deployment of national resources of wealth, manpower and industrial capacity, together with the enlistment of those of allied and, when feasible, neutral powers, for the purpose of achieving the goals of national policy in wartime’. \(^74\) Grand strategy might just as easily be described as the practice of statecraft in war. In fact, Liddell Hart said as much when he said that grand strategy serves to bring out the sense of ‘policy in execution’. \(^75\) It is the application of all elements of national power for the purpose of the war. It includes, for example, the work of the diplomat in a third country to isolate an enemy from a source of supply, the mobilisation of industry to increase the production of arms and equipment, the maintenance of alliances, the application of available means to impose economic costs on an enemy, and public diplomacy to rally the publics of other nations around the cause. Grand strategy applies within war, and should not be confused with routine national security policy-making, diplomacy, mobilisation planning, contingency planning and defence policy-making, all of which apply in peace as well as war. Grand strategy is the art of the statesman. It pertains to statecraft as distinct from the military art of strategy.

Operational Art and Strategy for Minor Partners in Big Coalitions

Given the above descriptions of operational art and strategy, and the likely threats against Australia and its interests, the need for ADF officers to master the operational art and strategy is self evident. Operational art is always necessary, regardless of the scale of the contributed force and the level of command, lest engagements and other actions take place without any congruency with the purpose of the war or the contributing government’s motive for sending the force.


Perhaps a more difficult question to answer is whether the contribution of small forces to large coalitions is a function of strategy? Some might argue that in these circumstances the important decisions are ones of policy because policy dispatches a small force which acts on the orders of an allied theatre commander within the framework of a coalition campaign plan. However, in circumstances where Australia is a contributor of a small force to a large coalition the boundaries, means and object of the contributed force must be well thought out, properly articulated, and modified in light of a changing context. This is the domain of strategy. Whether a plan for all this is regarded as a campaign plan or not is not that important, although calling the governing logic and constraints imposed on a small contribution to a larger coalition a campaign plan runs the risk of blurring the meaning of a campaign.

**Operational Art, Strategy and Military Support to Policy Objectives in Non-Warlike Contingencies**

Whereas the terms ‘strategy’, ‘operational art’, ‘campaign’ and ‘operation’ have utility for contributors of small forces to big coalitions at war, the terms are of limited utility for military participation in activities outside of war. No other human enterprise or environmental catastrophe share war’s particular nature. Different rules apply. Missions carried out by the military in support of policy objectives for contingencies outside war belong to statecraft, not strategy. For example, arms control, peace keeping, humanitarian assistance, counter-terrorism and aid to the civil power in domestic emergencies belong to the realm of statecraft. Diplomats and government representatives ought to direct the actions of a range of government means to achieve the ends of policy in these circumstances. This said, from the military’s perspective, many of the principles of strategy probably still apply when addressing these types of problems. Moreover, there are tactics for applying military means in many contingencies outside of war and there are operations to be planned. However, the military’s utility as an instrument of policy in these types of instances is merely a corollary of its design for war. The military professional should always be cognisant of dealing with these non-war events on their particular merits, rather than treating them as akin to war. This is why strategy and operational art in the pure sense are probably inappropriate outside of war.
The Constraints on Operational Art and Strategy in the Australian Context

ADF doctrine reflects the conflation of strategy and policy that occurred after the Second World War. The effect of conflating strategy and policy is to view war as battle and to force operational art to do duty for strategy. The problem is further exaggerated by the doctrinal treatment of war as akin to any other national security emergency, the doctrinal codification of three levels of war (tactical, operational and strategic), and the rigid doctrinal alignment of the levels of war with echelons of the ADF, the Defence bureaucracy and government (see Fig 2). These three doctrinal precepts lead to three insidious consequences.

Figure 2. The ADF doctrinal alignment of levels of war with echelons of the ADF, Defence bureaucracy and government.

76 ADDP-D, The ADF’s foundational doctrinal publication states: ‘Defence has a military strategy that sets out the ways the Government can employ the ADF to achieve national security objectives. Australia’s Military Strategy (AMS) is divided into strategic tasks, which describe the military contribution to dealing with a wide range of threats in peace and war.’
The first of these consequences is that doctrine fails to articulate the difference between an operation and a campaign (and an operation plan and a campaign design). In fact, ADF doctrine treats campaigns and operations as the same thing to a greater or lesser degree, differentiating them by scale and time. The conflation of operations and campaigns means that doctrine fails to capture important ideas about the differences in planning an operation vice designing a campaign, the role of strategy in the prosecution of the campaign, and the relationship between strategy and operations.

The second consequence of conflating policy and strategy and codifying levels of war is that the doctrinal alignment of CJOPS and operations planning obliges doctrine developers to create an artificial layer of ‘strategy’ between CJOPS (the supreme commander) and the statesman. This layer of bureaucracy and process disconnects the statesman from the execution of the campaign or campaigns, thereby diminishing the discourse between the statesman and the man responsible for their prosecution. CJOPS is isolated from the minister by a level of Defence Department policy advisors and policy-makers in the mistaken belief they are in fact strategists. This disconnection is likely to constrain the important and dynamic interplay between strategy and policy in war.

The last of the three consequences is the doctrinal expression of strategy and operational art as a system of prescribed responsibilities, jurisdictions, processes, and

---

77 ADDP 5.0 states: ‘Campaign and operation plans are the output of operational art and design and convey the operational level commander’s vision for how they see operations unfolding. The campaign and operation plans are translated into actionable detail by operation orders and operation instructions. As a minimum, the plans should clearly set out the following:

- the overall effects desired, relative to the enemy;
- the relationship between key objectives and the endstate;
- key objectives, their relative importance, and the sequence in which they are to be achieved in order to defeat the enemy’s COG and achieve the operational endstate;
- how success will be measured, what conditions should be achieved before the operational endstate can be said to have been achieved and how this relates to the strategic goal; and
- the assignment of forces and resources and the necessary command and control arrangements needed to achieve the endstate.’
activities, documents and forums. By expressing strategy as a bureaucratic system, ADF doctrine reduces the role of the supreme commander to that of a bureaucrat with a bit part in the broader system. The effect is to diminish institutional thinking about operational art and strategy, because a mind educated in the military arts is less important than an understanding of the bureaucratic system and its various steps, jurisdictions and outputs. Judgment and talent is essentially marginalised. The dominance of bureaucratic process over professional judgment is reflected in the curricula of the ADF’s senior command and staff schools. The study of the great military theorists, historical campaigns and operations, and the commanders that directed them is virtually absent from the Joint Professional Military Education System.78 There is, however, no shortage of subjects relating to the day to day management of the ADF and the Defence Department, international relations, strategic studies, government and bureaucratic systems.

These three issues, and the contemporary tendency to view wars as one might consider an engineering problem, constrain the practice of operational art and strategy in the ADF. The next section of the guide provides guidance to the student of operational art and strategy to overcome these constraints.

---

78 Michael Evans argues in his article, ‘The Closing of the Australian Military Mind: The ADF and Operational Art’. ‘In the current [Joint Professional Military Education] system, intellectual activity remains resolutely fixed at the strategic-tactical interface. There is, for example, no significant theoretical analysis of operational art presented in the Joint Operations Component in the Australian Command and Staff College (ACSC) course and there appears to be no continuum between operational art, policy analysis and strategic art evident in the curriculum of the Centre for Defence and Strategic Studies (CDSS). Moreover, in the current ADFWC Campaign Planning Course, only 100 minutes are devoted to consideration of the intricacies of operational art.’
Section II – Mastering Operational Art and Strategy in the Australian Context

If you discover how ... [Bonaparte] inspired a ragged, mutinous, half-starved army and made it fight as it did, how he dominated and controlled generals older and more experienced than himself, then you will have learnt something.

— General Sir Archibald P Wavell

Wisdom, which may be defined as the exercise of judgment acting on experience, common sense and available information.

— Barbara Tuchmann

Whereas the first section of this study paper is deliberately descriptive, Section II is decidedly pragmatic and prescriptive. While it tries to avoid prescribing strict methodologies, Section II does not shy away from recommending practical ways of improving the practice of operational art and strategy in light of the stilted Australian view of the two disciplines. These recommendations are organised into two broad subject areas. The first subject area is professional military education. The second subject area is campaign design.

This is a study paper, not a paper recommending changes to those elements of ADF doctrine and military culture that constrain the practice of operational art and strategy. Therefore, doctrine is accepted as it exists at the time of writing. It is possible that this study paper might prompt doctrinal, cultural and organisational reform, but this is not its purpose. Its purpose is to support the education of the student of operational art and strategy. It raises the students’ awareness of the evolution of operational art and strategy, and enables students to explore operational art, strategy and decision making beyond the constraints of ADF doctrine and the competency based learning environment. Foremost, the study paper offers some guidance to enable students to make better use of the Joint Military Appreciation Process (JMAP).
Professional Military Education

The first pragmatic assertion of this guide is that the study of war and warfare is the only means by which one can truly master operational art and strategy. The effect of conflating strategy and policy, the doctrinal treatment of war as akin to any other national security emergency, the doctrinal codification of three levels of war, and the rigid doctrinal alignment of the levels of war with organisational echelons is to diminish the imperative to study war and warfare. The great commanders were all, almost without exception, voracious readers of military history and theory, and lifelong students of war and warfare. Examples include: Frederick the Great, Napoleon, von Moltke, Patton, Eisenhower and Petreaus. Lifelong professional military education is fundamental to effectiveness in the operational art and strategy.

The foundation of professional military education is historical study. The learning of tactics, techniques, procedures and principles is not without utility. However, they do not prepare the mind in the same way that the study of military theory, wars, warfare, campaigns, operations and battles (and the commanders who conducted them and the behaviour of soldiers within them) can. Knowledge of tactics and techniques is the foundation for the operational artist and strategist because they reveal the realm of the possible within war. However, study (in the absence of experience) prepares the mind better than tactical training because it prepares the mind with an understanding of the complex relationship between context and the ends and means of war.

The human brain is a pattern matching system more than it is an information processor. The brain stores experiences or fragments of experience that it combines in ways not fully understood. It is able to draw on these memory combinations to recognise patterns in what it experiences and from this derive a suitable ‘first-fit’ response (experience might include the vicarious experiences of others that have been synthesised through reading and reflection). This capacity is known as intuition.

Intuition, despite popular belief, is not something innate, but something that grows out of experience. Given that a military professional’s experience of war tends to be quite narrow in a normal career, and given that it is impossible to experience

80 Ibid., p. 33.
being an operational commander or a supreme commander until one does it, the only suitable way to prepare the mind is through reflection on the recorded experiences of those who have gone before, supported by simulations and exercises. Good military judgment, therefore, is largely a function of the study of military history and an appreciation of the ideas of the great military thinkers. Therefore, preparation of the mind with as many fragments as possible is critical in the development of operational artists and strategists (noting Clausewitz’s assertion that deep study of a few operations and campaigns is better than the superficial study of many).

The tendency for ADF doctrine to favour lists of synthesised principles inhibits institutional awareness of the importance of study to educate the minds of the operational artist and the strategist. ADF doctrine’s myriad principles, tenets, considerations and the like seem to imply that these alone are sufficient to train the military mind. Many great military minds over the last two centuries have cautioned against the distillation of principles for the conduct of war, yet contemporary ADF doctrine contains more lists of principles of one type or another than ever. Here is a selection of cautions against principles:

I have attended schools where instructors have gotten up and given me nine great principles of war, and I was told that if I absorbed them all and applied them all, I would never lose a battle. Gentlemen that is not war. War is taking any problem exactly as you take a problem of your own life, stripping it down to its essentials, determining for yourself what is important and what you can emphasize to the advantage of your side; what you can emphasize that will be to the disadvantage of the other; making a plan accordingly—and then fighting just as hard as you know how, never letting anything distract you from the prosecution of that conception.81

It is most difficult to understand that the only real lesson from history is that there are no overall theories or doctrines, not any scientific ones at least. Each case is unique; there are too many variables to try to reduce history to a set of rules or lessons learned. In war, events are determined in a dynamic

struggle between two forces. Success is completely relational. One only has to be better than the opponent to win.\(^{82}\)

The problem is that doctrine fails to address the absolute importance of context, the filters through which the principles were generated and the tensions in the relationships between the principles. The importance of context and the tension between principles is only revealed through experience and the study of military history. Given that experience is dependent on there being a war to experience, and recognising that the experience gained in one war is likely to reveal lessons in one context only, study of war and warfare is the superior method.

Head of the UK Land Development, Concepts and Doctrine Centre reminds military professionals that:

Clausewitz, Sun Tzu, Machiavelli, Jomini, Thucydides et al remain as relevant today as they ever were. Provided they are seen in their historical context, enduring truths emerge from them. No surgeon would qualify without having a knowledge of Grey’s Anatomy—no-one responsibly pursuing the profession of arms should seek to ply his trade without a similar understanding of his profession’s seminal and enduring works. Without an understanding of the enduring constants there is a temptation, as conflict evolves, to focus on what is different and new, and to forget or ignore what is timeless. This is particularly true of those who are most closely involved in an ongoing conflict, as it must be their priority to identify and resolve the problems of the current fight. This temptation must be resisted by those responsible for developing a force, or for the policies that underpin that force.\(^{83}\)

History is the landscape of war and warfare. It reveals that human systems at war have a certain nature and certain enduring properties. An understanding of war’s nature and its properties reveals to the student of war the potential in any given situation, although not the model solution. It arms the practitioner with an understanding of the

\(^{82}\) Epstein, *Napoleon’s Last Victory*, p. 2.

\(^{83}\) Head Land DCDC, *Conflict on Land*, p. 3.
characteristics and capabilities of the forces at their disposal, human behaviour in war, and a mental catalogue of patterns and fragments.

Perhaps a more pernicious consequence of prescribing operational art and strategy in the manner of principles and considerations is to imply that good military appreciations and plans are a function of the quality of the staff’s analysis and the quality of the conduct of the steps of a decision making process. This implication diminishes the importance of individual expertise and judgment. Flawed solutions are often believed to be a consequence of failure to prosecute a step of the decision making process adequately rather than a function of the quality of thinking or the inexperience or poor judgment of the commander and his staff. This belief derives from another implicit belief that there is a linear relationship between the level of analysis of a problem and the quality of the solution, which in turn derives from a belief that the brain is an information processing machine rather than a pattern matching system. Consequently, many officers regard intuitive decision-making, or the absence of detailed analysis as irresponsible. In effect the value the ADF places on experience and a deep understanding of war and warfare is less than the value it places in first-rate execution of the decision making processes. Mastery of the process usurps mastery of the art.

Given that the ADF has a competency-based training system it is unlikely that the ADF will come to grips with a system of education that addresses the needs of the operational artist and strategist. The synthesis of complex ideas and treating the mind as a pattern matching system (priming it with a deep and broad personal exploration of war and warfare) sit uneasily with competency-based learning models. For example, there is no easy test or simple measure for judgment and synthesis. At best one might prescribe a test of historical facts or general principles, but this would reveal nothing but the capacity of the student to memorise facts. Even if the Joint Professional Military Education System did adapt appropriately, it alone could not deliver the lifelong education necessary to properly educate the mind in the way that the great generals were able to prepare themselves. Therefore, the student of the operational art and strategy must dedicate themselves to a lifelong study of history outside of the Professional Military Education System. And he must do so in a culture that neither encourages nor enables personal reflection (in fact it might be argued that endemic ‘busy-ness’ positively constrains reflection and study).
Campaign Design

Everyone has a plan until he gets punched in the face.
— popularly attributed to Mike Tyson

There is nothing more important to the operational artist or strategist than to prepare his mind by a lifelong dedication to the study of war and warfare. However, comprehending a complex problem of strategy and tactics, and knowing what to do and when to do it, is not intuitively obvious most of the time. A talented, erudite and experienced exponent is merely the foundation of successful operations and strategy. Operational artists and strategists must inevitably work with others to understand a problem, design a solution and do the planning to put the solution into effect.

The doctrinal process to affect this sequence of activities is the Joint Military Appreciation Process (JMAP). The JMAP is a tried and tested analytical tool that has proven its worth on many occasions. It is almost a carbon copy of the equivalent U.S. Joint Operations Planning Process. It is based on the rational decision making model and in its rawest sense does what the 1934 German *Truppenführung* advised its readers to do: understand the context and the situation and act accordingly. 84 This study paper does not seek to recommend an alternate methodology to the JMAP (by recommending adoption of the US Army operational design methodology for example) or to recommend changes to it; rather this part of the guide aims to make the student aware of different ways to make use of the JMAP that might prove advantageous in certain circumstances.

The JMAP consists of two separate, but related parts. The first steps are conceptual and relate to the process of problem solving. The latter steps organise for action and develop the method by which performance is to be controlled. The first steps are more accurately described as design (design as a verb) whereas the latter steps are more or less planning in the pure sense of the word. Planning prescribes and coordinates the practical actions and means of realising the design (design as a noun). Design requires mainly abductive reasoning to develop a problem hypothesis and create a workable

84 Rational decision-making models involve the development of alternative courses of action and weighing up the alternatives to determine the best one.
solution whereas planning requires mainly deductive reasoning to produce plans and orders for action.\textsuperscript{85}

ADF doctrine does not adequately capture the important difference between the design and planning components of the JMAP. Doctrine regards design as 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] leading to the achievement of the operational endstate.

Doctrine mistakes design for planning, asserting that it is a deductive process. It asserts that ‘operational design is the analytical and logical extension [of operational art], which produces an operation plan’. Therefore, the greater emphasis of the doctrinal prescriptions for operational art and strategy is planning. Operational art and strategy are \textit{arts} because they relate to dealing with problems for which no solutions already exist, for which logically deduced and objectively measurable solutions are not possible, and when it is impossible to explore all options and logically choose the best one. These things lay in the realm of design. Therefore, the focus of the remainder of the guide is the design of campaigns and operations, rather than their planning.

In fact, the focus of the discussion of design herein is the design of campaigns more so than the design of operations (or the design of grand strategy and war policy for which the following ideas might also prove useful). The campaign designer (the strategist) is the one that must frame the problem that the theatre commander will solve through the conduct of operations. The campaign design provides the scope within which others will act. An operation plan, on the other hand, directs actions that achieve an intermediate objective as part of a broader solution. Therefore,

\textsuperscript{85} Renowned business and management academic, Professor Henry Mintzberg, describes planning as: ‘Planning is a formalized procedure to produce an articulated result, in the form of an integrated system of decisions. What to us captures the notion of planning above all—most clearly distinguishes its literature and differentiates its practice from other processes—is its emphasis on formalization, the systemization of the phenomenon to which planning is meant to apply… Formalization here would seem to mean three things, especially (a) to decompose, (b) to articulate, and especially (c) to rationalize the processes… Rationality of this formal kind is, of course, rooted in analysis, not synthesis. Above all, planning is characterized by the decompositional nature of analysis—reducing states and processes to their component parts.’
the campaign designer ought to be more concerned with exploring the scope of the problem (solving the right problem) and therefore working beyond the more prescriptive and reductionist steps in the JMAP. The operations planner, on the other hand, ought to be more concerned with expressing the problem in a way that allows real people and real things to be manoeuvred in time and space to realise tangible outcomes (solving the problem well). Therefore, the JMAP’s planning bias is perfectly suited to him. This is not to say that the remainder of the guide is without utility to the operations planner, it is just to say that the rest of the guide is likely to be of greater utility to the campaign designer.

The key premise of this part of the guide is that war is nonlinear. To recap: The interaction of two or more parties in war is akin to the dynamic interactions between wrestlers in a duel. The wrestlers are interdependent and adaptive entities. The decisions and actions of each are dependent on a range of dynamic factors and stimuli, and entirely unpredictable. In fact, war is rarely a competition between just two discrete parties and the scale of the contest means that a war’s progression is a function of more variables than the human mind is able to fully comprehend. War is dynamic and escapes human control. Therefore, the course of a given war is more than a sequence of the intended effects and actions of opponents because ‘military action produces not a single reaction, but dynamic interactions and anticipations’.86 This phenomenon is known in the scientific world as emergence. The sum of events in war is a dynamic pattern generated by ‘mutually hostile intentions and simultaneously consequential actions’87. The unceasing interplay between opponents in war produces feedback that changes the character of the war, which in turn changes the military instrument and the policy that guides the war’s conduct.88 The relationship between ends and means is neither linear nor static, and opponents in war are not always playing by the same rules. The problems of war are ill-structured.

A problem is a discrepancy between the state of affairs as it is and the state of affairs as it ought to be that compels action to resolve it. Ill-structured problems are nonlinear because they are not proportional, replicable or additive. These properties

86 Beyerchen, Clausewitz, Nonlinearity, and War, p. 73.
87 Ibid., p. 67.
88 Ibid., p. 69.
are a consequence of the ambiguous link between cause and effect.\textsuperscript{89} Nonlinearity derives from the interactions between actors. Ill-structured problems are inherently unstable, irregular and inconsistent. Reductionism and analysis are not as useful with ill-structured problems because they cause the designer to lose sight of the dynamics between the components. The study of ill-structured problems should be \textit{systemic} rather than reductionist, and \textit{qualitative} rather than quantitative. Professionals tend to disagree about how to solve this type of problem. At the root of this lack of consensus is the difficulty in agreeing on the structure of the problem. It is not clear what action to take, because the nature of the problem itself is not clear.\textsuperscript{90}

All in all, the characteristics of ill-structured problems make it difficult to:

- pre-determine all relevant consequences of an action or event, or which actions may bring about a desired future state;
- develop, communicate and analyse understanding of the causal and influence networks operating, not only because of interconnectedness, but also because many nodes and links are hidden or inaccessible;
- translate highest-level objectives into clear and comprehensive measures of success and failure across all the relevant dimensions of the situation;
- detect important weak signals and discriminate them from spurious patterns;

\textsuperscript{89} US Army Field Manual 525-5-500, \textit{Commander’s Appreciation and Campaign Design}, 2008 defines proportionality, replication and additivity as follows: ‘Proportionality means that a small input leads to a small output, a larger input to a larger output. Push down lightly on the accelerator, the car will go slowly, but push down heavily and its speed will increase … \textit{Replication} means that the system will respond the same way to an input under the same conditions. Replication also allows \textit{cause and effect} to be demonstrated. Thus, a driver knows that changing the position of the accelerator causes the speed to change … \textit{Additivity} means that the whole is equal to the sum of the parts. The additive nature of linear systems legitimizes analysis. Analysis reduces the system into progressively smaller components in order to determine the properties of each. In a system that exhibits little interactive complexity, the properties of the whole system can be understood based upon the properties of the components. The most effective way to study such a system is \textit{systematically} and quantitatively using the analytical problem solving. Unfortunately, the operational problems confronting commanders at all levels are rarely linear.’

\textsuperscript{90} Ibid., p. 9.
• achieve vertical alignment between higher intents and consequences of actions;
• achieve horizontal alignment (coherence) between actions of multiple different agents;
• identify alternate stable states that might be reached deliberately, or inadvertently, and evaluate them against espoused objectives and measures of success and failure; and
• identify possible trajectories from the current state to alternate states, and indicators to discriminate them.91

Therefore, the best approach to solving ill-structured problems is an adaptive one. In an ordered problem, cause and effect relationships are self evident or are discernable with some analysis. In an ill-structured problem (in war) however, cause and effect is discernable only in hindsight. This means that ordered approaches to solving ill-structured problems do not work. In fact ordered approaches, in which an outcome is clearly defined, the milestones on the pathway to the outcome are clearly defined, and related conditions and measures of effectiveness are assigned to each milestone, may result in catastrophic outcomes when applied in the wrong circumstances. According to US military theorist, Huba Wass de Czege:

It is useful to describe an envisioned tactical scheme of maneuver toward a near-term tactical objective, and to apply a backward planning logic to tactics that unfold in a short timeframe engagement. It is not useful to do the same for even a small-scale campaign of greater duration. Modern extended missions unfold while immersed in complex and continually-evolving human social situations. The mission-situations of extended operations will tend to evolve continually as the humans within them act unpredictably based on their intentions and beliefs. It would be misunderstanding the nature of open complex human systems to think that backward planning from a visualized ‘end state’ would work, as it would in a closed mechanical or ‘complicated’ system. Imagine trying to draw a route map to a fixed point in terrain that is constantly in motion. And it would be misunderstanding the nature of groups

91 From communications with Dr Anne-Marie Grisogono
of human beings to think that closed (mechanical) system causal logic could be relied upon to change their behavior. Over time, any visualized ‘end-state’ can become irrelevant and over- or under-ambitious, or even unattainable by the road initially taken, simply because imperceptible internal forces continually cause unpredictable change.92

In those problems in which cause and effect are not discernable it is necessary to conduct multiple experiments to see what works and what does not. Experiments that work are built upon and those that do not are disrupted. In such an environment, constant experimentation is required.

A simple illustration of an adaptive approach is knowledge management lecturer, David Snowden’s, well known children's party analogy:

Imagine organising a birthday party for a group of young children. Would you agree a set of learning objectives with their parents in advance of the party? Would those objectives be aligned with the mission statement for education in the society to which you belong

Would you create a project plan for the party with clear milestones associated with empirical measures of achievement? Would you start the party with a motivational video so that the children did not waste time in play not aligned with the learning objectives? Would you use PowerPoint to demonstrate to the children that their pocket money is linked to achievement of the empirical measures at each milestone? Would you conduct an after action review at the end of the party, update your best practice database and revise standard operation procedures for party management?

No, instead like most parents you would create barriers to prevent certain types of behaviour, you would use attractors (party games, a football, a videotape) to encourage the formation of beneficial largely self organising identities; you would disrupt negative patterns early, to prevent the party becoming chaotic, or necessitating the draconian imposition of authority. At the end of the party you would know whether it had been a success, but you

could not define (in other than the most general terms) what that success would look like in advance.93

The premise of an adaptive approach is that it is impossible to make sense of what is happening in complex situations without first interacting with the problem.

Initial analysis of a military problem, regardless of how thorough it is, can only ever lead to an approximation of the situation. Consequently, it is not possible to determine the pathway to an end-state at the outset. Each operation is, therefore, an experiment designed to have a particular effect. This unorthodox idea does not mean that each operation is a random event with a random chance of achieving its intended effect. Human social systems, military forces and wars tend to behave within certain limits and have certain properties. Therefore, even on scant information it is possible to act and get an outcome that approximates what the commander intended. The closeness of the outcome and the intention is, in large measure, a function of the talent and the quality of the judgment of the strategist and the operational artist. The supreme commander’s experience and talent, and that of his staff, are important in knowing what the operation objective should be. The judgment and talent of the operational artist (his ability to coordinate the right tactical actions and motivate his soldiers to fight and win) is important in creating, as close as possible, the outcome intended by the supreme commander. The apparent difference between what the operation commander intended and what he achieved is the opportunity for learning and adaptation.

Successful operations create a positive attractor. This might be as simple as wresting control of a city from an enemy resulting in important positive changes in the dynamic of the campaign, which, if reinforced, is likely to result in stronger subsequent attractors. If the capture of the city seems to have little or no effect on the enemy then it is likely the conjecture that led to the decision to capture the city was wrong, and presents an opportunity to learn before attempting the next experiment/operation. The events surrounding the ‘Sunni Awakening’ in Al Anbar Province, Iraq in 2007 is an example in irregular warfare of an operation to exploit an emergent opportunity and establish a positive attractor. The critical difference between an adaptive approach and

an ordered approach is that the operational artist and strategist treats each operation as an experiment rather than a pre-ordained step on a pre-ordained pathway to a rigidly defined end state.

At a superficial level, the notion of treating military operations as experiments might appear abhorrent. Lives may be at risk based on conjecture for experimental outcomes. The idea is particularly confronting for a risk-averse culture, but entirely appropriate. Concerns derive from the illusion that greater certainty underwrites ordered approaches, which staffs often express in the form of pseudo Gantt charts or detailed hierarchies of linked objectives, effects, conditions and the like. An adaptive approach has a greater likelihood of success than the deceptively responsible, quantifiable and assured steps of an ordered approach. This greater likelihood of success is a function of creating opportunities to make sense of the dynamic situation to an extent not possible through ordered approaches. This sense making gives the operational artist a greater awareness of weak signals that might reveal unanticipated opportunities to bring about success sooner and more easily than forcing a pre-ordained sequence of effects on an uncooperative enemy or an uncooperative populace. Ordered plans to address dynamic problems are always at risk of irrelevancy in light of a constantly changing situation and context.

Strategy, therefore, involves making creative choices from among many continually evolving possibilities. For the strategist ‘right’ choices are not logically deducible from the known facts, and the possible choices cannot be exhaustively evaluated to identify the ‘best’. These are design choices, and they are tantamount to conjectures about what will work and why. To this end, Huba Wass de Czege contends that design is:

Simply making sense of complex situations (making rational the seemingly irrational) so that tactical planning and tactical action can proceed on a sound footing. The object of design is to create a contingent logic, when none is self-evident, that exploits the potential for change toward an improved state upon which to base a tactical plan of action. The more thorough the design inquiry, the better the basis for tactical planning, and the more likely is headway toward mission success.94

The quality of design therefore depends on the understanding of the situation, the quality of the thinking and judgment that produces ideas to exploit the potential for change, and the quality of the processes that challenge conjectures so that they can evolve in a timely manner to more closely resemble the actual situation.

A failure to appreciate the nonlinearity of war is likely to lead to ordered solutions to complex problems. ADF doctrine’s implicit acceptance of the logic of effects based theories and its failure to address the nonlinear nature of war are significant flaws. Implicit in the language and illustrations of ADF doctrine is the tacit idea that war is a well-structured problem that ought to be addressed with ordered solutions. For example, the greater part of one contemporary Australian campaign plan resembles, at best, a project schedule, at worst, a glorified ‘to do’ list and timetable. Therefore, the following suggestions are specifically intended to enable the student of operational art and strategy to use existing processes to develop more adaptive solutions.

**The Elements of Design**

Design has three elements: understanding the context of a problem, defining the problem, and creating the solution. Within the JMAP these correspond roughly with intelligence preparation of the battlespace, mission analysis and the development of broad courses of action. The remainder of the JMAP relates more to the process of organising for action and controlling performance (the meat on the bones that allows for the production of actionable orders). The contention of this paper is that by emphasising the design parts of the JMAP, it might be possible to diminish the tendency for practitioners to produce ordered solutions to the dynamic problems of war. Therefore, the following guidance supports better use of the design parts of the JMAP for the design of campaigns and operations. Moreover, the following guidance provides a solution to the problem of how to continue the appreciation process during the execution phase of the JMAP within larger headquarters. The following guidance augments rather than replaces existing doctrine and is divided into the following broad subject headings:

- Begin with divergent thinking
- Remain cognisant that strategy is dynamic not static
• Seek to disprove conjecture
• Define success in the broadest possible terms
• A campaign design is a framework for action not a plan
• Maintain a candid and frequent discourse with the statesman
• Accept risk in order to exploit opportunity
• Establish a system of learning
• Maintain an adaptive mental stance

Begin with Divergent Thinking

In order to properly understand the context of a war (or a campaign) and describe the problem to be solved it is useful to begin the process of design with divergent thinking. The JMAP, in its current form, implicitly accepts a mission as given and leads the commander and staff through a process of reduction to understand its parts. The JMAP is biased to favour convergent thinking, which ‘follows a particular set of logical steps to arrive at one “correct” solution’.95 Divergent thinking, on the other hand:

is a thought process or method used to generate creative ideas by exploring many possible solutions ... in a spontaneous, free-flowing manner, such that many ideas are generated in a random, unorganized fashion. Many possible solutions are explored in a short amount of time, and unexpected connections are drawn.96

Divergent thinking does not assume that the problem as defined and presented to the strategist (or operational artist in certain circumstances) is properly framed or expressed. Therefore, it explores solutions unconstrained by artificially imposed boundaries and constraints. Given that strategy is primarily about setting the scope of action of the theatre commander it is largely about bounding problems and establishing constraints, therefore divergent thinking is fundamental to good campaign design.

96 Ibid.
Whereas convergent thinking is a process of deduction, divergent thinking is a function of asking the right questions. American historian, Alan D Beyerchen, quotes Henri Poincare and asserts that:

‘Our weakness forbids our considering the entire universe and makes us cut it up into slices. We try to do this as little artificially as possible. And yet it happens from time to time that two of these slices react upon each other. The effects of this mutual action then seem to us to be due to chance.’ Thus the drive to comprehend the world through analysis, the effort to partition off pieces of the universe to make them amenable to study, opens the possibility of being blind-sided by the very artificiality of the partitioning practice. This form of chance is a particularly acute problem when our intuition is guided by linear concepts.

Therefore, divergent thinking implies abandoning some of the rigid prescriptions for the conduct of intelligence preparation of the battlespace and mission analysis. Rather than a deductive and formulaic approach it requires a research/discovery based approach conducted by problem specific multi-disciplinary teams. The research categories used to explore the dimensions of a problem will be unique for each problem and, as the research leads to greater understanding, are likely to require modification throughout the process (categories might include: issue history, culture, demographics, terrain, alliance partners, government, economy among many others). The process is akin to that used by a criminal investigator or an academic researcher. New discoveries lead to new lines of enquiry that advance the knowledge of the commander and the staff in unanticipated directions. This deep enquiry reveals the logic behind the observed phenomena, rather than a superficial understanding of the phenomena. This enables a better understanding of what is possible with the means available, how inherent tendencies in the problem might be leveraged and therefore better anticipation of outcomes. Design is a process of discovery rather than reduction.

Military consultant and writer, John Schmitt, explains the importance of understanding the unique logic of a problem situation in design:

Facing a complex operational situation, the commander assembles a design team and holds an iterative, conversational discourse. The purpose of this discourse is to imagine the situation as a system, to hypothesize a causal logic to explain the behavior of that system and to conceive a logical approach, a counterlogic, for transforming that system through action. The design team uses extensively abductive reasoning—the process of inferring best explanations from limited facts. The resulting operational design is a logic system that permeates all operations by establishing a context for all planning and execution. The rationale is to pull out of the problem itself the logic for solving the problem rather than to apply or adapt some predetermined logic. Once the designers have created the design they continue to test and modify it through argumentation, but more importantly through feedback from the results of implementing the design through action.98

Making sense of the logic of an emerging situation requires digging beneath the surface impressions of symptoms and issues, which are often based on limited and contradictory information.

A design team must perform four functions. The first is organising the team and the work (the J5 or a designated Joint Planning Group Leader from within the plans staff ought to do this). The second function is performance control. Performance control is the function of monitoring the team for biases or the unconscious use of implicit assumptions (any officer from within the staff can fulfil this function). The third function is research (or investigation). The research element of the design team is the greater part. It incorporates a mix of specialists from across the headquarters (and external to the headquarters if necessary) that enable divergent thinking across an appropriate mix of staff functions, expertise and other relevant disciplines. The fourth function is synthesis. Synthesis is the integration of the research and ideas of the design team into a problem narrative and solution (any member of the plans staff can fulfil this function). The lead designer is, of course, the commander. There is no

---

template for the form of a design team and the design method. These ought to be completely dependent on the personality, experience, judgment, talent and wishes of the commander. Many commanders may choose to do design on their own.

Divergent thinking is necessarily time consuming. More often than not problems will demand action well before they are thoroughly understood, properly bounded and described. Therefore, initial action at the outset of a campaign will often require application of the JMAP in its prescribed form to initiate and control the initial action under significant time pressure. A design team, working semi-independent from those planning to set forth the initial response enable divergent thinking to continue (noting that interaction with the problem will reveal much more than remote observation would). Separating design from planning in this way also ensures that the staff is not paralysed through hyper-analysis. The design team, removed from the day-to-day staff process, assists the commander to ask the hard questions that may reveal planning assumptions and conjectures that are wrong, leading to adaptations such as changes to constraints, changes to the definition of success, or setting forth a new operation in a campaign. Given the time needed to conduct divergent thinking, and given the size and shape of design teams, the methods described are probably not possible in anything smaller than a large formation headquarters.

**Remain Cognisant that Strategy is Dynamic not Static**

Exploring a problem in the manner described is time consuming. However, this is only a concern if design is mistaken for planning. Because problems of war are ill-structured it is inevitable that initial actions will derive from an incomplete and inaccurate assessment of the problem. Of course, the better the understanding of the problem the more appropriate the action and the less likely that initial actions will unnecessarily constrain future choices (like the disbandment of the Iraqi Army in 2003). However, the quality of understanding of a problem before any initial action is taken is a function of many variables, not least of which is the time available to conduct initial analysis before acting. Because learning through action is fundamental to adaptive approaches to problem solving, the divergent thinking of the design team is ongoing (and not least because the problem and its context will change).
The role of the design team is, therefore, largely to enable learning, to recognise changes in context and to transition operations as a result (often referred to as reframing). Design and strategy are almost synonymous in this sense. The design team allows the process of problem appreciation to continue through the execution stage of the JMAP. Professor of Comparative Military Studies at the US School of Advanced Air and Space Studies, Everett Dolman, asserts:

And so here is found the crucial difference between strategists and tacticians. The tactical thinker seeks an answer. And while coming to a conclusion can be the beginning of action, it is too often the end of critical thinking. The strategist will instead search for the right questions; those to which the panorama of possible answers provides insight and spurs ever more questions. No solutions are possible in this construct, only working hypotheses that the strategist knows will one day be proven false or tossed aside. Strategy is thus an unending process that can never lead to conclusion. And this is the way it should be: continuation is the goal of strategy—not culmination. Actions taken and actions to be taken are weighty factors in the strategists thinking, of course, but they are elements to be shaped and manipulated, not strict lessons leading to instructions that must be followed. This perhaps counterintuitive assessment animates several discussions on the value of history and social sciences for studying war and strategy, the relationship between the decision maker and strategist, and the many differences between the tactical and operational levels of war vice the truly strategic one.

... The purpose of ... operational decision making is to culminate events, to end them so that the war plan can be updated and modified in support of the political aim. In order to conceive of culmination, of winning, an end condition or set of criteria must be met. Achievement of those criteria is how we know that a win has occurred. Because there is a tactical end to be achieved, demarcation by measurable criteria, it must be bound first in temporal terms. The end must be achieved within a margin of time in order to have the planned effect, or to properly coalesce with other tactical actions. Since the event is bounded in time, then it is also bounded by technology, forces available, weather, and the like. Moreover, it is conditioned
by social and cultural norms and values, and restricted by political dictates (e.g. Geneva Convention requirements). These conditions can be constraining or enabling, but because there are always such limitations on interaction, the tactical contest is defined by war, especially the American form with its many self-limitations, it is also explicitly contained by boundaries. The master tactician understands these boundaries and makes choices with those limits in mind. The strategist, however, conceives of what might happen if those limits were changed, if the boundaries were altered. If the strategist is successful in dictating the terms of the fight, then the probability of a desired outcome in any given combat is raised.99

With Dolman’s observation in mind, the supreme commander ought not produce a strategy like a blueprint for an engineering project. A campaign design expressed in written form should only include: the problem narrative (ostensibly a situation paragraph expressed as a synthesis of everything known about the problem and its context, including a general description of campaign success); any boundaries (physical boundaries as well as any other constraints on operations); apportionment of forces and other means to the theatre commander; the object and purpose of the initial operations; a system of assessment and learning that tests the conjecture on which the design is based (enabling the early identification of opportunities and risks); and the plan for the logistical sinews that will connect the theatre to the national support base.

In its original meaning, strategy is a practice much like surgery is. It is contingent, dynamic and continuous, ceasing only when the war ends. To this end, the design team is akin to the supreme commander’s ‘brains trust’, his intimate advisors who assist him in the practice of strategy and maintain an ongoing discourse with a range of critical actors that is beyond the ability of the supreme commander to do on his own.

Seek to Disprove Conjecture

The role of the design team is to enable learning, to recognise changes in context and to transition operations as a result. Recognising changes in context is a function of critical thinking. Divergent thinking leads to the creation of a problem narrative (essentially a written description of the problem—the issue history). This narrative is a conjecture as to the nature of the problem at hand. In order to recognise changes in context which might require adaptations in response, the strategist should aggressively seek information to disprove the problem narrative (the conjecture or hypothesis). This aggressive effort to disprove conjecture helps prevent the strategist from pursuing operations made irrelevant or counter-productive by changes to the context in which they are executed (e.g. the French High Command in 1940). It helps overcome what historian Barbara Tuchmann describes as wooden-headedness:

Wooden-headedness, the source of self-deception, is a factor that plays a remarkably large role in government. It consists in assessing a situation in terms of preconceived fixed notions while ignoring or rejecting any contrary signs. It is acting according to wish while not allowing oneself to be deflected by the facts. It is epitomized in a historian’s statement about Phillip II of Spain, the surpassing woodenhead of all sovereigns: ‘No experience of the failure of his policy could shake his belief in its essential excellence.’

Therefore, rather than seeking indicators of effectiveness, the strategist ought to collect information against indicators that will let him know if his conjecture is right or wrong. When facts reveal that conjecture is wrong it is time to formulate a new hypothesis and thus, a new design (to reframe).

Define Success in the Broadest Possible Terms

A precise and detailed end-state is useful for ordered approaches to problem solving. In essence, an ordered approach to a problem works from the defined end backwards to trace the critical path to the solution. The more precise the description of the end conditions the easier to discern a specific path to its realisation. A clearly defined end makes planning easy. However, when confronting ill-structured problems (as with Snowden’s children’s party analogy) it is difficult to know what success will look like in advance except in the most general of terms (imagine selecting your spouse based on an ordered approach to problem solving). War is, of course, guided by a rational policy objective based on an original motive. The policy objective may be realised in many different forms. For example, the culmination of the Second World War looked nothing like anyone might have imagined at the start. So, too, the recent Iraq War (accepting the fragility of the current situation). In some cases the original policy objective may not be realised at all because policy-makers are compelled to change it (e.g. the Korean War). Success does not need to take a specific single form to enable the statesman to realise his policy objective.

Defeat of an enemy can take many different forms. In fact defeat may not be necessary if the enemy is compelled to make an acceptable compromise before he is destroyed and disarmed. The power of this idea is that alternate pathways to success are likely to emerge during the course of a campaign (e.g. the Al Anbar Awakening in 2007). Perhaps more importantly, competent enemies tend to disrupt preconceived campaign (and operations) schedules. The strategist ought to be able to recognise opportunities and threats and be prepared to pursue new solutions that exploit opportunity and deal with the risk of failure as they occur. Ordered approaches are likely to hinder his ability to do so, because the preconceived outcome is contingent on achieving the intermediate conditions.

Defining a point target blinds the strategist to opportunities and tends to encourage chasing past losses in a changed environment. Success defined in too much detail closes off a whole range of options for solving the problem. However, in order to adapt, it is important to set expectations prior to action. Surprise is the key
emotion that triggers adaptation.\footnote{101} Too much ambiguity diminishes this response. The difference between expected and actual outcomes is the learning opportunity that closes the adaptive feedback loop. The trick is to ensure expectations are frequently ‘refreshed’—when an expectation becomes sticky it is as bad as a narrowly defined end-state. While an end-state may not be specifiable, the focus on success is still important. The more clearly success and failure can be articulated, the easier it is for planning, but again there is a trade-off between clarity and acknowledging complexity and uncertainty. To paraphrase Einstein, the criteria for success should be as clear as possible, but no clearer.

A Campaign Design is a Framework for Action, Not a Plan

Given the problem with ordered approaches to dealing with problems of strategy, campaign designs ought to be frameworks that provide the scope for the conduct of operations by the theatre commander rather than linear schedules. The campaign design enables a solution rather than prescribing a solution. It defines success, allocates sufficient means, sets boundaries, sets forth the initial operations and establishes a system of learning. In determining the means it is necessary to explore (plan and wargame) a range of permutations and combinations in order to ensure sufficient and appropriate means are available to the theatre commander. It will also include preparation of the theatre infrastructure to logistically enable the theatre commander. However, these plans ought not be used as prescriptions for the theatre commander. The theatre commander ought to have the maximum possible freedom to be able to create, identify and exploit opportunity, rather than impose a predetermined detailed solution onto the dynamic problem.

\footnote{101} Donald Schon, \textit{The Reflective Practitioner: How Professionals Think in Action}, Temple Smith, London, 1983, p. 68. Schon argues: ‘The practitioner allows himself to experience surprise, puzzlement, or confusion in a situation which he finds uncertain or unique. He reflects on the phenomenon before him, and on the prior understandings which have been implicit in his behaviour. He carries out an experiment which serves to generate both a new understanding of the phenomenon and a change in the situation.’
While there is value in identifying events that may have decisive outcomes in advance, many decisive events in war are only recognisable in hindsight. They are often emergent outcomes of the war rather than preconceived outcomes. For example, the Battle of Gettysburg, arguably one of the most decisive battles of the American Civil War, was somewhat of an accident. Neither side really anticipated it and they certainly did not intend to engage in a battle that would prove to be so decisive. The battle began as a meeting engagement that sucked in the greater part of the two opposing armies in the north-east. The Al Anbar Awakening, a decisive point in the Iraq War, was not the product of deliberate orchestration. Equally, the Tet Offensive created disproportionate and unexpected consequences, proving far more decisive than the North Vietnamese anticipated. The point is that the idea of pre-determining decisive points in advance must only ever be seen as a conjecture. In reality what proves to be decisive cannot be known in advance and only with the aid of hindsight will a particular outcome or event prove to be decisive. In fact what is assumed to be important initially may prove to be inconsequential, and what appears inconsequential may prove to be important. Thus, the campaign design ought to accord with the dynamic nature of war and enable the theatre commander to act in accordance with the flow of events.

A campaign design also ought to resemble a framework rather than a schedule because policy tends to be as dynamic as the events of the war. Pierre Lessard illustrates the point as follows:

Military strategy changes over time. Evolving policy is one reason. For instance, Liddell Hart distinguished between ‘permanent policy,’ which provides the national policy goal, and ‘policy in execution,’ which we would now call national or coalition political objectives. The latter are also likely to be iterative in nature. According to Bob Woodward, for instance, in the run-up to the 2002 US intervention in Iraq, policy was formulated or refined on at least three different occasions. But even steady policy is no guarantee of a correspondingly unalterable military strategy. For example, in the 1999 Kosovo campaign, despite five clear and enduring policy goals, military strategy changed at least three times. Such fluctuations are by no means confined to modern warfare. Indeed, in World War II, Allied military strategy experienced no less than eight major decisions involving significant repercussions for
theater- or operational-level commanders between 1942 and 1945, or about once every five months.\textsuperscript{102}

Consequently, ‘military strategic objectives are rarely enduring, and campaign design must be sufficiently agile to adjust to their fluctuations’.\textsuperscript{103}

**Maintain a Candid and Open Discourse with the Statesman**

Given the dynamic relationship between war and the policy that guides its conduct, a frequent and candid discourse between the statesman and the supreme commander is a critical element of campaign design. According to political scientist, Colin Gray:

Strategy is all about the relationship between means and ends. Again, this is easy to specify, but fiendishly difficult to manage competently. It is always tempting to adopt the attitude that we warriors will win the fights and let politics take care of itself. Or, for a cognate approach, if we keep winning tactically, our strategy will flow agreeably from the cumulative verdicts of the battlefield. In practice, a war may thus be waged all but innocent of political guidance beyond an injunction to win. If the politicians focus on ends, as they should, and soldiers are consumed with means, it is probable that no one will be keeping open the strategy bridge that should be linking military means with political goals. There needs to be a continuous, albeit ‘unequal,’ dialogue between civilian and soldier. War and warfare are permeated with political meaning and consequences. A competent supreme command knows this and behaves accordingly. This dialogue, however, carries implications for civilian participation in military decisions in wartime which run contrary to the preferred military way in American civil-military relations.

\ldots if the strict instrumentality of force is not to be neglected or forgotten, and this is the most important ingredient in the essence of strategy, there

---

\textsuperscript{102} Lessard, ‘Campaign Design for Winning the War … and the Peace’, p. 42.

\textsuperscript{103} Ibid.
has to be a constant dialogue between policymaker and soldier. Policy is nonsense if the troops cannot do it ‘in the field.’ Or, looking at it from another angle, the troops may be so effective in action that policy is left gasping far behind the unexpected opportunities opened by events. On War tells us that ‘[t]he conduct of war, in its great outlines, is therefore policy itself.’ ... ‘at the highest level, the art of war turns into policy—but a policy conducted by fighting battles rather than by sending diplomatic notes.’

The unequal dialogue begins with a discussion of what the problem is, followed by an assessment of the necessary and suitable military means to address it.

The second step in the discourse between the general and the statesman is agreement between the two as to the means necessary for resolution, and broadly, how they might be used to enable the statesman to realise his policy outcome. Given that detailed planning by the theatre commander will not have yet begun, the assessment of the means required is at best an educated guess. Pierre Lessard asserts that even then:

differing assumptions and potential concepts mean that these estimates can vary greatly. A further complication is the fluctuating nature of the military forces required. Post-conflict operations may, for instance, involve more troops than decisive combat operations. Beyond the requirement for the establishment of security and all the other responsibilities of an occupying power, such a force is also instrumental in providing the strategic leverage alluded to before. For example, as late as 20 May 1919, some seven months after the armistice that terminated World War I, the Allies directed the deployment of a force of 42 divisions, including 200,000 American troops, and moved toward renewing the blockade of Germany, ‘preparing for the possibility that the Germans would not sign the peace treaty.’ Elsewhere, the powers controlling the long Versailles treaty negotiations quickly saw their leverage decrease commensurately with the demobilization of their armed forces.

forces. Evolving strategic conditions therefore imply evolving operational-level means, a fact that greatly restrains campaign design.\textsuperscript{105}

Given the great uncertainty of these matters, candid discourse is fundamental. There will always be a tension, however, between the political desire for ambiguity in some aspects of policy and the desire for certainty in others. For example, in order to maintain public support for the continued prosecution of a particular war, the statesman may wish to articulate milestones and demonstrate progress against these milestones. These milestones may prove to be a millstone around the neck of the supreme commander, because they can artificially constrain him from pursuing alternative courses.

Political scientist, Eliot Cohen, argues that the inevitable tension between the supreme commander and the statesman is necessary. He argues that a sometimes hostile dialogue ensures that issues of policy and strategy are thrashed out and settled. In this way uncomfortable assumptions are made explicit. Cohen argues that when a vigorous dialogue between civilian and military leaders is absent, then strategy suffers. Cohen uses the Vietnam War as an example of the price of the absence of discourse. Cohen argues that the dialogue is an unequal one, because in war it is the statesman who makes the important decisions.\textsuperscript{106} Thus, the supreme commander ought to maintain a continuous, frequent and candid discourse with the statesman, unconstrained by bureaucratic forums, committees, processes and schedules.

**Accept Risk to Exploit Opportunity**

If good strategy is largely about exploiting emergent opportunities and acting based on conjecture, and given that the outcome of action is unpredictable, then calculation of the potential costs, risks and benefits of action is fundamental to the practice of strategy (and operational art). According to Head of the UK Land Development, Concepts and Doctrine Centre:

\textsuperscript{105} Lessard, ‘Campaign Design for Winning the War’, p. 43.
Risk is neutral, not negative. It offers opportunities as much as it presents threats. Since Murphy’s Law (what can go wrong, probably will) applies ubiquitously in the land environment, a confident attitude to risk is required. The environment requires commanders and operators who are capable of calculating, exploiting and mitigating risk, making decisions and communicating them clearly. Those who understand that the calculus that needs to be made is simply about when to take the decisive risks (as opposed to how to avoid taking risks) will succeed in maintaining the initiative. This mind-set should be a cultural norm in an effective land force, which may draw its people from a society where the norm is very different.107

The problem is that the calculation is almost entirely one of judgment. Quantifying risk in nonlinear situations is largely impossible. The variables are too many and too unpredictable to accurately apportion numerical values and assign probabilities. Moreover, it is even more difficult to calculate how accepting a great cost now might generate savings later on. Thus, in the absence of certainty, the tendency will be to focus on cost rather than possible benefit, to mitigate negative outcomes rather than risking failure and sacrifice for the possibility of great reward.

The consequence of this tendency to focus on minimising negative outcomes is cautious, conservative, slow and relatively predictable conduct of a campaign, which an audacious enemy can use to his advantage. The better alternative is to act with audacity oneself to bring clarity to an unclarified situation. According to Field Marshall, Sir William Slim, ‘When in doubt as to two courses of action, a general should choose the bolder.’108

Notwithstanding the above, the process of identifying possible hazards, assessing their likelihood, anticipating their effect on an operation, and developing mechanisms to mitigate them is a valid and important part of planning. Moreover, it is a valid and important practice to try and anticipate the possible divergent outcomes from the conduct of an operation. However, it is also important to keep in mind that all of these assessments are based on conjecture and that unexpected and emergent hazards and opportunities will often prove the most decisive. The problem is that it is very easy

---

107 Head Land DCDC, Conflict on Land, p. 13.
for the human mind to treat such conjectures as the exhaustive list of the possible. Author, Nassim Taleb, refers to this habit as ‘tunnelling’. Taleb asserts that ‘we focus on a few well-defined sources of uncertainty, on too specific a list of [improbable events] (at the expense of others that do not come so readily to mind)’. The danger of tunnelling is to generate a false sense of certainty, or an expectation of being prepared for improbable events. It biases the mind in a way that diminishes its sensitivity to unexpected developments that may present opportunity, risk, or both. Rigidly sequenced and synchronised plans applied in the wrong context are likely to have a similar effect on the mind, because they focus the orchestrator on making his own events occur at the right place and time at the expense of taking in the dynamic whole and looking for weak signals of emerging opportunities and hazards. The point is that sticking to the plan at the expense of an unexpected opportunity is not necessarily a less risky choice.

Create a System of Learning

A critical premise of an adaptive approach to solving nonlinear problems is that learning flows from action. The difference between expected outcomes and actual outcomes reveals flaws in method and conjecture. In order to ensure that the learning opportunities created by actions are not neglected, it is important to establish a system of learning. To this end it is necessary to know how the force is performing, and more importantly, whether progress is being made toward success. Colin Gray observes that:

> Although the concept of strategic effect is crystal clear as an abstraction, how, exactly, is it to be measured? Just what is the exchange rate between military success and desired political consequence? Especially in the conduct of warfare against irregulars, what is the legal currency for the measurement of

---


110 This section is largely drawn from a report (#134) by Anne-Marie Grisogono and Mark Unewisse that was prepared for the 14th ICCRTS – C2 and Agility. The title of the report is ‘Engendering Flexibility in Defence Forces’.
strategic effect? It is easily understandable, albeit unfortunate, why the mystery of strategic effect is apt to be solved by soldiers and officials who seize upon whatever can be counted as they take the default choice of favoring attrition. Bodies, pacified villages, reopened roads, declining incident rate, pick your preferences. Again, one must cite the strategist’s question, ‘So what?’ The strategist must know what military behavior means for the political purpose of the enterprise. Body counts need to be interpreted for their strategic value. They cannot simply be declared triumphantly as tactical achievements with self-evident meaning.\textsuperscript{111}

Thus a system of learning is largely a function of metrics. Metrics are the observables in a situation that reveal important information to the operational artist or strategist. They have three important roles:

- **Assessment.** Metrics assist in the provision of assessments of the state of an operation or a campaign, the prospects for eventual success, and the expected costs and risks.
- **Feedback.** Metrics assist in the provision of relevant feedback to inform adaptive processes. This is what the bulk of the collection effort should be supporting since success in war depends on how quickly and effectively one can learn and adapt to the reality of the situation.
- **Learning.** Metrics support learning about the situation and monitoring its current ‘state’. Constantly testing and evolving the conjecture as to what the problem is is important because the conjecture will always be incomplete, uncertain and flawed in parts, and the situation will keep evolving.

The goal of assessment is to build and maintain public commitment to the war and maintain the commitment of allies by demonstrating how well the allocated resources are being used to achieve the objective of policy, and when required, to provide supporting evidence for requested changes to those commitments. The campaign design connects what is actually being done to what is required to be achieved, therefore assessment is about measuring both the execution of operations

(implementation) and the effects operations are having on progress towards success. Understanding the relationships between implementation measures and overall success or failure measures is therefore crucial for genuine assessment.

The tendency is to think of progress as a linear thing and to assume that progress in an operation equates to progress toward success. This is the equivalent of treating progress in war like progress in a journey or progress in constructing a house (this also applies to the tendency to view a campaign as moving only forward without any set backs or reversals). Warfare does not work like this. The achievement of an operational objective does not necessarily translate into progress toward success in the campaign. The reason is that context matters. Because each operation objective is premised on conjecture that is inevitably inaccurate, its achievement may not necessarily translate into progress (no matter how well it is conducted). For example, there is some doubt as to whether the invasion of Italy in 1943 was a positive contribution towards a successful conclusion of the war, because much of the conjecture behind the decision to invade Italy later proved wrong. Or take, for example, the building of schools, hospitals and the like in Afghanistan to garner positive public sentiment. The potential of these activities to change public sentiment depends on the public’s:

expectations about how the school will be staffed (or not), who will have access (or not), what it will (and wont) teach, whether it will draw insurgent attacks on the community and who may be harmed (students? teachers? builders? passers-by? community members who were involved in decisions to build it?) and all of these expectations depend on many contextual factors (particular promises or threats made, aspects of the dominant narrative in the relevant media and social forum, recent histories of the fate of similar projects in nearby communities, etc).112

Success in operations does not, of itself, necessarily indicate progress towards eventual success.

In war, an all-or-nothing dynamic may also play out. It may be that there are no traces of the desired outcome (for example, the submission of a nation to an invading and occupying enemy) until all necessary conditions are fully met. This means that

112 Communications with Dr Anne-Marie Grisogono.
progress is largely unrecognisable until the moment that success is actually realised. The Iraq war might be such an example. The Iraq war exhibited little evidence of progress for many years and, in fact, things seemed to get worse just before the realisation of what seems to be a successful outcome. Therefore, the strategist must be cognisant of all-or-nothing dynamics and the difficulty that such a dynamic presents to the statesman trying to maintain public support for a war.

Understanding the importance of context and all-or-nothing dynamics does not make the art of identifying assessment metrics much easier. However, it does ensure that the strategist and operational artist do not fall into the common trap of using incremental approaches to assessment which aggregate lower level measures of implementation into an overall indicator of progress towards success. If the actual temporal dynamic of the campaign design corresponds more to context-dependence and all-or-nothing dynamics, then the assumption of incremental dynamics can result in dangerously misleading conclusions. It is better for the strategist to acknowledge that he doesn’t know whether he is making progress than to mislead himself and others by the inappropriate use of incremental metrics.

The second role of metrics is measuring feedback. Real feedback drives adaptive processes. The campaign design, operations plans, tactics, techniques and procedures derive from conjectures about what needs to be done and about how the consequences of doing it will contribute to success (and not failure). In war, every conjecture carries a real risk of being wrong, sometimes in serious ways. In this sense, an adaptive approach is an exercise in risk management. Thus, the critical questions in relation to each conjecture are:

- What would be the earliest evidence available that would indicate that this conjecture is wrong in some way?
- How much would it matter?

The answers will inform judgments regarding risk/cost/benefit judgments about whether the cost of monitoring for disconfirming evidence warrants the benefit of mitigating that risk. If the answer is yes, then it is important to determine indicators that might reveal whether a particular conjecture is wrong allowing the strategist and operational artist to make adaptations before a false assumption leads to failure. Well chosen indicators allow for refinement of the execution of the operation while
it is underway (so that things are done right) and, more importantly, changes to the campaign design conjectures (so that the right things are done). The implication is that it is not sufficient to look for indicators of effectiveness. In fact, it may be more important to look for indicators of ineffectiveness or failure.

There are, therefore, several important questions for which indicators ought to be determined:

- Are we on a path towards success or towards failure?
- Is the campaign design working as expected?
- Are there undesirable consequences emerging from outcomes we produce that need to be mitigated or desirable consequences to be nurtured?
- Are the operations delivering the outcomes expected?
- Are we performing the operations (and the tactical activities) well enough?

Metrics for *learning* is an extension of the adaptive approach discussed in the previous subsection, and requires monitoring of contingent factors and indicators that support asking the following questions:

- What is going on in the situation?
- Does our understanding of it make sense in light of what we are observing?
- Do we need to change some aspects of our conceptual model of the problem?
- Do we need to design probing actions and/or new monitoring measures in order to learn more about a critical aspect of the situation?
- Are we exploring competing conjectures or only exploiting the dominant hypothesis about how to succeed in the operational environment?

It is important to note that metrics do not assist in forecasting the unexpected. They allow for the recognition of when circumstances do not match what conjecture expected, but that does not guarantee early or rapid recognition of emergent opportunities or hazards. There is no ready solution to this problem. The best the operational artist and strategist can do is to maintain an adaptive mental stance.
Maintain an Adaptive Mental Stance

An adaptive mental stance is a meta-cognitive skill set that enhances individual decision-making in complex contexts. Quite simply, an adaptive approach to warfare described in the preceding sub-sections of the guide is largely a function of the commander’s ability (and that of his staff) to maintain an adaptive mental stance. It is a function of innate talent, although recent research by the Australian Defence Science and Technology Organisation indicates that interventions can improve latent talent.

An adaptive mental stance resists common biases that degrade decision making in complex contexts. These biases include:

- Unwarranted linear extrapolation of nonlinear processes.
- Oversteer in the presence of time delays between cause and effect (e.g. not allowing sufficient time for an effect to occur before acting again).
- Over-generalise (too little detail) or over-plan (too much detail).
- Low tolerance for ambiguity and uncertainty.
- Focus on symptoms, blind to the network of causal factors (e.g. a band-aid approach).
- Confirmatory information collection and perceptual defence (seeking information that confirms a preconceived belief and avoiding disconfirming information).
- Failure to reflect and accept responsibility (e.g. find ways to shift the blame).

An adaptive mental stance employs the following positive habits:

- Takes an adaptive approach to problem solving rather than an ordered one.
- Takes a holistic view rather than a reductionist view.
- Looks for patterns in time and space.
- Makes conjectures explicit and tests them.
- Monitors the progress of actions.

113 The following section is drawn from Australian Army Forces Command, G7 Training Branch, *Adaptive Campaigning – Future Land Operating Concept: Scoping Study Paper*, G7 Training Branch, Sydney, 2009, p. 40. It was produced with the assistance of Dr Anne-Marie Grisogono.
- Regards unexpected outcomes as learning opportunities.
- Is prepared to revise mental models and strategies.
- Reflects on actions and outcomes.

These lists in themselves are not particularly useful. However, recent research by the Australian Defence Science and Technology Organisation indicates that mentoring of decision makers under simulated complex and ambiguous circumstances diminishes biases and supports the development of positive habits. In fact, experiments indicate that just being aware of the biases and positive habits of mind may improve the performance of a decision-maker in ambiguous and dynamic contexts.
Conclusion

The post Second World War evolution of the terms strategy and operational art has diminished the importance of judgment, expertise and talent in strategy and operational art. By reducing these arts down to some principles, systems and processes, professional military education in the ADF has floundered. The diminution of professional military education is reinforced by the doctrinal treatment of war as an ordered problem and the dogmatic application of the Joint Military Appreciation Process. In order to improve the practice of operational art and strategy in the ADF it is important to understand the evolution of the terms, and for the ADF to apportion greater value to experience, study and the professional judgment that flows from them.

This study paper has offered up a related set of prescriptions to improve the design of campaigns and, to a lesser extent, operations. The critical message of the guide is that problems of strategy and operational art are unique and dynamic. Trial and error, ambiguity, and evolving ends are normal in war. War demands an adaptive mental stance, adaptive approaches to problem solving, and bold action to create opportunity in ambiguous circumstances. This point notwithstanding, the foundation for good strategy and operational art is a life-long dedication to the study of war and warfare and practise in real or simulated circumstances, reinforced by natural talent.

This study paper is a challenge to the status quo. It is part of an emerging body of Australian thought on operational art and strategy set in motion and built upon by authors like Michael Evans, Justin Kelly, Michael Brennan, David Kilcullen, Trent Scott, among others. There are some recurring messages in this body of work. First, is the need for a complete revision of the curricula of the relevant schools that prepare Australia’s operational artists and strategists that gives primacy to the study of war and warfare at the expense of bureaucratic acumen (this might require a move away from competency-based learning models). Second, is the need for a more deliberate and objective approach to identifying and refining raw talent. Third, is the need for a review of doctrine with a view to diminishing the influence of recent fads in military thought and restoring a more dynamic (and less prescriptive) sense of operational art and strategy.
Selected Bibliography


Citino, Robert M, *The German Way of War: From the Thirty Years War to the Third Reich*, University Press of Kansas, Lawrence, 2005.


UK Head Land DCDC, ‘Conflict on Land’, unpublished paper.


Land Warfare Studies Centre

Publications

The General Sir Brudenell White Monograph Series


Study Papers


Chief of Army’s Reading List, December 2007.


Palazzo, Albert, Moltke to bin Laden: The Relevance of Doctrine in the Contemporary Military Environment, September 2008.


Smith, Christopher, Network Centric Warfare, Command, and the Nature of War, February 2010.


Smith, Christopher, Design and Planning of Campaigns and Operations in the Twenty-First Century, April 2011.

Working Papers


<table>
<thead>
<tr>
<th>Page</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>122</td>
<td>Evans, Michael and Alan Ryan (eds), <em>From Breitenfeld to Baghdad: Perspectives on Combined Arms Warfare</em>, January 2003.</td>
</tr>
</tbody>
</table>


**Books**


