

Strategy with Style: Effects-Based Planning¹

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The great American soldier-statesman George C. Marshall once observed that if the objectives (ends) of any intended activity were correctly defined, then even a lieutenant – in other words practically anyone - could write the strategy needed to pursue those ends. A similar intellectual connection was argued by the greatest strategic thinker, Carl von Clausewitz, in his discussion of the relationship between ends and means in war, and in his most famous aphorism, 'war is a mere continuation of policy by other means'.²

The essence of any strategy, ranging from one conceived on the spur of the moment during a fire-fight between a few infantrymen to one developed for a theatre-level campaign, is the relationship between Ends, Ways, and Means, in which ends is the objective (total victory, conditional victory, stalemate, not losing, etc); ways is the form through which a strategy is pursued (military power, diplomacy, economic sanctions, a combination of same, etc); and means is the resources available (people, weapons, international influence, money, etc). If the ends-ways-means relationship is not logical, practical and clearly established from the outset then the entire action/campaign is likely to be at risk, or at the least flawed.

Effects-Based Planning as a Strategic Philosophy

Marshall and Clausewitz were to all intents and purposes talking about a process which today we call effects-based planning. Over the past decade EBP has been adopted as the name for a methodology in which the desired effect/outcome of any action, regardless of its scale, should be identified before that action is initiated, and which ideally should be complemented by its associated ways and means. This paper is concerned with the use of EBP to generate military effects.

¹ The original draft of this article was published as *The End of Strategy: Effects-Based Operations*, Working Paper No. 383, Strategic and Defence Studies Centre, ANU, Canberra, 2003.

² C von Clausewitz, *On War*, ed. A Rapoport, Penguin, Harmondsworth, 1982, pp. 122-38, 401-10.

The background to the current interest in EBP is worth examining not least for the conspicuous example it provides of a common logic flow in strategic studies, namely, one in which existing or emerging capabilities shape concepts, rather than the other way around. In this instance the philosophical catalyst has been the tactical capability represented by precision-guided munitions.³

PGMs were used in World War II and the American war in Indochina but have reached maturity only in the past decade, comprising about 9% of all munitions dropped by coalition air forces during Operation Desert Storm in 1991 and 70% during Operation Iraqi Freedom in 2003.⁴ The trend revealed by those numbers is clear and the implications far-reaching. What they mean is that for the first time on a large and sustained scale, if a target can be identified it can be hit. In the past, the relative inaccuracy of air strikes (which thus far have been the primary expression of recent attempts to prosecute effects-based operations) established an imperative to physically destroy targets. If it took 9000 bombs to eliminate a notional target in World War II, which it did, there was no point in finesse. Consequently, overkill in terms of the technique employed (area bombing) and the kinds of weapons used (large high explosive bombs) was a rational if intellectually crude response. Today, one PGM can achieve the same effect as World War II's 9000 dumb bombs, a shift which represents a new capability of the first order.⁵

But 'hitting' something precisely has turned out to be only the start point of a process in which a tactical/technical capability is now being translated into a methodology for planning and war fighting for all three traditional services, and which may have the potential to embrace not just military activities, but a 'whole-of-nation' approach to security.

The conceptual breakthrough came with the simple but powerful realisation that, given that a target *would* be hit precisely, did it need to be destroyed? Could a more tailored/suitable/subtle, even psychological, *effect* be generated by calibrating the weapon both to the target and to the ultimate campaign/national security objectives? In other words, could a better fit be achieved with Clausewitz's enduring strictures on ends and means, and on war as policy?

³ See for example D A Deptula, *Firing for Effect: Change in the Nature of Warfare*, Aerospace Education Foundation, Arlington, 1995; and N Cook, 'Cause and Effect: Effects-Based Air Operations', *Jane's Defence Weekly*, 18 June 2003, pp. 52-7.

⁴ The 70% figure comes from Lieutenant General T. Michael Moseley, 'Operation Iraqi Freedom – By the Numbers', USCENTAF Assessment and Analysis Division, 30 April 2003, p. 11.

⁵ R P Hallion, *Storm over Iraq*, Smithsonian Institution, 1992, pp. 282-3. At Appendix Table 2, Hallion presents bombing accuracy data from World War II through to 1990 using unguided 2000 pound bombs against a 20x30 metre target. The improvement in accuracy illustrated in that table is remarkable; it becomes even more so when precision-guided bombs are used as the benchmark.

The targeting of electrical facilities in Baghdad during Operation Desert Storm in 1991 provides the classic case study of EBP at the tactical level. Instead of destroying power grids with high-explosive bombs, the American-led coalition used weapons that dispensed thousands of carbon fibres to short-out transformers for periods varying from hours to days, depending on the prevailing operational demands (and of course how long the Iraqis took to remove the fibres). The same principle is currently motivating research and development into increasingly flexible weapons in order to facilitate the pursuit of a wide range and scale of effects: examples include warheads that can be calibrated immediately prior to release to deliver a specific explosive intensity; non-lethal weapons; inert warheads; miniaturised weapons (more effects per platform/mission); and so on. The objective is to realise an effect tailored to the prevailing circumstances, rather than to accept the somewhat mindless destruction of every target.

Given that warfare ultimately is a clash of wills it was almost inevitable that this rediscovered interest in precisely linking actions to desired outcomes would be extended, first, to all levels of operations and decision-making from the tactical to the strategic; and second, to the pursuit of cognitive as well as physical effects. It is no coincidence that the rise of EBP has been paralleled by an invigorating debate on 'the mind of war', perhaps best represented by the US Marines' use of John Boyd's work on competitive decision-making on the battlefield. Indeed, the fact that Boyd's OODA Loop and phrases such as 'getting inside the enemy's decision-making cycle' have almost become clichés is an indication of how influential this set of ideas has become.⁶

Three separate actions from *Operation Iraqi Freedom* illustrate different kinds and levels of EBP in practice. The first concerns the Americans' approach to securing control of the air, which traditionally has been won by physically destroying the enemy air force in the air and on the ground. This time, however, consistent with the concept of achieving a precise effect - namely, negating the Iraqi air defence system to facilitate unimpeded use of the air by friendly forces - comparatively little effort was directed towards destroying Iraqi aircraft and their supporting infrastructure. Instead the Iraqi air defence system was nullified by a series of tailored and connected EBP actions, including deterrence (Iraqi memories of their rout in the air in 1991, which in 2003 predisposed their pilots to stay on the ground), selective hard strikes against key command and control nodes (if pilots have no instructions, no radar to guide, and no communications they are unlikely to be effective), and selective soft strikes (feeding false data into Iraqi information systems, spreading computer viruses, etc). It is noteworthy that the Iraqis made more than 1600 surface-to-air missile launches and 1200 anti-aircraft battery attacks against the coalition but shot-down only seven

⁶ J R Boyd, 'A Discourse on Winning and Losing', Briefing, 1987, <http://www.d-n-i.net/second_level/boyd_military.htm>. For the best commentary on Boyd see R Coram, *Boyd: The Fighter Pilot who Changed the Art of War*, Little, Brown and Co., Boston, 2002.

aircraft, numbers that indicate the air defence system had been essentially rendered dysfunctional without having been destroyed.

Time-sensitive targeting intended to kill leading members of Saddam Hussein's Ba'athist apparatus is the second example, in this case one which combined physical (decapitation) and cognitive (coerce the ruling elite) effects, noting that about 100 such operations were mounted during *Operation Iraqi Freedom*.⁷ Finally, the reported successful bribing of senior Iraqi officers to surrender rather than fight is representative of perhaps the most cost-effective approach to EBP, one which is wholly cognitive/informational.⁸

If it makes sense to try to achieve a precisely defined effect from every (nominally) tactical action, which it does, then it makes even more sense to adopt the same approach to national security objectives and to planning and conducting military campaigns. In that context, the term 'EBP' has come to define a *philosophy* for national security, and therefore differs fundamentally from recent phenomena such as the so-called Revolution in Military Affairs, and Network-Centric Warfare, which respectively have been one-dimensional (technology without doctrine) and strategically insufficient (a mere enabling mechanism).

A fundamental step in implementing an EBP-derived approach to security is to have a clear understanding of what we mean, and what we do not mean, when we talk about an 'effect' we wish to establish as an objective, and which we wish to generate from a set of actions. Regardless of the kind and the extent of any effect we may wish to achieve, if we are successful, then, in our terms, we will have 'won'. But like most things in life 'winning' is a relative concept; consequently, an open-minded interpretation of the term is likely to be most useful as it will generate options and encourage flexible thinking.

Whenever we believe we need to control, react to, or shape a particular set of circumstances, our objective should be to achieve as much as possible from the available resources at the lowest affordable cost. This is a critical judgment because it implies that an effect perceived by one individual as a 'loss' can be perceived by another as a 'win'. In other words, depending on the point of view, a 'winning' outcome might fall anywhere along a continuum of possibilities ranging from unconditional victory to acceptable defeat. The experience of the American-led alliance in Indochina between 1962 and 1973 illustrates the point. By almost every military measure that alliance

⁷ A Krepinevich, *Operation Iraqi Freedom – A First-Blush Assessment*, Center for Strategic and Budgetary Assessments, Washington DC, 2003, pp. 17-18, 32. Another 50 or so strikes were made against other time-sensitive targets such as reported weapons of mass destruction sites and terrorists.

⁸ W J Boyne, *Operation Iraqi Freedom*, Forge Books, New York, 2003, p. 34.

defeated its North Vietnamese and Vietcong enemies, inflicting huge human and material losses. But because of the politics of the situation the only effect the North Vietnamese needed to achieve to 'win' was to not 'lose'. Their success in pursuing that outcome eventually precipitated the American decision to withdraw from Vietnam in 1973, which in turn was the precursor to the collapse of the South Vietnamese government in 1975. Similarly, sporting teams matched against manifestly superior opponents are often considered 'winners' if they manage a gallant defeat.

Establishing a logical and realistic relationship between the ends-ways-means nexus is also fundamental to formulating an EBP philosophy; and, as noted above, correctly defining the desired end – the ultimate 'effect' – is in turn the key to that process. Before embarking on any campaign – that is, before attempting to put any strategy (the ways) into practice – the desired (political) ends should be determined. In other words there should be a clear understanding of what, in the prevailing circumstances, is meant by 'winning'. This is the crux of Clausewitz's stricture regarding war as a mere continuation of policy. The achievement of an apparently satisfactory result at one level of national security (capturing an enemy leader, seizing ground, the capitulation or even destruction of the enemy, etc) may be of little consequence if that result does not support the ultimate objective; or if, more probably, the desired ends have not been clearly identified. Few better examples of this intellectual disconnect in practice can be found than American president George H. Bush's experience following *Operation Desert Storm* in 1991.

The international coalition led by the United States against Saddam Hussein achieved a remarkably quick and conclusive military victory, routing the ostensibly powerful Iraqi armed forces in only forty-three days with relatively few friendly casualties. Bush and his administration had, however, thought little beyond the military operation.⁹ It was one thing to drive the Iraqi invaders out of Kuwait, but the political question remained: what then?

In the event, when the coalition's commanding general, Norman Schwarzkopf, attended a hastily arranged meeting with his Iraqi counterparts to draft an instrument of surrender, he had almost no guidance from Bush regarding the required political ends. What was the envisaged post-war

⁹ M R Gordon and B E Trainor have noted that when the fighting ended, two ethnically based uprisings that the Bush administration had 'neither wanted nor anticipated' suddenly broke out; and that the administration 'knew little of the Shiites', the dominant ethnic group in Iraq which had been brutally suppressed by the minority Sunnis who supported Saddam Hussein; see *The Generals' War*, Little, Brown and Co., Boston, 1995, pp. 450-6. See also H N Schwarzkopf (with P Petre), *It Doesn't Take a Hero*, Bantam Books, New York, 1992, pp. 479-80, in which Schwarzkopf recalls that as he was preparing to meet his Iraqi counterparts 'cease-fire terms [were still being] reviewed by the Defense Department, the State Department, and the White House, and their various bureaucracies were having trouble keeping up with the pace of events'.

political form of (defeated) Iraq? How would that affect the balance of power in the Middle East? How would the numerous dissident groups in Iraq respond to Saddam's defeat? What did the coalition want to do with Saddam? How would other influential players react to American actions? And so on. Working in a political vacuum, Schwarzkopf was understandably uncertain and, as it happened, in the longer term, not surprisingly, unsuccessful. Within weeks of the war's conclusion Saddam Hussein was again dominating Iraq and was again perceived as a major threat to international security. Indeed, despite his army's humiliation in 1991, by the mid-1990s Saddam could with some justification claim to have 'won' a political victory of sorts over the Americans.

Suffice then to say that if the desired ends of any proposed course of action do not have a realistic political dimension which is also clearly understood by senior officials, then the executing strategy is likely to be incomplete.

'Ways' defines how a particular strategy is to be implemented; how, in broad terms, the ends (effects) are to be pursued. In World War II the allies and the axis both overwhelmingly relied on the application of military force as their way of trying to achieve their objective of unconditional victory, with other potential ways such as diplomatic negotiation and economic pressure playing comparatively minor roles. During the Cold War, by contrast, it was through the threat of force, expressed via the linked doctrines of mutual assured destruction and deterrence that the Americans and the Soviets both sought to contain each other's global influence and to avoid a nuclear holocaust. (Incidentally, the fact that the representatives of warring ideologies not only shared a strategic objective but also cooperated towards that end, while continuing to engage in open hostility across a range of other military, economic and social fronts, would indicate that intellectual flexibility is a prime characteristic of any strategic model.)

Finally, the 'means' are the resources needed to implement the chosen way(s) in pursuit of the desired ends. The over-riding principle here is not to let one's ambition exceed one's grasp; that is, if the means to an end do not exist then the end is by definition unrealistic. Matching ends to means is an art in itself. Nevertheless, and notwithstanding the caution regarding over-ambitious ends, the fact remains that even ostensibly poor nations and organisations are likely to have a large array of means at their disposal. In recent years suicide bombers have emerged as a potent if grotesque strategic weapon; other commonly available measures might include diplomatic pressure, the manipulation of international opinion, exploiting a comparative advantage in a vital resource (oil, timber, geography, intellectual), and so on.

China and the United States provide instructive contrasting approaches to making the most of one's innate military means. It should come as no

surprise that from World War II through to the 1990s economically poor but population rich China planned to rely on its vast pool of manpower (the means) by trying to draw any protagonists into a war characterised by mass, close-up fighting, and attrition (the ways). The United States' means, by contrast, have come to epitomise the Western way of war, in which a powerful economy and a well-educated population have underwritten a reliance on overwhelming technological superiority and highly-skilled military professionals, a combination which in turn has facilitated the ability to fight with knowledge and precision, at a distance.

Troops in uniform and machines of war are only the most visible component of any set of means. Generals have been brought undone by logistics failures just as often as they have by defeat on the battlefield. Napoleon Bonaparte's famous observation that an army marches on its stomach remains valid but today would also have to mention fuel, oil, ammunition, and spare parts for a vast and complex array of weapons systems. Even the brilliant German general Erwin Rommel could not overcome the shortage of fuel for his mechanised units that contributed as much to his eventual defeat in the North African desert in 1941/43 as did the direct attacks on his forces by the allies. And to take a broader example, it is not by chance that most nations have been unable to develop and sustain an effective air force: the essential technological and scientific research elements of the 'means' are generally too difficult to achieve and too expensive to sustain.

It is a military axiom that time spent on reconnaissance is never wasted. That maxim could be paraphrased for strategists. The time a decision-maker at any level spends ensuring that: his desired ends are realistic, clearly defined, and consistent with the established political objectives; the way(s) chosen to pursue those ends are feasible; and the available means are suitable and sustainable, is never wasted. The importance of establishing and maintaining a realistic relationship between ends, ways and means as the basis of an EBP-derived approach to security cannot be over-stated.

Defining Effects for Australia

As the example cited above of General Schwarzkopf's experience in 1991 demonstrates, defence officials must understand the role government should play in setting ends. Schwarzkopf may have won a crushing military victory, but by itself 'military victory' did not amount to a sufficient definition of the desired national political effects. A similar kind of confusion attended the United States' war in Indochina, for which it could be argued the desired (American) political effects were not only unclear but also, to the extent that they were evident, were inconsistent with their ways (a strategy of attrition based on massive firepower) and their means (conventional forces versus guerrillas).

It is questionable whether Australian governments historically have provided much better grand strategic guidance, with the desired outcomes (effects) of our participation in World War I, Korea and Vietnam apparently having been little more than vaguely articulated hopes of ingratiating ourselves with powerful mentors. World War II was an exception, as the desired effect – the unconditional surrender of an enemy whose menace to Australia was manifest – was perfectly clear, as was the logic of the associated strategy and force structure. Turning to more recent times, it would be instructive to understand the official desired effects in terms of a national security policy that the government sought to achieve, or that it directed the Australian Defence Force to pursue, prior to the military operations in East Timor, Afghanistan, Iraq and the Solomons. If there was none, then the introduction of a formal process to ensure that in future there is has to be the start point for any shift to a coherent EBP-based national security planning regime.

Unless senior officials first define in reasonably clear terms the kinds of effects the military will be required to generate, then the force structuring process which ultimately has to translate planned strategies into capabilities and actions is likely to be derailed. The challenge here is to try to develop a planning process which will minimise uncertainty in what is essentially a threat-ambiguous environment, whose troublesome nature is further complicated by institutional rigidity and competition within the Australian Defence Organisation.

Since the time of the 1986 *Review of Australia's Defence Capabilities* (the Dobb Review) Australian defence planning has officially been capabilities (means)-based, an approach under which the force structure ostensibly has been determined by an imperative to ensure that the ADF's capabilities are the best in the region.¹⁰ But using other nations' capabilities as a force-structuring determinant may make little sense if it is obvious that the motive and intent which are necessary components of any threat are absent in those nations and are almost certainly likely to remain so. Furthermore, there seems almost to be a compulsion for such a methodology to want to find answers (threats) that fit the ADF's existing capabilities. It is also the case that any reliance on force structure comparisons as a planning technique can encourage single-service parochialism, the retention of 'legacy' systems, and 'capability creep', practices which are inimical to any rational outcome. By contrast, the application of an EBP methodology will compel decision-makers to focus on *context*.

At the grand strategic level the introduction of an EBP-based regime requires the government to identify broadly defined desired effects which provide sufficient guidance for a defence force to shape itself rigorously. For

¹⁰ For the official expression of this policy see Department of Defence, *The Defence of Australia 1987*, AGPS, Canberra, 1987.

example, instead of determining the ADF's development through an on-going series of ad hoc decisions based on the issue of the day (the arrival in the region of a new platform/capability, the latest security contingency, a new procurement decision, the need for an election show-stopper, etc), the Australian government might direct the ADF to be capable of generating one or a combination of four broad effects:

- a strategic effect,
- a theatre-level effect,
- a domestic security effect, and
- a peace operations effect.

That guidance might then be expanded to identify the methods through which broad contingency-related effects were to be pursued, such as:

- physical,
- cognitive, and
- informational.

Desired effects might be further refined by descriptions which locate them within one or more physical, cognitive or informational methods. For example, we might require our defence forces to be capable of generating 'annihilation' as an extreme physical effect; 'deterrence' as a combination of physical and cognitive effects; and 'manipulation' as a combination of cognitive and informational effects.

Any rational application of such guidance would lead to distinctive force structuring conclusions for each required effect and its associated method/s. An indicative list of effects, methods and forms can be found in Table 1 below.

<u>Broad Effects</u>	<u>Methods</u>	<u>Forms</u>
Strategic	Physical	Annihilation
Theatre-level	Cognitive	Attrition
Domestic Security	Informational	Coercion
Peace Operations		Compellence
		Containment
		Defence
		Denial
		Deterrence
		Influence elite
		Manipulation
		Prevention
		Punishment
		Risk
		Shaping
		Show of force
		Strategic paralysis

Table 1: Indicative List of Effects

Applying Effects-Based Planning

It should be evident from the list of broad effects, methods and forms that EBP is applicable at any level of conflict, and that it facilitates the application of minimum, as opposed to maximum, or excessive, force. Furthermore, it is a defining characteristic of EBP that, invariably, it will be an implicit aim of the active protagonist to try to turn a tactical or operational gain into a strategic gain.

By its nature, the successful application of EBP will demand a profound understanding of an opponent's culture, society, governance and economy, which in turn will place an even greater premium than already exists on the skilled collection, analysis and dissemination of information (noting that this process must include measurements of the post-facto effects that have actually been generated as opposed to those that were sought). What this means is that if EBP is to be pursued at a campaign or large operations level, it will require a degree of military professionalism (highly trained people, good ideas, and advanced equipment, all supported by a robust economy and a strong indigenous research and development base) possessed by very few nations or organisations. In other words, EBP could constitute a major asymmetric advantage for those who master it.

Asymmetric advantage is a subject that warrants brief elaboration in relation to Australia. The notion of fighting asymmetrically has received a great deal of publicity in recent years, primarily because of the perceived originality of terrorist groups which have used non-conventional methods/weapons (suicide bombers, civil airliners, car bombs, shoulder-launched anti-aircraft missiles, etc) to strike unexpectedly against their (usually) Western enemies. There is of course nothing new in the concept, the competition to establish an advantageous mismatch on the battlefield being as old as conflict itself. In other words, asymmetric warfare is a two-way street. And for some sixty years now the West has possessed an immensely powerful asymmetric advantage of its own, defined by the exploitation of well-educated, highly trained people and overwhelmingly superior technology, which in combination have facilitated an increasingly dominant ability to fight with precision and knowledge, at a distance. Many armies fight very well close-up; the point of the Western way of war is to deny them that opportunity. The end result has been a series of extraordinarily successful theatre-level campaigns in which ostensibly formidable enemy armies have been routed, with relatively few friendly casualties.¹¹ It is partly because of the apparent incontestability of the Western way of war that some aggressor states and organisations have tended to turn to asymmetric (terror) tactics of their own.

¹¹ Iraq in 1991 and 2003, the Former Republic of Yugoslavia in 1995 and 1999, and Afghanistan in 2001-2.

Since the end of World War II Australia's defence forces have reflected the Western approach to warfare, both doctrinally and structurally; and as a consequence the small but high-quality ADF has been able to exert a disproportionate influence within the Asia/Pacific region. For example, during the periods of tension with Indonesia over Confrontation from 1963 to 1966 and the liberation of East Timor in 1999, the ADF's manifest superiority was evident not only operationally but also, and perhaps more significantly, through the deterrent effect it generated.¹² That same commitment to intellectual and technological pre-eminence has also seen the ADF make first-order contributions as a valued member of American-led coalitions in several recent theatre-level conflicts.

But as a range of major platforms from which key capabilities and, therefore, effects are derived reach their use-by date in the coming decade (the so-called 'block obsolescence' problem), serious doubts have been expressed regarding the ADF's ability to sustain its traditional level of excellence and its regional supremacy, at least in terms of platforms. According to the Australian Strategic Policy Institute, the current defence capability plan which charts future equipment acquisitions is 'undeliverable, unaffordable and uncertain'.¹³ And commenting on a restatement of that plan in November 2003, leading defence correspondent Patrick Walters claimed that 'nobody on Russell Hill believes that the [\$12 billion shortfall of the] new capability plan can be paid for within existing budgets'.¹⁴ Additional funding may provide a solution to this predicament, but money will never be an answer in itself, as demonstrated by the abysmal performance in battle of the well-equipped but intellectually moribund forces of numerous regimes in the past twenty years.

It is fair to assume that, regardless of the government's eventual response to the block obsolescence and funding problems, the ADF will maintain a high level of technology. But the standard of that technology will continue to decline relative to other nations in the Asia-Pacific region; and the sheer costs incurred by capital acquisitions are likely to lead to more and more gaps in the so-called 'balanced' force structure (something for everyone) that has characterised the ADF since the early 1950s. The challenge in these circumstances will be to retain a comparative advantage which will be derived less from equipment and more from other assets. Once again this leads back to EBP. The furore raised by the government's decision to retire

¹² Confrontation or 'Konfrontasi' was an untidy policy of sporadic military aggression and diplomatic pressure directed by Indonesia's mercurial President Sukarno against the proposed federation of Malaysia, the alleged concern being that the proposal was neo-colonial.

¹³ T Allard and M Wade, 'Defence Vision at Risk but PM Ready to Lift Spending', *Sydney Morning Herald*, 21 August 2003.

¹⁴ P Walters, 'Grand plan avoids budget talk', *Weekend Australian*, 8-9 November 2003, p. 6. See also *Australia's National Security: A Defence Update 2003*, Commonwealth of Australia; and Media Release 142/2003, Senator the Hon Robert Hill, Defence Capability Review, 7 November 2003. Russell Hill is the location of the Australian defence headquarters in Canberra.

the ADF's F-111 strike aircraft from 2010 onwards provides a useful illustration.

For over thirty years the F-111s have been the pre-eminent deterrent force in Southeast Asia. While they have never dropped a bomb in anger their contribution to regional stability has been unrivalled, exemplified by the deployment of a squadron to northern Australia during the period of tension with Indonesia that accompanied the liberation of East Timor in 1999. There is no doubt that the implied message was received and understood in Jakarta. Much of the sometimes emotional debate over the decision to retire the aircraft has centred on an assumed need to replace it with a similar aircraft (capability) when none is readily available. Under the EBP methodology, this mind-set misses the point entirely.

The F-111's primary value to Australia has been through the strategic effect it has generated. If – and this is the key phase in the EBP process – the government wants to retain the ability to generate military strategic effects, it must direct the ADF to structure itself accordingly. It may be the case that, all things considered, strike aircraft represent the best option. However, the point here is that platforms are neither ends nor ways; and, as noted above, a desired effect might come from any one or a combination of physical, cognitive, or informational capabilities. In an environment of tight budgets and dynamic change, the cognitive and informational options might appear increasingly attractive – for those countries capable of managing EBP.

Two points bear repeating. First, EBP represents the intellectual antithesis of the 'mass' and 'force-on-force' mindset that typified warfare before Operation Desert Storm in 1991 and which is still favoured by many organisations. And second, the demands of implementing EBP as a philosophy for national defence will be beyond the capacity of all but a handful of states, of which Australia is one. Consequently an opportunity exists for the ADF both to sustain and expand an immensely potent asymmetric advantage.

Notwithstanding the utmost endeavour, efforts to precisely determine desired effects will to a greater or lesser degree remain an inexact science. And as is the case with every form of coercion, the application of EBP will be interactive. What this means is that any effect we pursue may trigger unforeseen or unintended second- and third-order effects, perhaps within our own system as well as that of the enemy's, the consequences of which could feasibly be worse for us than accepting the pre-conflict status quo. This is true of most military actions, but the caveat needs to be made.

It is important to appreciate that any immediate or short-term desired effects will have to be generated by existing or rapidly evolved capabilities; that is, we may have to manage (possibly unexpected) emerging threats with existing (possibly unsuitable) legacy defence capabilities. There are inherent

problems in relying on capabilities derived from hardware which not only can take twenty years from conception to operational service (strike aircraft, warships), but which also then typically remain in service for thirty or more years (aircraft, tanks, ships), a timeframe which certainly will see dramatic shifts in threat perceptions (the sudden end of the Cold War, the sudden emergence of al-Qa'ida, illegal immigrant flows, etc).

This indicates that in the first instance the ADF should focus on a system of generating effects that is:

- fast,
- agile, and
- dynamic.

Those characteristics in turn point to the potential of strategies that value cognitive (non-kinetic) effects above physical effects, the rationale being that the former are less likely to rely on legacy hardware and more likely to exploit dynamic practices. Such non-traditional strategies might also increase the chance of quick conflict resolution with minimum casualties and physical destruction. For example, information operations which undermine the confidence of the opposition elite, encourage defection and surrender, infiltrate enemy command and control systems, spread misinformation and computer viruses, and so on, have all been used to increasing advantage in recent years. And unlike physical effects which invariably require the deployment of forces and the risking of friendly lives, cognitive effects can be pursued from a secure (perhaps homeland) base, and for extended periods, with little if any danger to the executors.

A radically different attitude might be needed towards the capabilities currently generated by legacy systems, given that the timeframes associated with those systems (too slow to enter service, too long in-service) are inimical to the philosophy of EBP. Among the initiatives being examined, rapid prototyping and 'tranche' acquisition are currently the most fashionable. Selecting a particular platform for rapid prototyping will involve a degree of technological risk, and might also lead to accusations of favouritism from companies whose products are not chosen for what would amount to a form of preferential treatment. However, if a platform's potential were strong, the benefits of reducing the time to bring it on-line by perhaps as much as ten years would justify those kinds of risks. Introducing platforms in discrete tranches (blocks) rather than through the traditional method of continual delivery could also decrease the time needed to make a portion of the capability productive, in this instance by reducing the effort associated with having to set up new logistics, to prepare and conduct new training courses, and to develop operational concepts.

Other initiatives are already in place. Many defence forces now utilise outsourcing, leasing, and commercial-off-the-shelf acquisition as early, indirect and partial solutions to the problem of legacy systems. Robotics and unmanned aerial vehicles, which among other things reduce the need for costly, long-lead time machines and operators (pilots, principal warfare officers, etc), are representative of another set of more direct emerging options.

These kinds of changes have the potential to influence for the better an issue that remains the most intractable within Western defence forces, namely, the single services' cultures and attitudes. But they are unlikely to be sufficient.

Culture and Attitude Change

Over the past five or so years a great deal has been said within official Australian defence circles about the implications and importance of such phenomena as the revolution in military affairs and network centric warfare, and the concomitant progress being made within the ADF towards genuine joint operations and objectives.¹⁵ But despite such pronouncements it seems that intellectually and emotionally the ADF remains three separate services.

A revealing illustration of this emotional barrier to fostering an holistic ADF philosophy can be seen in the missions the services define for themselves in the current *Capability Fact Book*.¹⁶ Army, for example, lists its mission simply as being to 'Win the Land Battle'. While winning land battles historically has indeed been the main activity of armies, in itself it need not represent a desired effect; and nor does it define the only significant effect we might reasonably expect an advanced land force to deliver. Thus, armies have asserted sea denial (Turkish gun batteries dominating the Dardanelles in March 1915); they have won control of the air (allied troops capturing Luftwaffe airfields in France following the D-Day landings in 1944; Ariel Sharon's armoured columns smashing through the Egyptians' ground-based air defence system along the Suez Canal in 1973); and so on.¹⁷ There are so many similar cases that the point should be self-evident, but it is so important that it does need to be emphatically made. Navy's and Air Force's

¹⁵ See for example 'Network centric warfare model to drive defence', *Australian Defence Business Review*, 31 May 2003, pp. 7-9. The article reports on a conference held in Canberra earlier that month in which minister for defence Robert Hill 'outlined ... the Government's formal endorsement of ... a full Network Centric Warfare doctrine'.

¹⁶ Department of Defence, *The Australian Defence Force Capability Fact Book*, April 2003.

¹⁷ Allied armies in France helped to achieve control of the air by capturing German airfields, which forced the Luftwaffe further and further back into Germany. In the first week of the 1973 Yom Kippur War the Israeli Air Force was unable to defeat Egypt's ground-based air defence system along the Suez Canal. It was only after Sharon's armoured column punched a hole through that system that the IAF was able to penetrate it without suffering unacceptable losses.

missions in the same booklet are less self-limiting but are still couched in strictly environmental (sea and air) terms, and are nebulous within an EBP construct.¹⁸

A similar kind of intellectual straight-jacket is apparent in the 'capabilities' listed in the *Fact Book*, with the distinguishing feature of most of the sixteen or so combat groups being single-service hardware (tanks, trucks, frigates, fast jets, etc). As is the case with the missions, this outlook entirely ignores the often battle-winning roles played by capabilities which notionally 'belong' within an ostensibly different environmental or war fighting model.

The attitudes the *Fact Book* represents and the terminology it uses constitute formidable barriers to progress. Because the missions and capabilities which the book defines are derived predominantly from the platforms-capabilities-effects method of analysing what a defence force is and what it might do, both the explicit and implicit effects which flow from those definitions are overwhelmingly kinetic. In other words, the singular opportunity to acquire a potent asymmetric advantage that this paper has argued will be open to those defence forces which are able to master the cognitive and informational aspects of EBP receives no recognition.

There are good reasons why the evolution of defence forces has traditionally taken place within the distinct environments of land, sea and air. Even now when the influence of information operations and the capacity to act with speed and precision are becoming more evenly balanced across armies, navies and air forces, there are still well-founded specialist and cultural arguments in favour of the long-standing organisational arrangement. Forty years down the track, Canada's ill-considered decision to peremptorily combine its three services is still used by guardians of the old order to 'prove' the danger of ignoring history.¹⁹

It is unquestionably the case that the social compact within a professional, all-volunteer defence force is unique, and that an individual's readiness to risk his or her life can be related to their identification with their service and unit, as well as to their commitment to their comrades. Nevertheless, as J.F.C. Fuller has noted, the fighting power of a defence force lies in the first instance in its organisation.²⁰ It could be a mistake of the first order if

¹⁸ The RAN's mission is to 'promote and protect Australia's interests at sea'; while the RAAF's is to 'prepare for, conduct and sustain air operations to promote Australia's security and interests'.

¹⁹ Canada's armed forces were effectively combined in 1964. The way in which the reorganisation was implemented largely ignored the sensibilities of the single services, and the outcome proved highly unsatisfactory. The single services have since regained much of their distinctive character and organisation.

²⁰ Fuller was the first Western strategist to argue in favour of integrated forces, writing in the 1920s that 'armies and air forces [should be] organized to break the enemy's resistance with a minimum of fighting'. See D A Macgregor, 'Transformation and the Illusion of Change', *National Security Studies Quarterly*, Autumn 2000, pp. 3-4; and JFC Fuller, *Foundations of the Science*

tradition alone were allowed to stand in the way of any reform which promised significantly enhanced performance.

If EBP is to be genuinely embraced it may be intellectually unsustainable for the ADF to retain an operational structure based largely on service-related equipment (means), as is presently the case. Taking that observation a step further, we might conclude that if we started today with the proverbial clean sheet of paper to shape a defence force for the 21st century, we would not end up with an army, a navy and an air force as we now know them. The question then would become one of how to implement change.

In the case of the ADF the challenge might be addressed in the first instance by focussing on attitudes rather than by attempting to impose substantial organisational reforms which almost certainly would face counter-productive resistance from the single services. The immediate objective should be to establish a common thread of intent throughout the organisation, an outcome which might be achieved simply by redefining the ADF's missions and roles in effects-based terms, and by linking existing 'capabilities' (platform-derived combat groups), regardless of their service, to one or more of those effects. The way in which we use words can be a powerful force for change, without necessarily threatening vested interests or social compacts.

Whether or not semantics alone would be sufficient to create the kind of organisational shift ultimately implied by EBP is problematic. If at some stage it emerged that the key combat elements in the ADF associated with any identified need to generate, say, a strategic effect were special forces and strike aircraft, it might become highly desirable to formally bring those elements together organisationally. The almost certain need to have to add cognitive warfare specialists (linguists, social and economic analysts, etc) to this particular mix would only increase the prospect that at some stage a major reorganisation would become necessary.

Edward Luttwak may have identified both the problem and the answer.²¹ In Luttwak's judgment, opposition to the new is much stronger when it is not just traditional weapons but institutions that are endangered. For example, in 1940, the British and French armies grossly misused their tanks because they insisted on absorbing them into the infantry and cavalry, instead of following the German lead and creating new tank-centred formations. Equipment (and Luttwak might have added 'equipment-defined organisations') does not innovate, men do; which is why the successive military revolutions that have changed the course of military history over the centuries have always resulted from major institutional reforms imposed by

of War, Hutchinson and Co., 1925, and *The Conduct of War 1789-1961*, Methuen and Co., London, 1977, esp. pp. 242-5.

²¹ E Luttwak, Book Review, 'Lifting the Fog of War by Bill Owens with Ed Offley', *New York Times Book Review*, 21 January 2001, p. 21.

determined leaders, rather than from the spontaneous effect of new weapons or new circumstances.

Few senior Australian military officers from the 1970s remember with any affection the reforms orchestrated by the acerbic, domineering, then-secretary of defence, Sir Arthur Tange, even though, more than any other initiative, and whatever its failings, it has been the Tange reorganisation's legislative imperatives that have forced today's ADF to become one of the most joint forces in the world (noting that 'joint', like everything else, is a relative concept).²² Bearing that experience and Luttwak's caution in mind, it may be the case that the degree of reform demanded by the adoption of an EBP philosophy ultimately will have to be externally imposed.

'Built It and They Will Come'

The challenge of translating the theory of effects-based planning into a practical model should not be underestimated. It is very demanding. Two points made previously are relevant here. The first is that, because of the nature of EBP, any broad application of the technique will demand a profound understanding of an opponent's culture, society, governance and economy; and the second is that any immediate effect we generate may trigger unforeseen or unintended second- and third-order effects, perhaps within our own system as well as that of the enemy's, the consequences of which could feasibly be worse for us than accepting the pre-conflict status quo. Some examples may help to illustrate the complexities implied by these points.

Thus far, EBP has been exercised almost exclusively in the form of offensive air operations, in which selected targets have been prosecuted with kinetic (explosive/hard kill) weapons. While the selection of the right targets and the choice of suitable weapons is a highly specialised task, strike operations nevertheless remain one of the more predictable models within the full range of EBP options, which can extend to the considerably more opaque dimensions of social and cognitive effects. Additionally, the direct results of a kinetic attack are among the easiest to measure, physical damage being more immediately obvious than, say, social disintegration. Yet even with this relatively straightforward example there are potential pitfalls. For example, a strike against an enemy's electrical power generation system might shut-down his war industries, but it might also cut-off power to humanitarian services (hospitals, aged-care complexes, water supplies, etc) which could generate damaging international publicity. Competent campaign planners will try to anticipate those kinds of secondary effects, but experience

²² A Tange, *Report on the Reorganisation of the Defence Group of Departments*, Nov. 1973.

suggests that war is unlikely ever to be entirely free from Clausewitz's fog and friction.

The planning matrix becomes even more complex when we try to directly target the human dimension of warfare - when we try to predict how our opponent's decision-makers will respond to actions we initiate in pursuit of a desired effect. The confrontation between Australia and Indonesia in 1999 over the planned military intervention into East Timor, authorised by the United Nations and led by the Australian Defence Force, illustrates this complexity.

Indonesia is Australia's largest and most important neighbour, and because of its vast population, contrasting culture, and sometimes erratic political system, has often been perceived by Australians as a security concern. Consequently, successive Australian governments have poured resources into intelligence programs intended to provide a sophisticated understanding of how Indonesians think and behave, with the objective of making informed judgments of Indonesia's probable reactions to various contingencies. Yet according to off-the-record reports, when UN forces landed in East Timor, senior Australian officials had little idea of the effect the intervention would generate. Would humiliated Indonesian Army officers honour their government's undertaking to cooperate with the UN, or would they yield to emotion and attack? In the event, they followed the former course, but if they had taken the latter the effect could scarcely have been more serious for Australia.

If one protagonist (Australia) which tries so hard to understand another (Indonesia) cannot confidently predict first-order intellectual/emotional effects, let alone (possibly catastrophic) second- and third-order effects, how useful is similar planning likely to be when competitors who know comparatively little about each other are involved? The obvious example here is the American-led invasion of Iraq in 2003, in which the Bush Administration's ignorance of the cultural and historical dynamics in Iraq generated massive unforeseen (by the US) follow-on effects. Clearly, the last thing American officials expected after their apparently decisive military victory over Saddam Hussein's army was Iraq's subsequent disintegration into insurgency and near-civil war, and the probability that the eventual outcome (effect) they have caused will be a conservative, theocratic system, hostile to American interests. As former Australian foreign minister Bill Hayden dryly noted, 'Talk about unintended consequences'.²³

To summarise, at the moment, complex effects-based modelling is extremely challenging. That is not to suggest that EBP is unworkable. On the contrary, the notion of planning actions around clearly defined, desired effects, both physical and cognitive, as opposed to the practice of simply

²³ Bill Hayden, 'Only way out for US', in *The Australian*, August 25, 2005.

destroying targets, is self-evidently good. It *is* to suggest, however, that we need to be aware of EBP's complexities, and to proceed accordingly. At this early stage, two approaches to exploiting the technique appear credible, the one philosophical, the other practical.

The philosophical approach is simply to regard EBP as a state of mind, in which planned actions are invariably assessed within the ends-ways-means construct. In other words, all planning should start with a determination of the effects we require, and of those our actions are likely to generate, including subsidiary and unwanted consequences. Under this approach we can reasonably expect that we should start operations with a clearer idea of where we want to go, how we should get there, and what we should use, than would otherwise have been the case. Evidence from professional journals and curriculums within staff colleges suggests that, for advanced military forces at least, the merit of thinking in terms of effects rather than of destruction, or of seizing and holding ground, or of attrition, and so on, is already accepted as a given.²⁴ The approach was astutely summarised by the distinguished Austrian physicist and mathematician Ludwig Boltzmann (1844-1906): 'Quite apart from its intellectual mission, theory is the most practical thing conceivable'.

The practical approach is to continue to develop EBP through the relatively straightforward, and thus far fairly successful, application of the concept to strike operations, and to constantly evolve that technique through the exploitation of technology. That is, we should take things a step at a time, and continue to use applications whose immediate effects (in this instance, primarily kinetic) we can reasonably anticipate during the planning phase, and whose results (physical damage) we can reasonably expect to measure quickly after the event.

There is something of the 'build it and they will come' principle about this method, which seeks to leverage the ambiguous dynamic which has always characterised the relationship between theory and technology.²⁵ Does theory lead technology, or vice versa? Regardless of the answer we might favour, the relationship is symbiotic. In this instance, because of the inherent complexity of the 'theory' component of the dynamic, the thinking is that we should consciously let the 'technology' component take the lead. For example, an experienced USAF effects-based campaign planner has suggested that the data link is one existing technology that could be readily

²⁴ Even a cursory glance through the professional journals of almost any advanced defence force will reveal scores of articles discussing various aspects of effects-based operations; similarly, the curriculums of staff colleges routinely address the subject.

²⁵ The saying 'Build it and they will come' is from the 1989 motion picture 'Field of Dreams', itself an allegory for belief. An American farmer hears voices which he eventually realises are telling him to build a baseball diamond in his cornfields. He does so, and the ghosts of the 1919 Chicago White Sox baseball team (notorious for 'throwing' the World Series) appear on his 'field of dreams'.

adapted to enhance effects-based operations. Presently, conducting strikes and then measuring their effects usually involves two separate tasks, which are often separated by significant time delays. If data links were built into weapons, operational staff would be able immediately to measure (assess) the results of every weapon release, thereby enhancing their ability to control both desired and actual effects.²⁶

In short, the 'build it [the technology] and they will come [the theory]' approach to EBP minimises the complicating cognitive factors while exploiting the more manageable technical factors. Just as EBP as a mindset has become a given within many advanced defence forces, so too has the OODA cycle or 'loop'. The confluence is timely, because the application of the OODA process is fundamental to EBP.

Devised by the American strategist John Boyd, the Observation-Orientation-Decision-Action cycle represents a 'universal logic of conflict'. Simply put, Boyd argued that the protagonist who is the quicker to act intellectually and physically is likely to win. The OODA loop defines this competitive process.²⁷

As the loop indicates, we need first to observe our opponent - to assess what he is doing, and how. We must then orient ourselves to the prevailing circumstances: that is, we must assess what we know about our opponent and ourselves, including such things as experience, culture, support, geography, technologies, economics, alliances, firepower, desired/acceptable objectives (end-state), and so on. Having observed and oriented, we decide what to do; and, having made a decision, we act. Immediately we have acted, the OODA process recommences, as we observe our opponent to assess his response to our decision and action. We then reorient ourselves, and so on, until the particular decision/action contest is resolved, ideally in our favour.

Boyd regarded orientation as the most important phase of the process. Whereas poor orientation (understanding) is likely to lead to bad decisions, informed orientation is likely to produce good decisions and, therefore, superior actions. From that, it follows that our first responsibility must be to understand the strategic environment (the US-Iraq experience is instructive here, in a negative sense).

If 'orientation' is the intellectual core of Boyd's theory, then 'time' is the key to its application. Demonstrating elegantly simple logic, Boyd noted that time simply exists, that everyone has equal access to it, and that it does not have

²⁶ See G L Crowder, 'Targeting for Effects' *Jointness*, Proceedings of the 11th International Air Strategy Symposium, Republic of Korea Air Force, Daejeon, 2005, pp. 195-219.

²⁷ See fn. 6 above. For additional detail on Boyd's work (which took the form of extensive slide briefings), see <http://en.wikipedia.org/wiki/Military_Strategy_%28John_Boyd%29>; and <http://www.d-n-i.net/second_level/boyd_military.htm>.

to be transported, sustained or protected. In other words, time is a 'free good' which a skilful decision-maker should exploit and a less-skilful decision-maker is likely to squander. In particular, time will be the ally of the protagonist who is best able to compress the OODA cycle, who can repeat the loop faster and more accurately, and who can eventually 'get inside' his opponent's decision-making cycle and thus control the clash of wills. Only then, Boyd argued, is originality of thought and action likely to flourish, a necessary condition if we are to exploit non-linear thinking and asymmetries in our effort to 'find and revel in mismatches'.

There is a powerful linkage between EBP and the OODA process in general, and the orientation phase in particular. Given the difficulty of predicting and measuring effects, the constant application of the OODA cycle imposes logic and discipline on both the interpretation and the application of our planning. The end result is a process which seeks to exploit the conceptual strength of EBP while at the same time acknowledging its practical limitations.

Strategy with Style

The growing acknowledgment of EBP represents a significant shift of style in strategic thinking. Even as recently as the American war in Indochina (1962-1973) and the Iran-Iraq war (1980-1988), ostensibly intellectually and technologically well-prepared services joined battle with the primary objective of applying force-on-force, relying on mass and firepower, and winning through attrition. Such an approach is not only prohibitively expensive but also inherently self-limiting. EBP, by contrast, establishes a logic-flow between ends, ways and means at all levels of strategic thinking and conflict; breaks the illogical but widely practiced 'platforms-capabilities-effects' force development construct; facilitates the exploitation of dynamic ideas and technologies; and provides a security planning philosophy designed to meet the challenges of rapidly emerging threats and seize the opportunities of the information age. Effects-based planning offers a rare opportunity for those few nations capable of exploiting it.

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