Chaos Versus Predictability: A Critique of Effects-Based Operations[1]

Justin Kelly and David Kilcullen

> The manoeuvrist approach … concentrates on the judicious massing of effects rather than massing of physical force.'
>
> Australian Army, Future Land Warfare 2032 (1999)

Carl von Clausewitz's insight that war is a free and creative act resting on a clash of wills reflects an enduring reality of war, namely that antagonists always seek to exploit their perceived strengths and weaknesses in order to try to impose control. Modern defence forces in general, and armies in particular, usually apply force as a means to an end. They employ violence as a tool in order to generate physical, cognitive and emotional responses in an adversary. In short, the application of military force in contemporary operations is normally 'effects seeking'. This article argues that, while the aspirations advanced by supporters of effects-based operations (EBO) are laudable, they may not be achievable, particularly in the land warfare environment. The main reasons that EBO may not be practical lie in the process of politics and its relationship with strategy. There are also problems pertaining to the character of democracy, the dynamics of physical force and the nature of war.

The Background to Contemporary EBO Theory

Emerging Australian Defence Force (ADF) doctrine regards effects as 'physical, functional or psychological outcomes, events or consequences that result from specific military or non-military actions'.[2] Unfortunately, such a definition does not distinguish an effects-seeking application of military a force from the new and transformational notion of EBO. Military planning has always been about applying force, or the threat of force, to achieve predetermined effects. How, then, does EBO differ from the normal process of applying lethal force?

[1] This article was first published in the *Australian Army Journal,* vol. II, no. 1, Winter 2004, pp. 87-98 and is re-published here with permission.
[2] Department of Defence, *Future Warfighting Concept*, Policy Guidance and Analysis Division, Canberra, December 2002, p. 11.

An EBO approach to military art first emerged in the early 1990s and was essentially a restatement of classical Soviet deep-operations theory. Under the form of deep operations advanced in the 1920s and 1930s by the Soviet theorists Georgi Isserson and Mikhail Tukhachevskii, an enemy military force was seen in terms of systems theory. If attacking forces neutralised selected nodes or linking mechanisms within an operating system, then the feedback and control messages essential for the systemic functioning of a modern military force could be disrupted. As a result, the various components of the enemy's force structure would collapse.

The American air strategist, John Warden, developed a 'concentric rings' model of strategy, which was applied by the United States Air Force (USAF) during Operation *Desert Storm* in 1990–91. The 'rings strategy' was essentially a restatement of earlier Soviet ideas. Warden's approach was aimed at paralysing the Iraqi leadership from the 'inside out' rather than from the 'outside in' by directly attacking its command-and-control structures. Warden's approach relied heavily on the application of new precision technologies to succeed and, in essence, the 'concentric rings' theory became a method of applying physical and electromagnetic force to impose paralysis on an enemy. In many respects, Warden developed an information-age variation of the *Blitzkrieg* technique. In the early 1990s, EBO theory was clearly a case of old wine in new bottles.

Over the past decade, however, EBO enthusiasts have become more ambitious and their approach to the use of force has become more sophisticated. Growing interest in, and capability for, information warfare seemingly offers unprecedented opportunities to integrate military force with a range of 'whole of government' (or, better still, 'whole of nation') actions. Such comprehensive operations will, in theory, mesh both physical and informational 'forces' together in order to generate tailored effects and thus modify the behaviour of an enemy.

The Rationale behind Modern EBO

The British military theorist, Basil Liddell Hart, once pointed out that the object of war should not be victory so much as a better peace. In such an approach, the use of force as a psychological as well as a physical instrument. Since wars are clashes of opposing wills, a fundamental element in prosecuting them is to seek to change the mind, or behaviour, of one's enemy. The philosophy of contending wills underlies the theory and practice of much of contemporary armed conflict, including aspects of manoeuvre warfare, information operations and certain types of strategic air bombardment.

The rationale behind EBO is that generating change in an enemy's behaviour is best accomplished by applying levers or actions. If the change that we wish to make is in the enemy's mind or will, then the levers applied, for the most part, are moral ones relating to the enemy's willpower or psychological state. The application of moral levers against an adversary employs both kinetic (bomb, shell and bullet) and non-kinetic (psychological operations, deception, and electronic warfare) means. The rise of non-kinetic means reflects a shift in the international political mood towards greater restraint in warfare, at least in the West. Restraint in the use of physical force has been facilitated by the parallel rise of techniques of discrimination and precision targeting, which minimise collateral damage.

The emergence of EBO clearly reflects these growing trends and seeks to analyse situations in sufficient depth in order to enable a combination of kinetic and non-kinetic means to be applied. The aim is to manage the perceptions and reactions of a designated target group. 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.

EBO, Politics and Strategy

Clausewitz deduced from history—and wars since Clausewitz's time have confirmed his view—that war assumes radically different forms over time. Clausewitz argued that war manifests itself through the interaction of primordial violence, hatred and enmity. Expressed in 21st-century terms, Clausewitz saw war as being shaped by a complex interplay of imponderables that could be given rationality only by policy.[3]

In Clausewitz's analysis, war is highly complex, verging on chaos, and is a phenomenon that is probably not amenable to reductive scientific deduction. In short, war requires constant adaptation in order to balance ends with means and possible costs with potential benefits. Given war's underlying atmosphere of chaos, it is reasonable to approach the conduct of armed conflict as 'a system of expedients', a series of opportunistic responses by

[3] C von Clausewitz, *On War*, ed. and trans. P Paret and M Howard, Princeton University Press, Princeton, NJ, 1976, p. 89.

politico-military leaders to the objective situations that they encounter. Moreover, chaos makes war a complex adaptive system, rather than a closed or equilibrium-based system.

By its very nature, war involves an interaction between protagonists. Hatred, fear, contempt, cold calculation of costs and risks, the desire for personal prestige, raw chance, ignorance, misunderstanding and misconception of motivations interact, and do so under the scrutiny of media, nongovernmental organisations, allies, friends, enemies and the neutral or undecided. As Clausewitz warned, war will constantly tend to escape human control, unleashing forces that rapidly take any conflict out of the realm of conscious rational policy and into the irrational, edge-of-chaos realm of hatred and violence. As a result, any decision to apply force in order to resolve a dispute is akin to 'a roll of the dice'.

Moreover, interaction with an enemy always occurs at three levels of war: strategic, operational and tactical. In modern war, events at the tactical level can have immediate impact at the strategic level, while even the most straightforward form of conflict—between two similar, state-based adversaries employing regular armed forces—can become immensely complex. Each side's rational, irrational and non-rational elements interact at all three levels of war simultaneously. The task of comprehending the whole complex, abstract reality of war is, therefore, enormously difficult.

Clausewitz also repeatedly discussed the interaction of war and *Politik*. This German word has two related but different meanings in English: policy and politics. Policy is usually defined as the rational alignment of means and ends. Politics, on the other hand, are unpredictable. As two writers have noted,

> Clausewitz tells us that the conscious conduct of war (strategy, etc.) should be a continuation of rational calculation and policy, but also that war inevitably originates and exists within the chaotic, unpredictable realm of politics. [4]

If we are to accept the views of Clausewitz—and both proponents and critics of EBO generally accept his views—then two objections to the EBO construct emerge. The first objection concerns the idea that we can apply stimuli to any polity and then be able to predict the responses reliably. The second objection is that generating an analysis sophisticated enough to derive coherent and rational whole-of-government inputs that are required by EBO is probably unattainable. In essence, whatever we may do, the target polity will tend to react unpredictably; and in any case, we will have great problems deciding what to do in the first place.

[4] E Villacres and C Bassford, 'Reclaiming the Clausewitzian Trinity', *Parameters: US Army War College Quarterly*, Autumn 1995, p. 3.

Sending Messages to an Enemy: Lessons from Military History

In support of the two objections outlined above, it is worth examining some practical examples of attempted EBO from the historical record.

ROBERT S. MCNAMARA AND VIETNAM, 1965–68

The most advanced historical example of an EBO can be found in the Vietnam War. During the years between 1965 and 1968, the Office of the Secretary of Defense under Robert S. McNamara used a sophisticated statistical model to track whether or not the United States was winning the war against the Viet Cong and North Vietnamese forces in South-East Asia.

Using a wide range of metrics and a computer algorithm that calculated a series of measures of effectiveness, McNamara's office collated data on the effects being generated against key performance indicators. Using this data, US analysts sought to gauge the overall progress of the war and then issue directions to the US military with the intention of generating specific effects. The effects aimed at were highly sophisticated—intended not only to achieve a particular battlefield result but also to 'send messages' (as McNamara expressed it) to North Vietnam, other communist countries and to America's allies. McNamara's systems-analysis approach was based on the most sophisticated computer modelling of its day and on ideas developed by deterrence theorists such as Thomas C. Schelling. The Pentagon attempted to apply military actions in a sophisticated manner in order to generate effects beyond the immediate battlefield.

Ultimately, however, US strategy failed to deliver its promised benefits, primarily because the North Vietnamese behaved according to a different rationale from the Americans. Hanoi sought total victory while the United States was seeking success through graduated military means. The messages that McNamara was attempting to send were not sufficiently clear or persuasive for the intended audience while reactions from both the international community and US domestic politics undermined the key message of American resolve and placed tangible limits around what military power could achieve. One deduction from the Vietnam experience is that effective EBO—at least in democracies—relies on a constrained political debate and broad domestic consensus that is untrammelled by widespread media intrusion or dissent.

THE 1915 DARDANELLES CAMPAIGN

Another example of the strengths and weaknesses of EBO is the campaign in the Dardanelles in 1915 during World War I. By the end of 1914, the emerging stalemate in France led Winston Churchill, then First Lord of the Admiralty, to propose a 'peripheral strategy' against the Central Powers of

Germany, Austria–Hungary and Turkey. Churchill's assessment—although he would not have used such terminology—was that the Turkish cabinet represented a weak node, and was a vulnerable and accessible target in the overall systems architecture of the Central Powers. In modern terms, the Dardanelles campaign was a supporting move in an overall EBO concept.

The aim was to apply tailored effects to generate psychological pressure on the Turkish cabinet, with the intent to knock Turkey out of the war and ultimately break the deadlock in France. The collapse of Turkey would, in turn, open up a supply route to Britain's ally Russia, and unbalance the Balkans, possibly causing Austria–Hungary to focus exclusively on a new theatre, thereby isolating Germany in Central Europe. To achieve the desired strategic effect, the elimination of Turkey from the Central Powers required an operational naval bombardment of Constantinople. Operational requirements in turn meant passing battleships through the Bosphorus and the tactical neutralisation of the Turkish forts covering the Dardanelles. Naval bombardment proved unsuccessful, however, and ground forces had to be landed in order to seize them in an attempt to open the Dardanelles to Britain and France.

If Churchill's scheme had succeeded, it is possible that the war could have ended as early as 1916 and that the Russian Revolution might have been avoided. However, the Dardanelles plan required a chain of favourable outcomes: the silencing of the forts, the passage through the Bosphorus, the successful bombardment of Constantinople, the collapse of Turkish resolve, the subsequent realignment of Balkan allegiances and Austria–Hungary's reassertion of its historical role in the Balkans. At least three links in this chain required countries to behave in a particular way in accordance with a specific stimulus—that which is known in EBO terms as 'response pairing'. Due to tactical and operational problems, largely unconnected with this embryonic EBO approach, the Dardanelles campaign failed, and led to over 20 000 Allied deaths and substantially higher Turkish casualties.

Yet, in the face of Allied landings on their own soil, the Turks, far from weakening in resolve to the war, became increasingly staunch allies to Germany. It is therefore important to note that, in order to achieve high-level effects in EBO, a sequence of subordinate effects is generated. Each of these subordinate effects is a necessary precursor to achieving an overall strategic outcome, but they may have unintended or unpredictable consequences.

THE STRATEGIC AIR OFFENSIVE AGAINST GERMANY, 1943–45

A final example of historical EBO can be found in the Allied strategic bombing campaign against Germany in World War II. The bomber offensive was intended to shatter the will of the German population and undermine their resolve to continue the war. By late 1943, aerial bombing was

consuming over 50 per cent of Allied industrial and financial resources. The strategic war aims of the members of the Grand Alliance against the Axis powers required the unconditional surrender of Germany. The strategic air offensive was a symbol of that demand for capitulation. The average German's atavistic fear of the Russians and the grim realities of the Nazi police state made unconditional surrender unlikely. Germany fought on until the final defeat. In these circumstances, the devastation wreaked by the bomber offensive may have had the opposite effect: strengthening, rather than weakening, German will to resist. By the time the failure of the bomber offensive had become apparent, the investment in lives and effort that it had consumed precluded any retreat from the avowed strategy—not from a military point of view but because of a political commitment to Nazi Germany's destruction by the Allied powers.

Developing a Viable Approach to Effects-Based Operations

In order to construct a practical effects-based approach to strategy, military practitioners must ensure that their military actions send the right messages. Wrong messages, or unwanted effects, must be minimised. It is also necessary to address the same question that afflicted the Vietnam-era military theorists: how to assess what effects friendly actions are generating, both in terms of immediate, direct or first-order effects, and in terms of second- and third-order effects.

What then of the idea of 'tailored effects'? The ADF's emerging doctrine defines 'tailored effects' as the right effects delivered at the right place and the right time to produce 'decisive effect' (that which used to be called victory). These effects are delivered through a whole-of-nation and whole-of-government effort. It is worth noting here that there are enormous problems assembling a whole-of-nation response to non-military issues such as dry land salting or environmental flows in major rivers. What realistic chance, then, is there of developing such responses or, even more difficult, 'whole of coalition responses' to issues such as the Taliban's harbouring of al-Qaeda terrorists or to the presence of an Iraqi weapons of mass destruction program?

Sending messages is a valid objective, but dissonant messages are difficult to eliminate, and they can give hope and encouragement to an enemy. Moreover, liberal democracies will inevitably generate many dissonant messages as they search for a political consensus on the use of force. It may not be possible to generate a sufficiently clear and unambiguous set of messages in order to win. Despite the neatness of a theoretical model of the enemy as a system, systems are never static. Rather they are adaptive, and any action we may seek to take may change the response of an adversary in ways that are unpredictable and incalculable in their effects. In addition, the

enemy is not a system in isolation. Instead, the protagonists, the environment and the third parties involved are all part of a larger international system. As US Secretary of Defense, Donald Rumsfeld, recently put it, 'the enemy has a vote'.

EBO also requires a comprehensive understanding of the cultural lenses through which messages will be perceived. Compassion may be misconstrued as weakness, and resolve as inflexibility. In this respect, an understanding of organisational culture is important. For example, an enemy's command-and-control culture may be so inured to chaos that no action that is taken to disrupt the adversary's communications systems will yield effect. The enemy may be a clan, or a tribe, or— as in the case of some groups linked to the terrorist group Jemaah Islamiyah—quite literally a family.

The cost–benefit calculus that might cause a rational nation-state to cease military hostilities on the basis that 'I have suffered too much damage, I must cease fighting' may be irrelevant to a non-state movement whose weapon of choice is the suicide bomber. In EBO, understanding the cultural dimension of any given conflict is a critical force multiplier. Yet, even thorough cultural knowledge confers no guarantee of how key players will react when under attack. A further complication is that the meaning of a message for one actor in a complex adaptive system may differ from its meaning for another.

This paradox applies not only to neutral onlookers or members of the world community, but also to potential future enemies within ambiguous environments. A good example is the experience of US forces in Somalia in 1993. With the benefit of hindsight, we now know that the character of the US deployment convinced the *habr gidr* clan, led by Mohammed Farah Aideed, that American generals were overly cautious in risking their troops' lives in urban areas. In other words, American policy in Somalia was hostage to the casualty factor. US military activity early in the mission was intended to demonstrate restraint but it was an approach that was interpreted by the Aideed camp as being a form of Western weakness. Aideed's later use of the 'urban thicket' to defy the United States in the city of Mogadishu was based on his perceptions of American military behaviour.

In reality, the use of any physical force may unleash unintended consequences. For the United States, the dropping of twenty-three guided bombs on to a Bahgdad café in order to try to kill a lunching Saddam Hussein in March 2003 may well have been a legitimate act of war. However, the families of the Iraqi civilians who were maimed or killed are unlikely to see the event through the same cost–benefit calculus as the USAF. The possible second- and third-order effects of such military actions are impossible to foresee. Such foresight would require knowledge of all possible effects, including 'effects of effects'. This knowledge would have to

encompass details of the enemy, the environment, and the civilian and non-combatant elements, including family connections. Developing such a sequence of knowledge in military operations is almost impossible.

The guerrilla hiding in a cave remains the husband, brother, son or cousin of someone in the indigenous population. Determining the implications of killing the guerrilla requires a comprehensive knowledge of everyone in the cave and all of the possible responses of the web of loyalties and kinship that extend from that cave. As T. E. Lawrence once remarked, in any insurgency, casualties are like pebbles dropped in a pond. A widening ripple of sadness and anger radiates from each person killed and wounded, creating a series of unpredictable effects.

The questions for EBO advocates are manifest. In facing an uprising in a city in Iraq, for example, to what extent will a measured response be perceived as weakness, and by whom, and how strong a response will be perceived as heavy-handed, and by whom? Against what criteria do we assess the perceptions of each of these groups? Which of these groups is most important today, and which will be so tomorrow? If people sheltering in a mosque are killing a country's soldiers, how does one balance the perceptions of a domestic political audience with those of an international audience?

Another dilemma involves regarding mosques as sanctuaries when, in fact, they might be bases from which an enemy may launch operations that cost the lives of soldiers. There is also the problem of adhering to Rules of Engagement that may constrain military initiative. The latter may create a situation in which a popular perception grows that it is the insurgents, not the incumbents, who are in charge of events on the ground.

Arriving at a bureaucratic or political consensus on what effects should be generated is extremely difficult in liberal Western democracies. In most Western nations, sophisticated inter-agency assessments and management mechanisms do not currently exist for such detailed planning. Even if a consensus about action could be achieved, there is no guarantee that it would succeed in answering the key question of how the enemy might interpret military actions and what reactions they might cause.

The Future of Effects-based Operations: Some Implications for the Australian Army

Despite the reservations expressed throughout this article, the ideal that underlies EBO—of a more productive, less bloody and more efficient way to resolve conflict in order to arrive at a better peace—remains highly

attractive. The difficulties that we face in execution should not deter us from working towards that ideal. Only the most frivolous military operations will not be effects-seeking. To the extent that it is possible, the principal military contribution to an EBO approach is in building the capacity for discrimination in attack. Precision permits advanced forces to minimise the unintended consequences of an attack. Yet precision capabilities may also result in the positioning of soldiers in close proximity to hostile or potentially hostile populations. Such a development threatens to create close-combat situations with little or no warning. To cope with this type of contingency, the Australian Army will need to enhance the agility and versatility of its soldiers by altering the balance between narrow, vocationally based 'just-in-time' training and broader, developmental 'just-in-case' education. In particular, Australian soldiers will require cultural and language capabilities that they can use at the tactical level of war.

The Army will also need to address solutions to several other issues. First, the land force will require enhanced capabilities for Joint Interagency Combined Task Force operations, especially in urban operations, including a need for combat groupings to provide the capability for control of, and a measure of support for, civil populations. Second, there will be a need for ground forces to focus on discrimination rather than merely precision, with an attendant requirement for tailored lethality, especially from bursting munitions. Third, in the realm of minor tactics, the Army may need to pursue a wider dissemination of non-lethal, or less lethal weapons along a greater readiness to apply incapacitating and crowd control agents. Fourth, in the future, the Army will require a greater readiness to apply a mission-oriented approach to force protection alongside a comprehensive approach to individual body armour. Finally, the Army needs to reduce reliance on contractors in areas of operations.

Conclusion

On present trends, it seems probable that EBO will remain at best a worthy aspiration. The pluralistic nature of Western democracies, including that of Australia, limits the coherence and unity of an effects-based approach to strategy. Moreover, Clausewitz's trinity of chance, uncertainty and friction continues to characterise war and will make anticipation of even the first-order consequences of military action highly conjectural. Interaction between personalities and events means that any given military action may have totally unpredictable effects on different actors. In addition, a systems approach to warfare does not guarantee that second- and third-order consequences of actions can be predicted, let alone managed. Clausewitz was right when he argued that the best outcome that a military force could achieve was to disarm an enemy. The use of force will continue to be an imperfect instrument of persuasion, while coercion is likely to be

unpredictable in its moral impact on an enemy. Uniformed professionals should strive for the achievement of positive effects from their military actions while working hard to minimise negative outcomes. Developing a capacity to be more discriminating in the use of armed force is perhaps the closest that Australian military practitioners can hope to come to the ideal of executing effects-based operations.

Brigadier Justin Kelly, AM, graduated from the Royal Military College, Duntroon, in December 1974 and was commissioned into the Royal Australian Armoured Corps. He commanded the 1st Armoured Regiment, the Peace Monitoring Group, on Bougainville and was Deputy Force Commander of the Peace Keeping Force in East Timor. His staff experience has included postings in the Directorate of Operational Requirements, Directorate of Armour, and as Director of Restructuring the Army, and of Concepts and Capability Development. His current appointment is Director General of Future Land Warfare in Army Headquarters.

Lieutenant Colonel David Kilcullen has served as a platoon commander with 6 RAR and 2 RAR, and in a number of overseas appointments including as commander of a Mobile Training Team with the Indonesian Army and Australian Exchange Instructor at the British Army School of Infantry. His operational experience includes service with the United Nations Peacekeeping Force in Cyprus, Headquarters Peace Monitoring Group in Bougainville, and with 2 RAR during the INTERFET campaign in East Timor in 1999–2000. Lieutenant Colonel Kilcullen is a graduate of the Australian Command and Staff College, and holds a PhD from the University of New South Wales.